

## Language, Science and Literature

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**Abstract:** The creativity of language Chomsky puts so much importance on must be questioned because the same creativity has produced lethal weapons such as atomic bombs. Modern science developed by the power of language has certainly produced many beneficial things, but we should not overlook its destructive side. Besides, language capable of inventing a new reality leads us to believe in it blindly. Let us remember philosophers such as Wittgenstein or Nagarjuna who warned us not to believe in the construct called "reality" made up by language power.–Now, is it better and safer then to use a metaphorical language that composes poetry than a conceptual one that composes science and mathematics? Not necessarily, for so long as metaphors evoke a sense of reality in us, it can be as dangerous as the conceptual one. The problem today is that the conceptual and logical language that supports science and technology is predominant over the metaphorical and poetical one. Even if Rousseau, Adorno and Horkheimer alarmed us of the danger, our history has advanced ignoring their alarms. Science and technology are making progress day by day, and no one is capable of checking their progress because no one sees what is really happening in there.–The wall between the "Two Cultures" is still there, but let us not forget the efforts of poetic scientists and scientific poets such as Kenji Miyazawa or Claude Lévi-Strauss, who try to diminish the gap. They surely help us to find a way out of the danger.

## Hitoshi OSHIMA

### Language, Science and Literature

In *The Little Prince* (*Le Petit Prince*, 1943), Antoine de Saint-Exupéry says "Language is the source of misunderstandings" ("Le langage est source de malentendus") (Saint-Exupéry 84). A fictional old sheriff in an American TV drama *Fargo* expresses his doubt about language asking himself "Conflict, war,.. doesn't it all come down to language?" (Hawley). Language does not seem to cause only "misunderstandings" but also "conflict," "war," violence.

Kazuo Okanoya, an animal linguist, affirms it, saying that language can even be lethal. In a dialogue with a novelist, he notes the following:

By language, we can accumulate the memory and advance civilization. Without it, we could not do it. With language, we can even fly a spaceship, developing a new science called radio astronomy that may help us find extraterrestrial beings. It is natural we look for them once we have language that enhances our intelligence.(...)Beings with high intelligence such as humans exist thanks to the immense power of language, but we can also cease to exist just because of that power. With language, we can discover the nuclear power to destroy ourselves. (Ogawa and Okanoya 69)

According to this, language is fatally dangerous because it is capable of producing horrible things such as nuclear weapons that can exterminate all existences on earth. Okanoya sees modern science and technology were born out of the power of language.

It is certain language has such a power that alters our surroundings, the world, "reality." This extraordinary power is supposed to have come from its narrow link to our capacity of conceiving things we have never seen. Without this extraordinary power, modern science would not have grown so extensive. It is the power of language that has enhanced our intelligence, and the enhanced intelligence has augmented the power of language in turn. Language gives reality to what we have never seen, even what we will never see. Atoms, subatomic particles, remotest galaxies, all these non-experienced matters are products of language. Mathematics and physics that enable us to fly to the Moon are also of language. Science is made of such words that may not correspond to concrete objects.

But however wonderful it might be, we cannot overlook the fact that it can produce fatal objects such as nuclear weapons. We cannot allow ourselves to be optimistic about its creativity. People like Noam Chomsky are too optimistic in the regard; they do not seem to see the consequences of language creativity. Chomsky's *Cartesian Linguistics* (1966) demonstrates his total reliance on the creative aspect of language. He criticizes modern linguists such as Leonard Bloomfield for regarding language as result of "analogy." For he says: Modern linguistics has also failed to deal with the Cartesian observations regarding human language in any serious way. Bloomfield, for example, (...) has nothing further to say about the problem beyond the remark that the speaker utters new forms "on the analogy of similar forms which he has heard" (Chomsky 65).

To him, paying so much attention to "analogy" as Bloomfield did ignores the creativity of language. In his view, it is thanks to the creative power of language that we humans think and invent. There is certainly a truth in Chomsky's conception of language. Language surely has that inventive aspect. However, we cannot overlook the danger that it can invent unreality leading us to believe it to be real. Language is able to make unknowable things known, to produce reality that is not real; it takes us to a world in which we are not sure where we are.

Steven Weinberg, a Nobel Prize winner in physics, is another optimist. He says celebratorily that "Scientific Revolution" that took place in the 17th century in Europe changed human destiny. He compares the marvelous development of modern science with the ancient Greek science to conclude that the latter was not "science" but "poetry" or poetic studies of Nature (Weinberg 12). He applauds the victory of modern science as a wonderful fruit of human mind liberated from all mythologies and religions.

The fundamental difference he points out between modern science and ancient studies of Nature lies in methodology. While none of the Greek attempted to "verify" or even to "justify" their speculations on Nature, modern scientists have always insisted on "verification" of their theories (14). The difference may also be attributed to the fact that the latter introduced mathematics in studies of Nature whereas the former did not. The following quotation is the words of Galileo Galilei (1564-1642), the Father of modern physics, that define the spirit of modern science: "Philosophy is written in that great book which ever lies before our eyes — I mean the universe — but we cannot understand it if we do not first learn the language and grasp the symbols, in which it is written. This book is written in the mathematical

language" (qtd. in Brutt 75). Since Galilei, the universe has become a book written in mathematics. The language to describe Nature has become conceptual and numeric, losing its metaphorical character, from which the split began between poetry and science.

Within modern physics, we perceive another change in language. Newton's language is not the same as Galilei's. Mathematics to the latter was mainly geometry whereas to the former, it was algebra containing Cartesian coordinate system that combined geometry with algebra, differential equations, etc. (Weinberg 271-364). The abovementioned Cartesian belief in the creative power of language was not only justified but also reinforced there. The "Scientific Revolution" Newton brought about was in correspondence with "Cartesian linguistics" that encouraged the logical, rational and inventive nature of language.

Against the modern rationalistic tendency, there existed those who gave more importance to other aspects of language. Jean-Jacques Rousseau (1712-78) was one of them. In his essay on the origin of languages (*Essai sur l'origine des langues*, 1781), he condemned the logical and rational aspect of language as degeneration; he was eager to defend the emotional part of language. Rousseau held a theory that humans "sang" before speaking, using "metaphors" instead of concepts (See Chapter III of the essay). However, his claim for the emotional essence of language could not alter the main course of history. As everyone knows, modern history has not stopped giving priority to the logico-rational aspect of language, the consequence of which is the triumph of science with literature becoming a kind of pastime.

Leaving the question of literature for a later discussion, let us review criticisms of language developed in the past. There have been philosophers who paid special attention to the question, among whom I mention two names: Ludwig Wittgenstein of 20th century Austria, and Nagarjuna of 2nd century India.

Wittgenstein at his first stage thought that for a sentence to have a meaning, it should "picture" facts (*Tractatus* 5-10). He shifted later to conclude that language is a "game" to play that does not have to correspond to any exterior reality (*Philosophical* 4-5). Apparently, he made a drastic change vis-à-vis language, although we can also perceive a constant warning on his part about the danger of the misuse of language.

As for Nagarjuna, he also discerned the danger in language use. In his case, he saw that language could easily misguide us to a pseudo-reality that we tend to believe to be real. Based on Buddhist thought, he put forward the idea that believing in language could make us unhappy because of the deviation it makes from the understanding of "emptiness" (*sunyata* in Sanskrit). In his *The Fundamental Verses on the Middle Way* (*Mūlamadhyama-kakārikā*), he tried to demonstrate the danger of language capable of deviating us from the world of mere phenomena into the illusory world we call "reality." To him, reality was nothing but a fiction, an illusion.

To understand what he meant, it is useful to know the Buddhist idea of "emptiness." There are many ways of explaining it, but here, I would just say that it is a sort of phenomenological view according to which no phenomenon is real, but empty, in other words, devoid of any intrinsic meaning. The Buddhist school to which Nagarjuna belonged was the one wishing to make a world happier by way of awareness of the "emptiness" of all phenomena. It considered sufferings as results from misguided perception and cognition mostly caused by the belief in language.

Nagarjuna criticized language for fear that it might consolidate people's illusion of reality. He saw a magical power in language to stop and fix a moving phenomenon as if this had been real and unchangeable. He considered language as the very source of such cognitive errors that necessarily lead to unhappiness. Some may think he criticized only the logico-rational aspect of language, not the metaphorical or poetical one. But his criticism must bear on all kinds of language. He could find the same problem in any language, metaphorical or conceptual. For there is no guarantee that a metaphorical language may be less harmful than a conceptual one because it is capable of evoking for us a reality on emotional level.

His reasoning was correct, I would say, because it is certain a metaphorical language tightly linked to emotion may provoke anger, hatred, even violence. Everyone knows there exists a literature full of metaphors that agitate people's emotion, running them to fight against their enemies and kill them. Undeniably, not only scientific language but also literary one can be lethal.

Now, Nagarjuna's criticism of language is expressed in words. One may wonder then if he was not in contradiction. If he distrusted language, why could he use language to express his ideas? The answer to the question is found in the following words of his: "The Buddha's teaching of the doctrine rests upon two categories of truths: truth based on worldly convention and truth from the highest point of view... Without relying upon worldly convention, the truth from the highest point of view cannot be taught" (Jones 24).

From the quotation, we see that he recognized the usefulness of language as a part of what he called "worldly convention." He found it useful because it worked for the communication of Buddha's teachings to people. This does not mean, however, he trusted language. He must have conceived it as a kind of "raft" with which you could cross a river and that you should abandon once you arrive at the other side of the river. The use of the word "raft" as a metaphor circulated among the Buddhists of his time. We can find it for example in the Pali Buddhist text book titled *Madhyama Agama* (Bingenheimer) edited earlier than Nararjuna's time. It taught that Buddha's teachings should be abandoned and forgotten, once captured. This sounds like a paradox, and it is indeed.

We should not confine it however to Buddhism or Eastern philosophy. We find a similar thought in the West, precisely in Wittgenstein's *Tractatus Logico-philosophicus* (1918). Toward the end of the book, the Austrian philosopher says as follows: "My propositions serve as elucidations in the following way: anyone who understands me eventually recognizes them as nonsensical, when he has used them –as steps– to climb up beyond them. (He must, so to speak, throw away the ladder after he has climbed up it)" (74). It seems Wittgenstein saw the same danger in language as Nagarjuna. After the exhaustive analysis of language, he did not forget to advise us to "throw away" all he had said.

People like Chomsky would reproach Nagarjuna and Wittgenstein for not seeing the creative aspect of language enough. Actually, he criticizes Wittgenstein's theory of "language game." The Indian philosopher would have said to the American linguist "The creativity of language you believe in is nothing but a delusion."

The criticism of language expressed by Nagarjuna and Wittgenstein teaches us not to take language for the indicator of the real or the true. From this perspective, we may suppose that scientific language can be more dangerous than literary one because it often pretends or is supposed to represent the truth of the world, macro or micro and that literary language can relatively be safer because except for some cases, it delimits its role to create the beautiful without pretending to indicate the true.

According to neuroscientists, human brains develop remarkably with the acquisition of language. The size of a human baby's pre-lingual brain is not very different from the one of an adult chimpanzee, but with the acquisition of language, it grows much bigger than the latter's. There are scientists who say the contrary. According to them, language emerged because of human brain structure and its evolution, which are different from other animals' (Vyshedskiy), but I would rather stay with the idea proposed by Dahaene, Duhamel, and Hauser, the authors of *From Monkey Brain to Human Brain* (2005), who assert that it is the birth of language that enhanced the brain size and its functions. Needless to say, brain development is related to the enhancement of intelligence that other animals do not have. If we have developed science and technology in a surprising way for the last 400 years, it is surely thanks to the intelligence enhanced by language.

Given that human beings have had language since the pre-historic times, one can wonder why it did not exert such an important influence on our mind before Modern Age. One of the best answers for it may be found in Henri Bergson's *Les Deux Sources de la Morale et la Religion* (1932). There the French philosopher says if humans created mythologies and religions that no rational mind could accept, it was in order to hinder the development of their logico-rational mind they instinctively felt as a danger (Bergson 112-113). This implies that Modern Age saw such a revolution in science that only the logico-rational mind is able to bring about, because people began to not give credit any longer to those fictions provided by mythologies or religions. In Modern Age, people prefer thinking logically and rationally, fearless of the danger that might come.

Now, if Modern Age has such a revolutionary character, it must affect literature deeply. As a matter of fact, literature in the modern times had to change in order to cope with the spread of scientific mind. Writers felt obliged to assimilate science to create a new literature, an example of which is naturalism. However, such attempts to incorporate science into modern literature seem to have had little success. It has not resulted in any synthesis of poetical science or scientific poetry; it has not succeeded in making a bridge between the "Two Cultures" (Snow 1959). Those of humanities have remained almost ignorant of science, and scientists read literature, if they do read, just for a pastime.

According to Roman Jakobson, language in modern literature has become too "metonymical" and less "metaphorical" because of the "Realistic" trend (111). Realism is doubtlessly a typical product of the Age of Science. As for Romanticism, Symbolism and Surrealism, these surely tried to go for the recovery of "the metaphor lost," but none of them could change the predominance of scientific language. Our age is definitely of science and prose, not of poetry.

Max Horkheimer and Theodore Adorno pointed out the danger of Modern Age dominated by science and technology. They did it from another perspective. Let us quote their words in the regard from their

unforgettable work: *Dialectic of Enlightenment* (1944): "The Enlightenment recognizes... only what can be apprehended in unity... Number became the canon of the Enlightenment. The same equations dominate bourgeois justice and commodity exchange. To the Enlightenment, that which does not reduce to numbers and ultimately to the one, becomes illusion; modern positivism writes it off as literature" (7).

It is certain the spirit of science consists in explaining the variety of material world in terms of one sole theory, an example of which is today's physics that is trying to find out a "unified theory" of all different forces existing in the universe (Mills). Adorno and Horkheimer saw a big danger in that tendency to reduce everything to "one." They attributed the tendency to Enlightenment, and went further to say that Enlightenment was to be "totalitarian" (6).

The essential problem of Modern Age they saw was the dogmatization of science and technology. In their view, Enlightenment supposed to bring about incessant autocriticism betrayed itself to become an ideology that did nothing but to justify and reinforce the established order and the State ideology. This corresponds to the fact that science and technology increasingly depend on the support of the State that draws the maximal benefit from them. Science is no more a knowing of the universe; it has become the very best tool for the military and economic growth of a nation.

The example Adorno and Horkheimer took to demonstrate the dogmatization of science and its language is striking. They took the notorious literature of Marquis de Sade who created a "proficient manipulator of the organ of rational thought" in the personage of Juliette (Adorno and Horkheimer 95). In *L'histoire de Juliette*, the authors of *Dialectic of Enlightenment* witnessed the heroine's belief in science and the dominance in her mind of the logico-rational over the metaphorical. To them, the whole text of Marquis de Sade was a textbook of how to manipulate pleasure "mathematically."

We recognized above the creative power of language to enhance our intelligence. This leads us to think it is language that makes us think creatively. However, Gerald Edelman, one of today's most eminent neuroscientists, sees that we humans do think creatively even without language. He says our pre-lingual brain thinks powerfully in "metaphor" as the following quotation shows:

We may conclude that selection is, in the generative sense, more powerful than logic. It is selection, natural and somatic, that gave rise to language and metaphor, and it is selection, not logic, that underlies pattern recognition and thinking in metaphorical terms. Thought is thus ultimately based on our bodily interactions and structure, and its powers are therefore limited to some degree. Our capacity for pattern recognition may nevertheless exceed the power to prove propositions by logical means. (Edelman 214)

By the term "metaphor," Edelman means "pattern recognition" of the world through the pre-logic "selection" of perceptions. Metaphor in his understanding is not a linguistic or literary skill, but a pre-lingual tool for thinking. He sees metaphor just like the authors of *Metaphors We Live By* (1980), George Lakoff and Mark Johnson.

Edelman does not deny that human brains enhance its enormous capacity with the acquisition of language. He does not deny either that language has enabled us to think in logical terms so that we could develop science and technology. However, he insists that the basis of human thinking is always "metaphorical." In his *Second Nature*, he even argues that early human thought proceeded by metaphor, which continues to be "a major source of imagination and creativity" in adult life even with "the late acquisition of precise means such as logic and mathematics" (58). This assumption of his invites us to be aware of the importance of establishing a narrow link between the pre-lingual and the lingual brains. Without such a link, we might not be able to preserve our creativity; nor could we keep our mind in good health. We need a bridge between the two brains.

Literary people like myself would say "Literature can be a bridge." Different from scientific language that is logical and mathematical, literary language is in fidelity to the pre-lingual brain that thinks in metaphor (Lakoff and Johnson 267). In my view, literature is a kind of feedback to human language that hastens to be logical. Situated between the metaphorical and the logical languages, it can work as a bridge between the two.

To justify the privileged position we would like to give to literature, we can rely on some contemporary scientific theories. Antonio Damasio's neuroscience, engaging with "emotion" and "feeling," is one of them. In *Descartes' Error* (1994), the neuroscientist from Portugal affirms that the body generates mental activities and that only highly developed emotions can generate rational thinking. In *The Feeling of What Happens* (2000), he explains the distinction he makes between "emotion" and "feeling" in the following manner. About emotions, he says:

Emotions are complicated collections of chemical and neural responses, forming a pattern; all emotions have some kind of regulatory role to play, leading in one way or another to the creation of circumstances advantageous to the organism exhibiting the phenomenon; emotions are *about* the life of an organism, its body to be precise, and their role is to assist the organism in maintaining life. (Damasio 51)

About "feeling," he says:

In organisms equipped to sense emotions, that is, to have feelings, emotions also have impact on mind, as they occur, in the here and now. But in organisms equipped with consciousness, that is, capable of knowing they have feelings, another level of regulation is reached. Consciousness allows feelings to be known and thus promotes the impact of emotion internally, allows emotion to permeate the thought process through the agency of feeling. (56)

"Emotion" in his understanding is an organism's non-conscious bodily reaction to external stimuli to maintain life. As for "feeling," he considers it as product of consciousness of "emotion." We may infer from this that to develop our thinking capacity, we need first to know our emotions, without which we would not be able to think duly.

Now, if our feelings result from consciousness of our emotions as he says, literature that is a verbal expression of our emotions must be helpful for us to develop that consciousness without which we would not be able to develop rational thinking. Let us imagine young children who have developed logical and scientific thinking alone without literary trainings. They would not be able to develop their rational thinking in a sane and creative way.

Damasio's theory of emotion and feeling is similar in certain respects to a theory proposed by Motoori Norinaga (1730-1801), a Japanese philologist of the 18th century. His main interest was how to breed our sense of "mono-no aware," that is "emotions evoked by things":

We think because we feel... We feel because we know emotions evoked by things. Knowing them moves us. For example, we feel happy when something happy happens to us because we know the emotion of happiness; we feel sad when something sad happens to us because we know the emotion of sadness. What is important for us is to know emotions. Otherwise, we would not feel anything. (Motoori 2: 99-100)

As the quotation shows, Motoori did not put importance on "emotions" but on "knowing" them. If you feel something, he thought it is because you already "know" the emotion.

In his view, knowing emotions was the first thing we humans have to do. In *Ashiwake Obune (A Small Boat Cutting Through the Reeds, 1757)*, he insisted on learning "poetry" ("uta" in Japanese that means "song") because it could teach us emotions through others' emotions. He also put importance on our experience of "falling in love." In his essay on *The Tale of Genji* titled *Shibun Yoryo (1763)*, he says the following: "When you are in love, you could experience different emotions, sometimes contradictory to one another so that you can really 'know' your emotions" (Motoori 4: 36). In my view, these words of Motoori's correspond perfectly to Damasio's theory. Born in different countries and periods, they both put importance upon "knowing" emotions.

Despite the claims put forward by some neuroscientists such as Edelman or Damasio, we see the walls between the "Two Cultures" have not been pulled down yet. We should not forget however the efforts made by some to bridge the gap. Kenji Miyazawa (1896-1933), a modern Japanese poet-scientist, is one; Claude Lévi-Strauss (1908-2009), the father of structural anthropology, another. The writings of both of them engage science as well as poetry to show us a new horizon.

Miyazawa is known in Japan as an author of stories for children. But to him, his works were not "literature" but just "sketches of mental images" out of which he wished to deepen a "scientific study on human mind." In one of his letters to a friend (February the 9th, 1925), he said as follows: "All I have written till today are far from poetry. They are nothing but rough sketches of mental phenomena recorded under different conditions, on different occasions. Those sketches, I hope, will offer a good material for my future studies of psychological science I have not enough time to dedicate myself to for the moment" (Miyazawa 2: 7).

It is clear that his enterprise was a kind of phenomenological studies of human mind. He used the term "psychology" because in his time, the works of William James, Wilhelm Wundt and Sigmund Freud were introduced to the Japanese and that he read some of them in translation. His interest in science was vast, and psychology was one of his favorites.

He considered himself a scientist, but he never studied science at any academic institution. His scientific knowledge was self-taught, and this explains, at least partly, why his vision of the universe was so different from the standard one held by most of the scientists of his time.

His vision is manifest in the prologue of his anthology *Haru to Shura (Spring and Ashura, 1924)*. It starts as follows:

A phenomenon called myself  
Is a blue illumination  
Of supposedly organic and alternating electric current  
(A complex of all the transparent ghosts) (Miyazawa 1: 7)

There, we notice that he viewed himself not only as a "phenomenon," but also as a light of "organic and alternating electric current." He must have borrowed the idea from electrophysiology of the time although there is an error in his understanding; the electric current running through a human body is not "alternate" but direct.

Despite the error, the use of the word "supposedly" in the quotation indicates his good understanding of the hypothetical nature of scientific theories as is shown by a recognized scientist in the following manner: "We hope human imagination will guess nature's wonderful, simple but very strange patterns so we can create mental models of how nature works. Humans excel at creating mental models of reality... These models are sometimes called *theories, hypothesis, or even laws of nature*. But model seems less pretentious" (Piccioni 94). Miyazawa saw thus that science was not truth but a supposition and a view on the universe.

But the last line of his words quoted above, put in parenthesis, remains puzzling. For the expression "a complex of all the transparent ghosts" sounds unscientific. The only way to understand him is to take into account the fact he was a passionate reader of Western spiritualists' essays (Miura). Very likely, he found in spiritualism a possibility to overcome the gap that separated science from religion. Indeed, how to reconcile the two was a question of capital importance to him. In one of his poems, he said "Religion is exhausted, is replaced by modern science/ And science remains dark and cold" (13: 10).

As for the apparently unscientific phrase, why did he use a parenthesis to put it in? We know that all through the anthology, whenever he needed to express an idea as an alternative, he used parenthesis to put it in. In the case of the "ghosts" in the quotation above, the parenthesis indicates therefore another way of viewing his self. He saw his self just as a phenomenon explainable in terms of science, but at the same time, he saw it as a complex of ghosts.

You may wonder what he meant by "ghosts." By the context, we see that he meant the universal consciousness accumulated from the remotest past up to his days at the bottom of human consciousness. You may say this is not scientific but rather a religious belief. But we have to remember that many hypotheses that led to scientific discoveries were born out of such a belief. John Dalton's discovery of atoms, for example, came out of his belief in the existence of invisible particles (Weinberg 65, 70). As many would admit, modern science has a metaphysical background without which it would not have developed as it did.

Returning to the question of religion and science, Miyazawa had hoped for the harmonious union of the two. Although these two were different from each other, he found them both valid as visions of the world and necessary for the future of humanity. His hope came out of the dissatisfaction and the disillusion he had of modern science as well as conventional religions. In his "Manifesto for Farmers' Arts" (Nomin Geijutsu Gairon Koryo, 1926), he expressed the aspiration in the following manner:

Our ancestors used to enjoy life even in poverty  
They had religion and arts  
Today, we only have labor just to survive  
Religion, exhausted, is replaced by modern science  
And science remains dark and cold  
Arts have left us and find themselves miserably degenerated  
(Miyazawa 13: 10)

His accusation of modern science for replacing religion without being able to give any answer to the ultimate questions of the universe sounds correct. He sought a new vision of the world in which religion, arts and science could make a unified system as is expressed in his words that follow the precedent quotation:

In the unity of positivism that supports modern science,  
Spiritual experiences of the religious, and our aesthetic intuition,  
Let us say  
"Our individual happiness would never be possible  
So long as the whole universe does not realize its happiness."



And listen carefully to this:

"Our consciousness will evolve  
From an individual self to a collective one,  
From a collective one to a social one, from a social one to a cosmic one."  
Isn't this the way the old saints showed and taught us?  
A new age is coming  
In which the whole universe becomes one consciousness,  
In which it becomes one living being. (Miyazawa 13: 9)

We have to take it in account now that Miyazawa's vision of the world was more connected to his knowledge of geology than other sciences. The following phrases belonging to the prologue of the anthology mentioned above show it:

It is possible these words supposed to be correctly copied  
During the accumulation of enormously illuminated period of time  
Belonging to Alluvium in Cenozoic Era  
Quickly change their structure and quality  
In a second of light and shade  
(or 1,000,000,000 years for Ashuras)  
And that we, the printer and myself,  
Continue to feel them unchangeable.  
Just as we perceive  
Things and people and sceneries through our senses  
And that we believe commonly in our perceptions  
We believe  
(Under the Law of Causality)  
In records, history, including geo-history  
Together with various data  
(Miyazawa 1: 9)

Obviously, Miyazawa conceived time, space and history, in a geological perspective and scale, which explains why his vision was so different from the one of most people of the time. To him, "one billion years" could be a second over which everything could change in form and quality.

We find a similar geological vision in Claude Lévi-Strauss, my second example for a thinker who tried to build up a synthesis of science and poetry. The following quotation from *Tristes Tropiques* (1955) shows clearly that he found inspirations in geological sites:

And sometimes the miracle happens. On one side and the other of a hidden crevice we find two green plants of different species. Each has chosen the soil which suits it; and we realize that within the rock are two ammonites one of which has involutions less complex than the other. We glimpse, that is to say, a difference of many thousands of years; time and space suddenly commingle; the living diversity of that moment juxtaposes one age and the other and perpetuates them. Thought and sensibility take on a new dimension, in which every drop of sweat, every movement of muscle, every quick-drawn breath becomes the symbol of a story; and, as my body reproduces the particular gait of that story, so does my mind embrace its meaning. I feel myself luxuriating in a state of heightened perception, in which Place and Period make themselves known to one another and have at last a common language in which to communicate. (Lévi-Strauss 61)

I would not say the French anthropologist's vision is exactly the same as Miyazawa's. But they shared a geological vision on time, space and history as well as the destiny of living creatures on earth. They equally conceived human existence on earth as a matter of a moment and the earth as a place susceptible to cataclysm at any moment.

Another point that unites them is sympathy with Buddha's teachings. There is no surprise with Miyazawa because he was a convinced Buddhist, but how could Lévi-Strauss, a man from Judeo-Christian civilization, have sympathy with Buddha? The best way to see it is to read what he said about Buddhism. Here is the passage of abovementioned *Tristes Tropiques* in which he acknowledged the teachings of the Indian "Sage" who meditated "at the foot of his tree" 2,500 years ago:

For what, after all, have I learnt from the masters I have listened to, the philosophers I have read, the societies I have investigated, and that very Science in which the West takes such a pride? Simply a fragmentary lesson or two which, if laid end to end, would reconstitute the meditations of the Sage at the foot of his tree. When we make an effort to understand, we destroy the object of our attachment, substituting another whose nature is quite different. That other object requires of us another effort, which in its turn

destroys the second object and substitutes a third and so on until we reach the only enduring Presence, which is that in which all distinction between meaning and the absence of meaning disappears: and it is from that Presence that we started in the first place. It is now two thousand five hundred years since men discovered and formulated these truths. Since then we have discovered nothing new unless it be that whenever we investigated what seemed to be a way out, we met with a further proof of the conclusions from which we had tried to escape.

Of course I am also aware of the dangers of a state of resignation that has been arrived at too hastily. This great religion of not-knowingness is not based upon our incapacity to understand. It bears witness, rather, to our natural gifts, raising us to the point at which we discover truth in the guise of the mutual exclusiveness of being and knowing. And, by a further audacity, it has achieved something that, elsewhere, only Marxism has brought off: it has reconciled the problem of metaphysics with the problem of human behavior. (Lévi-Strauss 395)

According to this, Lévi-Strauss saw that science and philosophy of the West made no more than a tiny part of Buddha's knowledge. He regarded Buddhism as "a great religion of not-knowingness" that "bears witness to our natural gifts, raising us to the point at which we discover truth in the guise of the mutual exclusiveness of being and knowing."

Now, the words "the mutual exclusiveness of being and knowing" demand further explanation. They mean either "you know but you are not" or "you are but you do not know." Cartesian cogito and all the philosophies based on "You know therefore you are" are totally denied there. The structural anthropologist recognized in Buddhism a possibility of "knowing without the knowing subject."

As for the relationship of Marxism to Buddhism, he established in the quotation, we could accept it partly, considering Buddha as an anti-metaphysical thinker like Marx. However, we could not overlook the fundamental difference between the two because Marx was a realist who believed in socio-historical reality and praxis whereas Buddha conceived any kind of reality as delusion.

Lévi-Strauss was a poet-scientist like Miyazawa; his language is both scientific and poetic like Miyazawa's. The already quoted sentences: "We glimpse, that is to say, a difference of many thousands of years; time and space suddenly commingle; the living diversity of that moment juxtaposes one age and the other and perpetuates them," for example, make a sublime poem of the author's geological experience; it narrates a story of a human body working in close relation with the palpitation of Nature. The sentences "Thought and sensibility take on a new dimension, in which every drop of sweat, every movement of muscle, every quick-drawn breath becomes the symbol of a story" makes a beautiful story of one's body feeling and searching for the deep meaning of the universe.

Another example of his poetic science is found in the quotation below:

The world began without the human race and it will end without it. The institutions, manners, and customs which I shall have spent my life in cataloguing and trying to understand are an ephemeral efflorescence of a creative process in relation to which they are meaningless, unless it be that they allow humanity to play its destined role. That role does not, however, assign to our race a position of independence. Nor, even if Man himself is condemned, are his vain efforts directed towards the arresting of a universal process of decline. Far from it: his role is itself a machine, brought perhaps to a greater point of perfection than any other, whose activity hastens the disintegration of an initial order and precipitates a powerfully organized Matter towards a condition of inertia which grows ever greater and will one day prove definitive. From the day when he first learned how to breathe and how to keep himself alive, through the discovery of fire and right up to the invention of the atomic and thermonuclear devices of the present day, Man has never save only when he reproduces himself done other than cheerfully dismantle million upon million of structures and reduce their elements to a state in which they can no longer be reintegrated. No doubt he has built cities and brought the soil to fruition; but if we examine these activities closely we shall find that they also are inertia producing machines, whose scale and speed of action are infinitely greater than the amount of organization implied in them. As for the creations of the human mind, they are meaningful only in relation to that mind and will fall into nothingness as soon as it ceases to exist. Taken as a whole, therefore, civilization can be described as a prodigiously complicated mechanism: tempting as it would be to regard it as our universe as best hope of survival, its true function is to produce what physicists call entropy... (Lévi-Strauss 398)

Here again, a vision of the universe is expressed poetically under the influence of his knowledge of geology and other sciences such as thermodynamics, the main notion of which, "entropy," may correspond to Buddhist idea of the universal impermanence. Just as he tried to show "la pensée sauvage" as a highly logical thinking and logic as a sophisticated form of the so-called "primitive" mind (1962), he tried to show that science is a poetry and poetry is a science.

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