

Colloque *La nature pense-t-elle ?* / 自然は考えているのか
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Does nature think evolution ?

自然は進化を考えているのか/La nature pense-t-elle l'évolution ?
by Augustin Berque

Abstract – While, on account of the number of possible protein combinations, Neo-Darwinism is mathematically unable to explain evolution through the sole mechanistic alternative of randomness (mutation) and necessity (natural selection and statistical laws), Imanishi Kinji's antidarwinism is equally unable to explain evolution, if not by invoking a mysterious "course" followed by the species as such. One relates these two antithetic theories to, respectively, the Aristotelian logic of the identity of the subject and the Nishidian logic of the identity of the predicate, and, through a sublation of these two logics into trajectory chains, proposes a mesological interpretation of the problem of evolution, implying a certain subjecthood of nature itself.

I. Élisée Reclus (1830-1905) once wrote, in *L'Homme et la Terre* (*Man and the Earth*, 1905), that "Man is nature becoming conscious of itself". If we follow him, and inasmuch we can assimilate thinking and consciousness, then we have the answer to the question "Does nature think?": looking at each other shall be enough. However, reaching right now such a conclusion might be shortish for an international symposium. A lot of questions remain in abeyance. First, it may be that humankind is an expression of nature's consciousness, but can any of us pretend to know what it would be about? I personally cant. My own individual consciousness, on this specific point, is totally submerged within humanity's collective unconscious, to say it in the Western way, or deep consciousness (*shinsô ishiki* 深層意識), to say it in the Eastern way. And even if I could feel nature's consciousness in my own infinitesimal one, I certainly would not find the words to say it – just like Tao Yuanming¹ (365-427) facing Mount Lu in that famous evening glow of Yixi XII of the Eastern Jin (417):

此中有真意 *Ci zhong you zhen yi* Therein is true meaning
欲辯已忘言 *Yu bian yi wang yan* I would say it, but I have forgotten speech²

because, I surmise, nature's consciousness may have much to do with what Laozi (c. -570/-490) called the Way (*Dao* 道), and as written on the first line of the *Laozi*, "The Way which one can say is not the permanent Way" (*Dao ke dao fei chang Dao* 道可道非常道)³. Indeed, as the same *Laozi* writes further, "Man follows the Earth, the Earth follows the Sky, the Sky follows the Way, the Way follows itself so" (*Ren fa Di, Di fa Tian, Tian fa Dao, Dao fa ziran* 人法地、地法天、天法道、道法自然)⁴. Then, in order to say where that permanent Way is tending to, you should first know what the sky is tending to, and even before that, where the Earth is tending to. True, some people do have a certain idea about where the Earth is tending to (viz., the Sixth Mass Extinction of life on this planet – including ours, of course), but this

¹ In the present text, East Asian names are written in their normal order, patronymic first : TAO Yuanming (not Yuanming TAO), IMANISHI Kinji (not Kinji IMANISHI), etc.

² 飲酒其五 *Yinjiu 5*, ed. by MATSUEDA Shigeo and WADA Takeshi, *Tô Enmei zenshû*, Tokyo: Iwanami bunko, 1990, vol. I, p. 209. 日本語訳「この自然の中にこそ、人間のありうべき姿があるように思われる。しかし、それを説明しようとしたとたん、言葉などを忘れてしまった。」

³ 日本語訳「道が語りうるものであれば、それは不変の道ではない。」

⁴ *Laozi (Rôshi)*, 25, ed. by OGAWA Kanju, Tokyo, Chuôkôron, 1973, p. 53. 日本語訳「人は地を規範とし、地は天を規範とし、天は道を規範とし、道は自然を規範とする。」

does not suppose that the Earth is conscious of it, and anyhow, the majority of humankind obviously doesn't either seem conscious about that event. So much the more about the permanent Way, if one could say...

II. Yet, it is common knowledge that, to-day, the adverb 自然 (cn *ziran*, jp *shizen*), “self-so”, is understood as an equivalent for “nature”, e. g. in 自然科学 (jp *shizen kagaku*), “the natural sciences”, which make nature an object to be observed, in the modern fashion. The problem is that an adverb is not a substantive; it is a way to be or do something, here precisely *the* Way. What the *Laozi* writes is that the Way follows itself in its own way, *fa ziran* 法自然. Obviously, arises the question of what or who is that “self” (*zi* 自). Understood in the modern fashion, it can only be nature itself, i.e. an object which we have to observe and potentially understand ; but originally, this is far from evident. Take for example these two verses of Tao Yuanming:

久在樊籠裏	<i>Jiu zai fanlong li</i>	I remained in a cage for a long time
復得返自然	<i>Fu de fan ziran</i>	Once again I can recover authenticity ⁵

This is about Tao Yuanming's second return to the countryside, after giving up definitively city life and career, that is, unnaturalness. Here, 自然 *ziran* is clearly ambivalent: it means both “nature” and “my nature”, in a cosmic authenticity where these two aspects cannot be dissociated. *Zi* 自 is at the same time the “self” of the Way, and that of the poet himself.

If so, then, Tao Yuanming should be able to feel nature's own feelings, and even nature's true meaning or intention, *zhen yi* 真意 ; but the problem is that the very fact of feeling it in the evening glow makes him forget speech. The proper way – the “self-so” – of nature, it seems, remains beyond words.

III. This certainly does not satisfactorily answer the question “Does nature think ?”, since we precisely are here for *talking* together – colloquying – about nature's way of thinking, if it does think. We need words for that. Yet we must be aware that, as Wittgenstein warned us, words are not what they are about: “I can only *name* the objects. Signs represent them. I can only talk *about* them, I cannot *pronounce* them. A sentence can only say *how* a thing is, not *what* it is” (*Die Gegenstände kann ich nur nennen. Zeichen vertreten sie. Ich kann nur von ihnen sprechen, sie aussprechen kann ich nicht. Ein Satz kann nur sagen, wie ein Ding ist, nicht was es ist*)⁶.

This means that nature's way of thinking – the subject S we are talking about – cannot be grasped in itself (S), but only as a predicate P – what we say about S. This amounts to the formula S/P, which reads “S as P”. Needless to say, P is a human way to grasp S. If we cling to dualism in the modern Western fashion, it is not natural but cultural, or artificial. But what if humans were “nature becoming conscious of itself”? Or if our own respective authenticity and that of nature itself were molten into one and the same cosmic harmony, like in that evening glow on Mount Lu, in Yixi XII of the Eastern Jin?

IV. I shall not here ponder over such an alternative between dualism and monism, because I precisely consider that it is not an alternative. Both aspects, though contradictory, are true at the same time. Nature is both an object outside us, and a subject inside us. To put it in other

⁵ Excerpt from *Back to the countryside*, p. 96 in Matsueda and Wada 1990, vol. 1, p. 96.

⁶ Ludwig WITTGENSTEIN, *Tractatus logico-philosophicus*, Frankfurt-am-Main : Suhrkamp Verlag, 2003 (1921), p. 20. Italics (becoming romans in my quotation in italics) by Wittgenstein.

words, both Galileo and Husserl were right when the latter wrote, in 1934, *Die Ur-Arche Erde bewegt sich nicht* (The archae-originary Earth does not move), and the former, in 1636, mumbled *Eppur, si muove* (And yet, it moves).

This is not only a question of relative mass (Husserl's being negligible as compared with that of planet Earth, viz. 6×10^{24} kilograms). It means that *reality is both physical and phenomenal at the same time*. We do not have to choose between either the first or the second aspect, because both are true, since, objectively, we exist as subjects within a world which, objectively, also exists as an object; what we have to do instead is to understand how the first and the second aspect are onto/logically – both logically and ontologically – engaged in each other.

For doing so, we have to understand what Plato, in the *Timaeus*, meant when he wrote that the “territory” (*chôra*) of relative being (*genesis*) was of a “third and other gender” (*triton allo genos*, 48e3) – other than relative being and true Being (*ontôs on*). Plato himself gave up trying to understand that third gender and define rationally what the *chôra* could be. He only figured it out with metaphors, which, moreover, are contradictory, since he compares the *chôra* with both a matrix (a “mother”, *mêtêr*, 50d2, and a “nurse”, *tithênê*, 52d4) and an imprint (*ekmageion*, 50c1) of relative being. He concluded from that contradiction that the *chôra* is like a dream (*oneiropoloumen blepontes*, 52b3), and belongs to a “sort of bastard reasoning” (*logismô tini nothô*, 52b2).

The question remained unsolved until the XXth century, when mesology (*Umweltlehre* in Uexküll's sense and *fûdorôn* 風土論 in Watsuji's sense) made clear that *chôra* was the ancestor of the notion of *milieu* (*Umwelt*, *fûdo* 風土) – to be distinguished from that of *environment* (*Umgebung*, *shizen kankyô* 自然環境) since, being ontologically between the object and the subject, substance and accident, and logically both subject and predicate, its “third and other” onto/logical gender is *trajection* (*tsûtaika* 通態化)⁷; whereas the environment, as the object of a modern science (ecology), is supposed to be objective.

V. According to a recent glossary of mesology⁸, “trajection” basically means two things: “1. to and fro motion of reality between the two theoretical poles of the subject and the object: *reality belongs neither only to the object, nor only to the subject; belonging to the trajection of both, it is trajective*. 2. assumption of S as P, synonym of ek-sistence: *in the IVth century, in Southern China, occurred a trajection of mountain waters (shan shui 山水) as landscape (shanshui 山水)*”.

This amounts to the formula $r = S/P$, which reads : “reality is S as P”.

VI. In that sense, trajection is akin to what Heidegger, in his seminar of 1929-1930, called *als-Struktur*, “the structure of ‘as’”⁹. It is the movement which makes something exist as something, *etwas als etwas*. A few years later, in *The Origin of the work of art*, Heidegger called this movement a “dispute” (*Streit*) between “world” (*die Welt*) and “earth” (*die Erde*). Here, *die Erde* can be assimilated to S, and *die Welt* to P. The *Streit*, then, might be understood as the trajection of S to P, producing a reality S/P. In that movement, *die Erde* (*the*

⁷ See Augustin BERQUE, *Écoumène. Introduction à l'étude des milieux humains*, Paris : Belin, 2000 (中山元訳『風土学序説』, 東京 : 筑摩, 2002), *La mésologie, pourquoi et pour quoi faire*, Nanterre, Presses universitaires de Paris-Ouest, 2014 (木岡信夫訳『風土学はなぜ、何のために』関西大学出版部, 2019), *Poétique de la Terre. Histoire naturelle et histoire humaine, essai de mésologie*, Paris : Belin, 2014 (transl. by Anne-Marie Feenberg, *Poetics of the Earth*, London : Routledge, 2019).

⁸ Augustin BERQUE, *Glossaire de mésologie*, Bastia : Éoliennes, 2018, p. 41.

⁹ Martin HEIDEGGER, *Die Grundbegriffe der Metaphysik. Welt – Endlichkeit – Einsamkeit (The fundamental concepts of metaphysics. World, finitude, solitude)*, Frankfurt am Main: Klostermann, 1983, § 71.

Earth = the virtually universal *hupokeimenon* S = as for mesology, Galileo's planet Sol III) becomes *eine Erde* (an earth = a particular reality S/P = as for mesology, Husserl's archae-originary earth, i.e. a certain country or *Heimat*)¹⁰.

VII. One should notice that trajection does not only relate S to P. It necessarily supposes a certain being who, embodying the *existential operator* "as" (= the slash "/" in the relation "S/P"), is that which *interprets* S as P. This is to say that trajectivity is not an abstract binary structure (S-P); it is a *concrete ternary structure* (S-I-P, which reads "S is P for I").

VIII. Moreover, trajection is not only a structure; it is first of all a *process*, in which new circumstances and new interpreters indefinitely add new predicates P', P'', P''' etc. to a supposedly original S/P. This process, which is called *trajective chain*, may be represented with the formula (((S/P)/P')/P'')/P'''... and so on. This formula shows that, indefinitely, S/P is placed in the position of an S' relatively to P', then (S/P)/P' in the position of an S'' relatively to S'', and so on : S/P → S'/P' → S''/P'' → S'''/P''' etc.

IX. In other words, in a trajective chain, that which is P in a former link of the chain becomes S in a latter link of the chain. Now, knowing that the relation between subject and predicate in logic correspond to the relation between substance and accident in metaphysics, this means that the component P of the relation S/P is indefinitely hypostatized (substantialized) into S. In the course of history, it becomes substantial.

We reach here the node of the question "Does nature think evolution?", since what is "the course of history" at a certain time scale is nothing else than what is, at another time scale, the course of evolution. Onto/logically, both are a trajection¹¹. But biologically, does this substantialization of P into S really produce new phenotypes ?

X. In Aristotle's logic of the identity of the subject as well as in Nishida's logic of the identity of the predicate (*jutsugo no ronri* 述語の論理)¹², the predicate is considered to be unsubstantial. Yet the two logics are antithetic for the following reason. For Aristotle, the predicate is unsubstantial because it supposes a substantial subject in order to be predicated from it, that is in order to exist. This is to say that what preexists and subsists is the subject (*to hupokeimenon* = *substantia* = that which lies under, and founds reality). On the contrary, for Nishida, the predicate or nothingness (*mu* 無) is not only relative (*sôtai mu* 相對無) since it negates being (*u* 有), it is absolute (*zettai mu* 絶対無) since it also negates itself, thus producing being. In that sense, it may be said that it is the predicate which preexists and subsists.

In a word, Nishida's logic of the predicate (hereafter *lgP*) is purely phenomenal. It is the *way* things appear to be, but without any substantial base (*mukitei* 無基底). Needless to say, this view owes much to Buddhism. On the contrary, Aristotle's logic of the subject (hereafter *lgS*), as its very vocabulary shows, is substantial. The difference between *lgP* and *lgS* amounts to that between Husserl's Earth (which does not move) and that of Galileo's (which moves) (see above, IV). Needless to say, it is *lgS*, not *lgP*, which has founded modern science, since the logician's "subject" is nothing else than the physicist's "object" (i.e. that which the matter is about).

¹⁰ I have detailed this interpretation in "La cosmophonie des réalités géographiques", *Cahiers de géographie du Québec*, vol. 60, 2017, n° 171, p. 517-530.

¹¹ This is what I have tried to show in *Poetics of the Earth*, *op. cit.*

¹² Also called "logic of place" (*basho no ronri* 場所の論理). On this question, see A. BERQUE (ed.) *Logique du lieu et dépassement de la modernité (Logic of place and the overcoming of modernity)*, Brussels : Ousia, 2000, 2 vol.

Once again, is this an alternative? No, as we shall see.

XI. In strictly logical terms, both lgS and lgP are absurd. As John Stuart Mill (1806-1873) already remarked, in Aristotle's classical syllogism:

(1) Major premise: All men are mortal;

(2) Minor premise: Socrates is a man;

(3) Conclusion: Socrates is mortal,

you have to know the conclusion (3) before you can pose the major premise (1). This means that you do not infer from the general (1) to the particular (3), as the syllogism is supposed to, but from past particulars (1) to a present particular (3)¹³. In other words, deduction in that case does not proceed from the identity of S (the major premise: all men), supposed to contain s (the minor premise: Socrates), but from the mundane experience of empirical reality (S/P).

As for lgP, the turn from relative nothingness (which negates being) to absolute nothingness (which negates itself) is not rational – rationality would suppose only a infinite regression of being – ; it is a mystical leap, which, as Nishida explicitly does, absolutizes the predicate, as any religion does indeed, but not reason.

At the origin, for absolutizing either S or P, both lgS and lgP operate a mystical leap: that which, in the West, absolutized Being and *logos*, and that which, in the East, absolutized nothingness and *dharma*. A perfect example of the former is given in Saint John's gospel, where the *logos* is assimilated with God; and a no less perfect example of the latter is that, in Buddhism, *dharma* means both the phenomena and Buddha's teachings.

XII. On the other hand, mesology absolutizes neither S nor P. P cannot be absolute because it supposes S in order to be predicated from it; and S cannot be absolute because the very fact of grasping it makes it exist as something (S/P); that is, reality can never be purely objective, it is necessarily trajective. This is not only a metaphysical assertion; physics itself has experimentally proved this fact in the XXth century, making Heisenberg write, for example, that nature cannot anymore be a pure object for the exact sciences of our time, since depending on the method, the object is modified¹⁴. In other words, S can only be grasped as S/P. For instance, depending on the experimental device, a same particle S will exist (*ek-sist* out of the device) either as a corpuscle (S/P) or as a wave (S/P').

XIII. The same trajection is at work in biological as well as in human realities. In biological terms, Uexküll¹⁵ (1864-1944) has experimentally proved that a same object S, depending on the species concerned, will exist as different things S/P, S/P', S/P'' etc. For example, a same tuft of grass may exist as food for a cow, as an obstacle for an ant, as a shelter for a beetle, etc. In geography, Vidal de la Blache's (1845-1918) "possibilism" had shown the same trajectiveness of reality: in a same environment S, according to the society concerned, different ways of living (*genres de vie*) S/P, S/P', S/P'' etc. can historically be developed¹⁶.

XIV. This trajectiveness of reality concerns directly the question of evolution, and particularly Imanishi Kinji's (1902-1992) opposition to Darwinism. Already in *Seibutsu no sekai* (*The world of living beings*, 1941), his first book, and throughout his works, he used a formula which amounts to trajection: *subjectivation of the environment, environmentalization of the*

¹³ On this question, see David BLOOR, *Knowledge and social imagery*, London: Routledge, 1976, chap. VII.

¹⁴ Werner HEISENBERG, *La nature dans la physique contemporaine* (*Das Naturbild der heutigen Physik*, 1955), Paris : Gallimard, 1962, p. 33-34.

¹⁵ Jakob von UEXKÜLL, *Streifzüge durch die Umwelten von Tieren und Menschen. Bedeutungslehre*, Hamburg: Rowohlt, 1965 (1934).

¹⁶ Paul VIDAL DE LA BLACHE, *Principes de géographie humaine*, Paris : Utz, 1995 (1922).

subject (*kankyô no shutaika, shutai no kankyôka* 環境の主体化、主体の環境化). Here, all living beings are considered as subjects (*shutai* 主体), which is the principle of Uexküll's and Watsuji's (1889-1960) mesology, though Imanishi does not mention these two predecessors and does not use their concepts, the term *mesology* to begin with (in Japanese *kansekaigaku* 環世界学 for translating Uexküll's *Umweltlehre*, and *fûdogaku* 風土学 or *fûdoron* 風土論 in Watsuji's case). He does not speak of milieu, but only of environment (*kankyô* 環境).

Be it as it may, Imanishi's basic problematics is close to that of mesology (and, for that matter, to that of Vidal's human geography) in that he rejects a mere environmental determinism, since living beings actively interpret the environment in a specific way, entailing a retroactive effect on the species itself. Imanishi uses a special concept for that: *sumiwake* 棲み分け, which is generally rendered with *habitat segregation*, but which means much more. By choosing subjectively its habitat, a species environmentalizes itself, and consequently will evolve in a certain way. This is not a mere one-way (from the environment to the species) Darwinian natural selection; it is a reciprocal determination of both terms, the environment and the species, in what is in fact a trajectory chain.

XV. Imanishi criticized Darwinism in numerous books, to end in 1980 with *Shutaisei no shinkaron*¹⁷. As soon as in *Seibutsu no sekai*, he underlined that Darwin derived his theory of natural selection from the observation of the selection of domestic animals, which is artificial and, as such, cannot represent natural processes. A similar criticism was recently addressed by Karsenti: Darwin relied excessively on

“the results of stockbreeders, who created varieties of horses, dogs and other animals, by choosing those which had the most favourable characters, in order to do what the selector *wanted*. For example, a horse able to run faster. The problem is that nature *does not want* anything (...) What Darwin called ‘natural selection’ is no more than a contingency (...) the so-called ‘natural selection’ is not THE motor of ‘evolution’ ”¹⁸.

XVI. Many authors indeed have judged that natural selection is rather a stabilizing factor and cannot, as such, explain evolution. Reichholf, for example, is one of those who deem that a two-way exchange between the organism and the environment, i.e. metabolism, should rather be considered. He thinks that this would reduce the role of pure randomness (mutation) in evolutionary changes¹⁹. Randomness indeed is a big question. In fact, Neo-Darwinism is mathematically unable to explain evolution through the sole mechanistic alternative of randomness and necessity (natural selection and statistical laws):

“The molecules responsible for almost all biological functions, enzymes, are proteins, that is chains of at least a hundred amino-acids put together. Natural proteins use about a score of amino-acids. There are at least 10^{130} possibilities of different proteins. Suppose that each atom of the observable Universe (there are about 10^{80}) is a computer, and that each of these enumerates a trillion combinations per second – which exceeds the present capacity of computers. One would need one thousand and twenty one times the age of the Universe to end the task of enumeration. Now, only a minuscule fraction of these possibilities is compatible with life as we know it. The Universe is thus much too young for that process to have been a mere mechanism of random tries systematically exploring the totality of possibilities”²⁰.

¹⁷ Trad. par Augustin Berque *La liberté dans l'évolution. Le vivant comme sujet*, Marseille : Wildproject, 2017.

¹⁸ Éric KARSENTI, *Aux sources de la vie*, Paris : Flammarion, 2018, p. 280. Karsenti was the organizer of the Tara Oceans expeditions, which have sometimes been compared with the famous voyage of the Beagle.

¹⁹ Josef REICHHOLF, *L'émancipation de la vie*, Paris, Flammarion, 2009 (*Der schöpferische Impuls*, 1992), p. 199.

²⁰ Hervé ZWIRN, “Énumérer la vie”, *La Recherche*, 365 (juin 2003), p. 104.

XVII. Then, if one excepts mystical interpretations such as “intelligent design”, how can we explain evolution? Imanishi, who in his youth was a fervent reader of Nishida’s books, apparently adapted his logic of the predicate to the question. To Nishida’s assumption that

“Any thing determines itself without base, which means that it holds itself in its own self-determination (*jiko gentei sono mono ni oite jiko jishin wo motsu*)”²¹

corresponds Imanishi’s theory that the evolution of species is not the result of an addition of individual changes (those of the organisms, according to the Darwinian orthodoxy), but that it is the species itself which changes as a whole. Even an admirer of Imanishi’s paradigm shift in primatology such as Frans de Waal qualified this theory as “murky ideas”²², and Imanishi himself, until the end of his life, could not bring forth any evidence which might justify it. His last argument, in *Shutaisei no shinkaron*, was that change happens just because it “has to”:

“On the long run, the species transforms itself from itself (*mizukara* 自ら) and spontaneously (*onozukara* 自ずから) into a new species. Consequently, the origin of species is in the species, not in the individual. (...) [Just as] ‘if the baby stood up, it is because it had to’ (*tatsu beku shite tatta*), evolution evolved because it had to (*kawaru beku shite kawatta*). To say that it changes because it has to, is to see evolution no more from a mechanistic point of view, but as a course (*kôsu* コース)”²³.

Now, is “course” an explanation?

XVIII. Imanishi himself did not clarify what he meant with that word “course”. In Japanese, it has about the same acceptations as in the original English, but in the present case, it probably implies the idea of path dependence, that is to say history. History, at the time scale of evolution, is evolution itself, “self-so” (自然 *onozukara shikari*).

Now, if we have in mind that Imanishi’s general point of view was akin to that of mesology (see above, XIV), we may apply to this idea of “course” the concept of trajective chain (VIII, IX). In such a light, Imanishi’s central concept, *sumiwake* 棲み分け, takes the very strong meaning of *ecospeciation*; that is, the concerned species will evolve in interdependence with the habitat it has chosen collectively, as what Imanishi calls *shushakai* 種社会 and deems to be endowed with subjecthood (*shutaisei* 主体性). Imanishi himself translated it with *specia*, but I prefer to render it with *speciety*, a synthesis of *species* and *society* which makes possible to apply to the question of species several decisive sociological concepts, those of *collective identity* and of *class consciousness* (here becoming *species consciousness*) in the first place.

XIX. Needless to say, such concepts are inthinkable in the reigning (especially in the Anglosphere) orthodoxy of methodological individualism. As Mrs Thatcher put it, “There is no such thing as society”; and so much the more, might she have added, no such thing as speciety!

This in fact is a very old question, going back to Aristotle’s disagreement with Plato’s conception of absolute and relative being, the latter (*genesis*) being a mere projection of the former (*eidos* or *idea*), which is true Being (*ontôs on*). For Aristotle, on the contrary, general

²¹ Nishida Kitarô *Zenshû* (Complete works of Nishida), Tokyo : Iwanami, 1966, vol. XI, p. 390.

²² Frans DE WAAL, *The Ape and the sushi master*, New York : Basic Books, 2001, p. 115.

²³ *Shutaisei no shinkaron*, Tokyo : Chûdôkôron, 1980, p. 202 and 204 (trad. par A. Berque *La Liberté dans l’évolution. Le vivant comme sujet*, Marseille : Wildproject, 2015).

ideas are only predicates of real substances (*ousiai*). In the Middle Ages, this disagreement became the quarrel of the universals, in which Plato's followers, called "realists" because they believed that the universals (general notions) really existed, were opposed by the "nominalists", who believed that the universals (e. g. "humankind") were only names, whereas real beings were singular (e. g. "Socrates").

The position of Neo-Darwinism is clearly nominalist. It amounts to saying that what exists is only individual organisms, not species; and the fact is that it reasons in terms of *populations* (i. e. statistical additions of organisms), not of *species*. Yet, as we have just seen (XVI), this position cannot explain evolution.

XX. Now, in trajectory chains, as we have seen (IX), indefinitely, S is assumed as P, and P hypostatized into S'. What consciousness a species (S) may have of itself – i.e. its speciety – being in predicate P position toward its own being (i.e. reflexively), this entails that, in the course of time, P will be hypostatized into a certain change of the species itself (S'). This is to say that in the course of time, speciety entails a new species.

XIX. This is not to say that Imanishi's Nishidian vision was altogether valid. Indeed, this vision amounts to absolutizing lgP, which, as we have seen (XI), is not only logically absurd, but ignores the role of individual changes. In fact, in the trajectory chain of evolution as in any reality, the universal and the singular are intertwined and suppose each other. Actual singular entities (S/P) – here individual organisms – suppose virtually universal substances (S) and unsubstances (P) – here the species (S) and its speciety (P) – in order to be actualised; and reciprocally, the species supposes its individual members in order to exist.

XX. The above mesological interpretation of evolution amounts to solving the old quarrel of the universals with the concept of trajectory chains. Yet, do we have any biological evidence that such chains do exist?

XXI. Involving interpretation (S is interpreted as P by a certain being I), trajectory chains suppose the subjecthood or self-awareness (*jikaku* 自覚) of the concerned living being. For the modern-classic Western paradigm, subjecthood is limited to the individual *cogito* and her/his fellow creatures (humans in general). Though its correlate, methodological individualism, has come to admit that non-humans also may be endowed with subjecthood, it hardly conceives of collective subjecthood.

This is not the position of mesology, since trajectory entails what Watsuji called *fūdōsei* 風土性 (mediance) and defined as "the structural moment of human existence" (*ningen sonzai no kōzō keiki* 人間存在の構造契機). Mediance corresponds to what Uexküll called *Gegengefüge*, the reciprocal fitting of the animal – or the living in general – and its milieu. All living beings, and especially humans, being endowed with subjecthood, the trajectory (S/P) of their respective milieux entails that these milieux also are, to some degree, endowed with their subjecthood.

This is what Imanishi called "subjectivation of the environment" (*kankyō no shutaika* 環境の主体化). We must be careful not to confuse this trajectory with a mere dualistic projection of individual subjectiveness on a purely objective environment. Onto/logically, it is the process through which *die Erde* becomes *eine Erde*, that is a proper country (*Heimat*), or the *ecospeciation* (*sumiwake* 棲み分け) by dint of which species can evolve in mediance with their respective territories – or, to put it back in Plato's words, *genesis* (the becoming of relative being) can occur in mediance with its *chōra*.

XXII. Now, as Watsuji made clear by titling *Fûdo (Milieu)* “a study of the human interlink” (*ningengakuteki kôsatsu* 人間学的考察), mediance is not only the relationship of human societies with their milieu. It supposes the interlink (*aida* 間 or *aidagara* 間柄) between human individuals (*hito* 人) themselves, i.e. that social body (*corps social*) or set of technical and symbolic collective systems which, as Leroi-Gourhan has shown²⁴, evolutionarily externalized and developed certain functions of the individual animal body into such systems. For instance, the function of an individual primate’s nails scraping the soil in search for ants was externalized and developed into that of collective pebble cultures, and by now into that of Hayabusa-2 (« Falcon-2 ») scraping for a sample of dust on asteroid Ryûgû (« Palace of the Dragon »²⁵), 340 millions kilometres away from the Earth.

As such techno-symbolic systems necessarily combine with ecosystems, this forms the eco-techno-symbolic *medial body* which is *our* milieu, both collective and personal, both individual and social (e. g. languages or space probes). Though this medial body, in the case of the human, is by now immeasurably more developed than in the case of other living beings, it always proceeds from strictly the same process: raw environmental data (the *Umgebung* : S) are trajected, case by case, into the concrete realities (S/P) of a certain milieu.

Now, this trajection of S as P into S/P, be it in the case of an amoeba or in the case of Heidegger, is always a sort of translation; that is, necessarily, a certain sort of thinking.

XXIII. The development of modern biological sciences, especially that of ethology and biosemiotics, has by now made common knowledge that not only animals, but also plants and probably all forms of life do think to various degrees and in a great variety of forms, which may even inspire us for solving some of our own problems – see for example the subtitle of Stefano Mancuso’s *Plant revolution* : “How plants have already invented our future”²⁶. Forests, in particular, have much to teach us concerning coexistence, not only symbiosis²⁷.

All this evidently implies self-awareness. For sure, it is not the *cogitatio* of the *cogito*, which supposes the double articulation of human language – a trait which enables our representations to transcend space and time, whereas, as far as we know, those of other living beings can only be distal, if not proximal and immediately physical²⁸. We could talk here and right now about GN-z11, a galaxy whose photons, which are reaching us now, were emitted only 400 million years after the Big Bang, and which, on account of the expansion of the Universe, is by now at a comobile distance of 32 billion lightyears. This is the fuel of human thinking, whereas whale songs reach only about 3000 km. Nevertheless, whale songs, as an immense variety of biosemiotic systems, undoubtedly manifest self-awareness and its communication with other beings, that is a certain form of thinking.

XXIV. This self-awareness includes, among other forms of expression, the very phenotypes of living beings. Adolf Portmann, for one, who called these forms “self-presentation” (*Selbstdarstellung*), has proven that they are much too varied, and sometime magnificent, to be explained only by the necessities of survival amidst natural selection²⁹.

²⁴ André LEROI-GOURHAN, *Le Geste et la parole*, Paris : Albin Michel, 1964, 2 vol.

²⁵ At the bottom of the sea, an allusion to the tale of Urashima Tarô and Otohime.

²⁶ Stefano MANCUSO, *La révolution des plantes. Comment les plantes ont déjà inventé notre avenir*, Paris : Albin Michel, 2019 (*Plant revolution. Le plante hanno già inventato il nostro futuro*, 2017).

²⁷ See for instance Peter WOHLLEBEN, *Le Réseau secret de la nature. De l’influence des arbres sur les nuages et du ver de terre sur le sanglier*, Paris : les Arènes, 2019 (*Die Geheime Netzwerk der Natur. Wie Bäume Wolken machen und Regenwürmer Wildschweine steuern*, 2017).

²⁸ See for instance Joëlle PROUST, *Comment l’esprit vient aux bêtes. Essai sur la représentation (How beasts become intelligent. An essay on representation)*, Paris : Gallimard, 1997.

²⁹ Adolf PORTMANN, “L’auto-présentation comme motif de l’élaboration de la forme vivante” (“Selbstdarstellung als Motiv des lebendigen Formbildung”, 1958), *Formes vivantes*, Bellevaux : Dehors, 2019,

This, of course, concerns directly the question of evolution. It means that to some degree, living species are conscious of the way they look, and through a sort of motivation, independently from the necessities of survival, can enhance this *speciety* (let us not forget that *species* comes from the same root *spec-* as *spectacle*). This “self-presentation” has something to do with our theatrical representations or performances...

XXV What this means is that biological facts always have a signification (*Bedeutung*, in Uexküll’s vocabulary). A signification for whom? For the concerned living beings, who are not only able to interpret it, but even imitate it, as mimicry shows. Mimicry performs a Nishidian logic of the identity of the predicate (lgP): a certain form (P) stands for a certain being (S), though it is in fact another being (S’). LgP, indeed, is the logic of phenomenality, not that of rationality (lgS), which, on the contrary, strives to grasp true Being (S) beyond appearance – beyond the vast ocean of our so-called unconscious, which is nothing else than the deep consciousness of nature itself. Indeed, all the ingredients of thinking are here, though in immensely various proportions and combinations, and all – from the primitive soup to Descartes’ cogitations – are founded on the same triadic principle S-I-P: a certain data S is interpreted as a certain predicate P by a certain being I, making this data exist (*ek-sist* out of the gangue of its identity S) and appear, unveiled, as a certain present reality S/P.

It is no wonder that Heidegger, who cogitated much about thinking (*denken*), eventually wrote that it is a process in which “the present being has sprung out of the unveiling” (*Das Anwesende ist aus der Unverborgenheit ausgegangen*)³⁰.

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p. 139-156.

³⁰ Martin HEIDEGGER, *Was heißt denken (What means thinking)*, Tübingen : Niemeyer, 1997 (1954), p. 144. Needless to add that this is not the point of view of science – hence Heidegger’s famous statement: *Die Wissenschaft denkt nicht* (Science does not think) –, which considers, on the contrary, that this mundane “unveiling” (*a-lêtheia*) in fact *veils* (as S/P) the proper nature of the object (S). Yet science itself can never go beyond this trajectivity of S/P, since, as we have seen (XII), the very fact of grasping S is to grasp it as something (S/P), i.e. empirical reality or “veiled real” (*réel voilé*). On this problem, see Bernard d’ESPAGNAT, *Traité de physique et de philosophie (A Treatise of physics and philosophy)*, Paris : Fayard, 2005.