

SUCCINCT ANTHROPOGENY

AROUND HOMO IN EIGHTY THESES

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With Micheline Lo

The following statements can be found in *Anthropogénie*, a French version made up of thirty chapters and a thousand pages, whose integral text has been circulated in photocopy format since 1992. It has been available on the web since 1998 at the following free access site www.anthropogenie.be. The abridged French version in eighty theses, like the present English version, is not simple a summary. Arranged more compactly, the same ideas evince new implications, tensions, frailties or firmnesses. The result does not concern only the reader in a hurry. It has been cause for surprise for the author himself.

The German biologist Haeckel coined the term *anthropogeny* in 1874 as a synonym for *anthropogenesis*, in the framework of his comparative embryology. Our own *anthropogénie* encounters a broader interrogation: By what traits Homo - of whom in recent years Biology and Paleoanthropology have demonstrated the basic animality, chiefly as a mammal and a primate - is yet very singular among all these. Jules Verne completed a journey around the earth in eighty days. Why not dare a tour of Homo in eighty theses? Touring does not mean seeing, hearing, or catching everything. Simply, returning to the starting point. Better, never losing sight of it.

The dedication to Micheline Lo is not a mere conjugal satisfaction. An anthropogeny results conveniently from the closest complicity between a man and a woman, a theoretician and an extreme artist, who one day declared as matter-of-factly: "I am painting the cerebral landscape". Three other names are gratefully conjoined, those of friends and collaborators of half a century, and now dead: the poet and mathematician, categorician and toposist, René Lavendhomme, of Louvain-la-Neuve University ; the hellenist, linguist and terminologist Georges Lurquin, founder-director of "Le langage et l'homme" and "Informatique et Bible" ; the experimental psychologist and statistician Jean-Louis Laroche, of Montreal University. All four had fathomed the fact that anthropogeny is not a particular achievement of philosophy, nor a work among other works of humane science, but a new discipline.

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1 - THE BASIS

A. A technical and semiotic body

1. **Fixable angularity. Orthogonality. Erect and sitting posture** - A prominent feature of the human stature is its capability to produce multiple and various **angles** and **angulations**. Those are distributed from the end joints of the fingers through other phalanxes up to the wrist, elbow, armpit, further down to the lap and the knees, and finally the ankles between legs and feet on the ground. Those **angles** are not only transitorily distinctive, but can remain unchanged for an appreciable time by means of special osseous properties and kinesthetic and proprioceptive perceptions. Many are even **orthogonal**, thereby providing a powerful referential frame, quite a revolution for the environment. Among living beings, Homo surged as the *angularizing* and *orthogonalizing animal* in our next Universe. Articulating all that he apprehends (*prendere*, ad). And that all the more when the performances of the upright standing body are duplicated by sitting on a natural or a technical seat. In this case, the three orthogonal angles of the lap, the knees and the feet contribute to the majesty of the craftsman, the regent, or the cleric. The word *cathedral* derives from the *cathedra* (seat, chair). Today, the distances from the stars are still calculated by angles, parsecs.

2. **Bilaterally symmetrical plane hands making planes. Matching and mapping** - In accordance with those angularities, human evolution has selected two plane hands, that declare their *bilateral symmetry*. When elaborating the environment, such hands were conducive to massaging, kneading, molding, shaping, folding up, evidencing artifacts first curved, and finally plane. Moreover, they were prone to converge one *along* the other, one *upon* the other, one *into* the other, in all directions, similar, opposite, converse. And thus able to initiate the number of arithmetic, and the figure of geometry. The entire human environment will become a mathematical one, at least implicitly. No wonder that the first sentence of *Conceptual Mathematics* by the categoricians Lawvere and Shanuel reads like this: "We all begin gathering our mathematical ideas in early childhood when we discover that our two hands match". In this case, *matching*, akin to *maacen, implies both equaling and mating. Further, the same authors encounter the *mapping*, another performance of the plane hands with their bilateral symmetry, which implicates the folding, as *application* (ad, plicare, to fold), the French equivalent of *mapping*, makes it patent. The mapping induces the concept of *functions* $\langle y = (f)x \rangle$, the key of all ulterior mathematics. And of all physics too. Now, the fold is the first of the *seven elementary*

catastrophes of differential topology, a primeval part of mathematics most akin to embryology and anatomy: (1) the fold, (2) the crease, (3) the dovetail, (4) the butterfly wing and the three umbilici: (5) elliptic, (6) parabolic, and (7) hyperbolic. By all those virtues of the bilaterally symmetrical human hands, the verb "to grasp" is the most comprehensive in most languages, expanding from the immediately tactile to the remotely mental.

3. The slowing of the couple continuous/discontinuous. Pace and gesture, the technical segment. Topology and rhythm - Yet this new domination of the space would not be a decisive evolutionary factor without a new mastery of the time. Consequently, the movement of the human limbs selected the capability of accelerating and slowing down quasi ad libitum, adjusting and modulating their motion so that they invented the justness, and later the justice ; the thumb of sapiens sapiens was selected proportioned for more gracile and subtle graspings than those of sapiens neanderthalensis. The movements of the human hands became the *manipulation*. And those of the feet the *pace*. The collaboration of manipulation and pace, in which the feet transfer the hands where they are more effective, gave the *gesture*, generating the *technique* (*gerere*, the verb of *gestus*, is not a simple *facere* or *operari*). And consequently the *topology* distributing the couples: continuous / discontinuous, contiguous / not contiguous, closed / open set was virtually activated. And almost simultaneously, the *geometry* (measure of the ground), along the standard measures: pace, foot, hand breadth, armful. The human pace, like an adjustable pendulum, conjoins geometry and topology when its cadence, its regular *thesis* (fall) and *arsis* (levy), provided a first *metronome*, just as the fingers furnish a first *counting frame* or *abacus*. One day the gesture will achieve its anthropogenic vocation by furnishing the eight resources of the **rhythm** <10>, and consequently of human health <67> and human art <70>. The milieu had been made a bunch of *segments*.

4. Substitution and the realm of possibility. The possibilizing primate. Exchanging and segmenting. The commerce - At the tip of their two free-moving arms, the plane and bilaterally symmetrical hands of Homo are able to cross easily, clearly, and recurrently. So that an object A in the right hand appears as *possibly* or *virtually* occupying the place of an object B in the left hand, and conversely. The inverse and the same are no more exclusive, every one *in potentia* to one another. Yes, A and B and C are here, but they could be elsewhere, or be different. The manual substitutions and to a lesser degree the pedestrian ones implicate the realm of *possibilities*, the possible as such, the *possibilization* as a power of apprehending everything as fitted to being actual or available. Already angularizing, orthogonalizing, hand planing, feet measuring, Homo has surged in his terrestrial environment as the *possibilizing* animal. Those aptitudes have confirmed the human environment as an array of *segments*, and thus as a **field of exchanges**, equalizing or interpreting. In this way, the **commerce** (*merx*, merchandise, exchangeable) became the basic activity of Homo, and the *neutral universal exchanger*, today's "money", generated the greatest human projects and madnesses.

5. A transverse body. The prevalent breadth. Evidence and suspension (of mind). The transverse and suspensive primate - Homo appeared as the animal introducing into the terrestrial environment three major planes of reference, more or less orthogonal to one another,

and thus stabilizing a *three-dimensional surrounding*. First, the transverse plane, i.e. **breadth**, **width**, **span**, elicited and supported by our relatively flat trunk, our arms stretching in the same plane at adjustable heights, our legs moving almost similarly, as Leonardo da Vinci drew it for Homo faber, and Micheline Lo for Homo parturiens (see illustrations). Later, the **depth**, sagittal from back to front, expanding under our feet more or less orthogonally up to the horizon. Lastly, and this time actively orthogonal to the second dimension, the **height** was confirmed by the antigravity proprioception of a constantly upright mammal. Among those three dimensions, the anthropogenic prevalence of *breadth* could not be exaggerated. Symptomatically, it is in this plane mostly that we require symmetrical properties (Pascal), and thus rhythmic properties, keys to the human ethos <66>. While other animals are radiolarian or caudal-rostral, Homo is *transverse*, and thus *frontal-dorsal* stricto sensu, conferring a front not only to himself but to everything coming in front of him. Consequently, he deploys as a matter of **evidence** (videre, ex) his tools, the maps of his cadastres, and the sketches of his machines, staying himself in a **state of suspension**. So the *exploration drive*, already active in many superior apes, will become with him a tempered aperture. In the end, the attribute telling the most diverse and fundamental things about Homo is likely to be: **transversalizing primate**. Transversality assumes all the traits collected through this first section. Particularly, the invention of slowing, non-neglected physical or mental suspension.

B. The *woruld

6. Panoplies and protocols. Tools versus instruments. Articulation - Thus possibilized, virtual, slowed, frontalized, segmentarized, the human environment distributes into *panoplies* in the extent, and into *protocols* in the duration. In both cases instructed arrays are more or less closed, the terms of which are prone to substitute and articulate reciprocally. That fact distinguishes the **tools** from the mere instruments. All animals, since the time of the birds at least, use and produce **instruments** (the female raven can work an iron wire into a gripping hook), somehow complementing their bodies for performances otherwise impossible or too impractical. Only man uses *tools* in the strict acceptation of the Latin *uti*, a verb limited to human operations and so reserved for tools intervening in the framework of a protocol or of a panoply, in which they are segments *technically referring to* one another, or even *technically thematizing (pointing to)* one another. So many synergetic thematizations that one day will induce pure thematizations, i.e. *signs* <24>. Saying that Homo is a panoplic and protocolar primate is as illuminating as saying that he is a transverse primate.

7. The *woruld. Segments and horizon - The Germanic languages have a richly ambiguous word, *Welt* in German, *world* in English, whose root, transparent in the Dutch *wereld*, is usually written ***woruld**. It designates a milieu as appropriated by Homo, actually or virtually, and thus transformed into an environment, i.e. a *globalized milieu*, made up of panoplies and protocols. The term is highly convenient within the scope of an anthropogeny. Better than *Universe* (versus unum), which is too large, or the Greek *cosmos* translated by the Latin *mundus*, which is too restrained, as both allege etymologically (cosmetic, non im-mundus) the fundamental order of the classical Occident. Consequently, ***woruld** will designate

here an environment as effectively or intentionally appropriated by the geometry and arithmetic of a possibilizing, transversalizing, articulating body. Such a *world divides fatally into segments apt to be conversely disposed as tools or commercial goods presenting some equivalence. Every one of those segments will one day be named suggestively: *chose* (causa) in French, *thing* in English, *Ding* and *ding* in German and Dutch, all these terms referring to elements in partition, contest, question, intercourse, particularly legal ones. According to a German speaker, Heidegger, *Welt* has the advantage of connoting that such an environment is circumscribed by a *horizon*, i.e. a limit equally close and open.

C. An endotropic brain

8. The consequences of a transversalizing primatal body upon the evolution of the brain: enhanced cerebellum and neocortex. The fetalization - With such a suspensive body, the first part of the brain to be considered is the *cerebellum*, whose function in the prehuman animality had always been that of smoothing the motion functions in space and time, since as early as in fishes posture and repeated motion suppose quasi-instantaneous agonist and antagonist muscular and neuronal action-reaction, with feed-back but also feed-forward abilities ; for such equilibratory performances, the cerebellum must be the only part of the brain that is laterally symmetrical and vertically parallel-layered. The cerebellum of the great apes, selected for standing semi-upright and jumping from branch to branch, was already richly endowed. Yet, for his new motor continuities and discontinuities refined up to mental suspension, Homo had to enhance the afferences and efferences between the primatal lateral cerebellum and the primary and premotor cortex. Happily, the *foramen magnum* becoming more and more median as a consequence of the upright station made place for necessary cerebellar and neocortical developments. At the same time, the erected and transverse primate must be born with a brain developed only up to one-third (versus two-thirds in cousin primates), because the female pelvis had to make two divergent constraints compatible: (a) to have a fetus with a rather big brain, (b) simultaneously, to not handicap the bipedal speed, vital for an erect and thus vulnerable animal obliged to flee swiftly. *Fetalization* or *neoteny* or *prematurization of birth* could supply this compatibility. And by one of those serial convergences so fertile in the Evolution, they were also a chance for Homo, this technical animal for whom postnatal learnings are of greater consequence than ancestral automatisms, the only ones developable in prenatal life.

9. A brain usefully modeled as a biochemical simultaneously analog and digital computer, i.e. a biochemical hybrid computer. A perceptive system sometimes flexible, sometimes fixing-fixed (cleaved) - The adjective *biochemical* implies that the brain elements, i.e. the neurons and synapses, undergo generation and degeneration (mostly when not used and thus not fed), physiological modifications, and also leaps in regime (stimulated or inhibited) under the action of neuromediators (neurotransmitters and hormones). All those elements are inhibiting and activating one another (often by inhibition of inhibition) **holistically**, supposing far-reaching interactions, and **modularly**, i.e. operating along specialized *paths* (for instance the "how", the "what", the "color", the "form", the "motion" *paths* of the optic brain), and also

relays, like ganglia, where it is *reshuffled* iso- and allo-topically, or *inhibited*, facilitated, smoothed ; such relays being likely septum for orgasm, hippocampus for new memory, tonsils for motivational evaluation, left temporal site for sacred belief, etc. Following such a model, in all animal the brain operates basically in the way of an **analog computer**, mimicking vital stimuli of the environment in their transducible varieties: numerous/few, powerful/evasive, abrupt/progressive, stable/disturbed. Finally, this neuronal mimicry elicits motor responses that suppose short-, medium- or long-term memories. In this way, the human brain largely prolonged the analog functioning of animal brains. Nevertheless, the segmentarized and substitutive *woruld of Homo, oppositively differentiated, has needed other cerebral treatments, those of a **digital computer** which in a closed inventory, say the panoply or the protocol ABCDE, detaches the element C by successive exclusions (yes/no, flip/flop, 0/1) of A, B, D, E. When realized by the brain, such a digital functioning supposes other connective programs than those of the analog one, and the Evolution has economically concentrated those digital processes into one single hemisphere. Actually, many Paleolithic human skulls exhibit some protuberance in the left hemisphere, particularly in the *planum temporale*, whose particular developments are already visible in great apes. Certainly, in those cases, the human right hemisphere is implicated too, directly when representing analogically a digitalized environment, indirectly by the information it receives from the left hemisphere via the *corpus callosum*. In sum, the human brain has to be modeled as a **biochemical hybrid computer**. Being simultaneously digital and analog, no wonder that it is prone to *versatile and open perceptions*, but also to *fixed fixing perceptions*, *paranoid* in the vulgar sense, those where the perceived object is blocked (*cleaved*) by a fixing subject, and conversely the perceiving subject is blocked (*cleaved*) by the fixed object.

10. Lateralization of the cerebral hemispheres. Vectorialization of the transverse plane - Saying that the right hemisphere works chiefly by analogies, whereas the left one at least partially works by digitalities, is a useful modeling of the differentiated performances of both human hemispheres, when it is previously taken into account that in the vertebrates, the left sensori-motor hemisphere controls the right part of the body, and the right one the left part, subsequently to the neuronal chiasm. Thus, since the end of the 19th century, Homo has observed that important paths and relays controlling the language, a very digitalized activity, are chiefly located in the left hemisphere, for its emission since Broca, and for its reception since Wernicke, with a big coordinating nervous bundle between both. Later, Goldstein estimated that the left hemisphere is more rational, stabilizing, and dogmatic ; the right one more lean, nuanced, even caviling (a devil's advocate, says Ramachandran). The images drawn by patients with a split or impaired *corpus callosum* are signaling a left hemisphere (thus controlling the right hand) more opposite, and a right one (thus controlling the left hand) more sensible to shade gradients of the drawn object. In daily life, the accurate indexations of objects are ordinarily performed by the right hand, while emotional gestures, like those of demission, are performed by the left hand. For the sight, the right hemisphere has a bihemispheric surveillance field, whereas the left one does not run beyond its sphere ; and indeed, the heminegligence (a lesion generating a loss of attention, yet without blindness) does affect the left visual field, never the right. Musical perception, while committing to the left hemisphere the oppositions of sound segments, extends to the right one for the estimation of timbre and phrasing. For a physicist using Cartesian coordinates, the left to right axis is generally the one of the successive times, while the vertical one bears the quantified consequences of the process ; that is not too arbitrary ; all painters

know that an action when disposed from the left to the right is generally intended as a progressive one, and regressive, even lethal, with the inverse direction (*Guernica*). The form of his tools implies that Homo was right-handed since the origin. Whatsoever it may be, an anthropogeny has to stress the fact that the functional opposition of the hemispheres, when creating the **lateralization** of Homo, has reinforced his transversalization <5> by a kind of vectorial dominance, ordinarily from the left (more analog) to the right (more digital).

11. The frontal lobe: tactic and strategy. Human domain and domination versus animal territory. From behavior to conduct. The physiological unconscious - A frontalized and frontalizing primatal body, actual or virtual creator of panoplies and protocols, elaborates its surroundings not only by *tactic*, like hunting wolves, but by *strategy*; the first is closed, the second open and possibilizing. The frontal lobe was anatomically predestined to this kind of performance, being rostrally adjacent to the afferences and efferences of the sensori-motor headband (homunculus) of our brain; on the other hand, the erected forehead and the progressive reduction of archaic relays, like the olfactory bulb, gave it its expansion space. By so strategically operating, Homo started no so much a *superpredation*, as frequently said, as a *domination*, i.e. a lateralizing survey proper to a *dominus* upon his **domain**, in which the **territory** of previous animality, strictly delimited by the stimuli-signals <25>, now was concluded by a horizon, limiting and available. The simple *behavior* was progressively supplied by **conduct**. Yet with an important restriction: a smile or a gesture of sympathy are *superficial* when voluntarily performed, instead of being spontaneous, conceived in the archaic or even innate coordinations of the basic ganglia and cerebellum. In a transversalizing primate, the *physiological unconscious* remains much more fundamental than the *Freudian unconscious*, a semiotic one; this point is confirmed by the life-long similarities of the homozygous twins.

12. Memorizing and remembering. Memory and memoration. The REM-paradoxical sleep and dreams - Let us call **memory** of an animal at a moment the global state of its brain at that moment. The primatal brain uses two ways of **memorizing** and **retrieving** new information: a short-term way (by covalent modifications of preexisting proteins?), a long-term way (by genic expressions, synthesis of new proteins, new neuronal connections?). Now, perturbations can occur in those regular processes. Even in normal life, there are a few perceptive or motor reactions so intense or so unexpected that, irrupting into a cerebral system, they put it out of balance, at least locally, with consequences either positive (allostasies) or negative (disrupted homeostasies). So the brains of many (all?) animals have selected processes restoring their equilibration by means of a *cerebral digestion* or *assimilation* that we shall call **memoration**. Sleep, with its three main phases - (1) light, (2) profound, (3) intensely oniric - takes an important role in that issue. Its intense oniric phase is called **REM** in English as being accompanied by Rapid Eye Movements, and *paradoxal* (paradoxical) in French, because it combines two intense activities, a *vegetative one*, for instance genital erections in the two sexes, plus an *endotropic one*, the dreams, with an extreme relaxation, that of the motor system (this motor relaxation prevents the catastrophic acting out of the dream contents, as demonstrated when the motor relaxation is inhibited by drugs, and simultaneously, liberating the neuron work, permits the astonishing speed of the dream events). The dreams remain out of remembrance, but sometimes become semi-conscious, though deeply reconstructed, in the partial awakenings that follow the REM phases, currently five or six by night, and particularly

the last one before the morning definitive awakening. In Homo, the REM phases, well known already in prehuman animals, became more and more frequent for obvious reasons.

13. Perceptive traumas and REM sleep. Intelligence and genius - The transverse primate was a richly gifted being indeed, but fragile and even unstable. The upright station makes him a target in the environment, and the bipedality handicaps his escape power. Transversalization opened a field of infinite possibilities, which are not fatally secure. The precise, slackened, adjustable, frontalized movements are technically and strategically very productive, but at the same time less infallible than the rostral movements of the previous animality <25>. Dominating a domain as a dominus is both reinforcing and awful. Cerebrally, the digitalized and abstractive operations do not enjoy the warmth of the concrete and analogical ones. All this taken into account, the perceptions and motricities of Homo were often traumatizing and required very important cerebral digestions (memorations), and thus supposed multiple phases of paradoxical REM sleep. Yet, this phase of intense cerebral digestion must become a time of problem solving, - problems being here considered as neuronal discrepancies, - and so of understanding and innovation. One can speak of **intelligence** when solutions are found in unchanged previous frames, and of **genius** when solutions derive from a renewed or a new frame.

14. Exotropic and endotropic *woruld. Imagination and imaginary world (Fr. l'imaginaire). Ten existential modes: affront / solitude, submission / bluff, earnestness / game, exploration / coquetry, dream / reverie - All brains of superior animals exhibit two kinds of functioning: one exotropic, oriented to exterior operations, one endotropic, operating in closed circuits, as in the reverie (daydream) of a digesting lion. **Exotropy**, aiming at consuming or modifying the surroundings, uses innate or acquired connections and creates new ones by conditioning (Pavlovian) or active learning (by trials and errors). **Endotropy**, in addition to relaxing the perceptivo-motor nervous system, makes more compatible the discrepancies of new or earlier situations. In Homo almost all operations suppose both exotropic and endotropic regimes, but privilege the last one, where the *imagination*s are strong and numerous enough to construct a *mental world*, in French *l'imaginaire*, occasionally *l'imaginal*. This terminology is illuminating insofar as it emphasizes the part of *images*, i.e. of *analogy*, in the endotropic activity of the brain ; but it neglects damagingly the part of *digitality* that continuously intervenes in the actions of a transverse animal living in a segmented *woruld of panoplies and protocols. Now, when we suppose an exotropic activity designated by A, and an endotropic activity designated by B, it must be expected that sometimes A induces B, sometimes B induces A, sometimes A induces B that induces A cyclically. Elementary combinatorics of sequences A and B easily generate ten main combinations, i.e. affront, solitude, submission, bluff, earnestness, game, exploration, coquetry, dream, reverie, whose systematic deduction in couples can be found in the French version of *Anthropogénie*, chapter 6 (www.anthropogenie.be). Some animals already practice many of those modes ; dogs and elephants distinguish earnestness from game, while apes play games sophisticated enough to include handicap. But Homo, the transversalizing primate, had to develop dramatically and systematize those brain performances, composing them in compensatory alternations up to constructing a secure complete system. With him they are real *existential modes*.

15. From affects to sentiments - When a behavior supposes a certain while, it cannot consist only of a simple perception-move-perception cycle, which in that case must be sustained by a cerebral circuitry starting it again and again, sometimes making it cumulating. This circuitry is made up of the paths and relays of *affects*, etymologically a help to do (facere, ad), as fear, anger, disgust, surprise, etc. More generally, *painful* affects sustain avoidance and flight, while *delightful* affects reconduct or even intensify long processes like hunting, fighting, mating, nesting, nursing. The mesencephalic brain, that affords those persistencies, is one of the most archaic fabrics of the brain ; a rat, actuating with one leg a pedal that controls paths and relays of pleasure, can repeat the same movement indefinitely until exhaustion. Homo, also meant to hunt, fight, mate, nest, or nurse, supposed the same limbic stimulation. But, as his behavior is frequently complicated by possibilizing and strategic conducts, his affects are less dependent on exotropy, and their endotropic part makes them so stable that they endure throughout his entire existence. So, English and French distinguish immediate **emotions** from durable **sentiments**. Many afferences and efferences exchanged between the frontal strategic lobe and the limbic relays are decisive in this respect, as was documented by the practice of lobotomy in the 1950s.

16. Intercerebrality - In the homospecific relationships, as mating and hunting, but also in the allospecific relationships, as between the predator and the prey, there is evidence that two or many brains often interact by products, and not only by additions of performances, eliciting sorts of *intercerebral states*, for instance among hunting wolves and migratory birds. Our brain imagery and microprobes confirm this daily experience. They demonstrate that, since the apes at least, the perception of an action of B by the brain of A, determines in A mimetic reaction, a convection sometimes actual, but sometimes only virtual. Those virtual cerebral inductions, now experimentally isolated, illuminate the process of learning, at least by trial and error ; the tiger cub interiorizes the feedback and feed-forward of the spring of its mother long before its own first hunter's spring. The intercerebrality, broadly called "brain mirror effect", is patently enhanced in Homo, a transverse, suspensive, exchanging, possibilizing, and endotropic primate, thus capable of *participating* stricto sensu (partem, capere) in the case of an actual action, but also of strategies, sentiments, all kinds of endotropic processes elaborated by fellows and enemies, thus *alteri* rather than *alii*. Such a performance explains an essential property of the rhythm, its convection <30> ; the rhythm of A irresistibly induces the rhythm of B. Conversely, many intercerebral effects (visual, auditory, tactile) exploit the eight properties of the rhythm <30>.

17. The presence or presence-absence or autotranslucency as part of the consciousness. The primordial universal distinction: functionings (continual, describable) / presence-absence (intermittent, indescribable). Cause and occasion - There remains to consider an evasive aspect of the brains in general. Amongst the cerebral operations some are accompanied by a mysterious element, that since 1943, in *L'Être et le néant*, Sartre proposed to call **presence** ; conveniently, we shall call such functionings **presential functionings**. Though the neuropsychological research is still preliminary in this field, there can already be suspected that such functionings are simultaneously very differentiated and very compact, and thus

capable of *reflection* and even *reflectivity*, at their anatomo-physiological level. According to this terminology, the presence is not the aspect of the (Hamiltonian) **consciousness** which is its perceptive, conative, affective power of coordination (pinpointed by the etymological word *con-scire*, to know, together), a performance concerning particular or generic objects, and matter of neuronally identifiable functionings ; nor even its capacity of forming a *self*, whose determination is also reducible to neuronal identifiable functionings (Damasio) ; but in earnest its aspect of **autotranslucency**, **apparitionality**, **phenomenality**, **presence** or **presence-absence**, an aspect immediate, not particular, not coordinatable, and consequently indescribable ; so much so that it seduced Sartre to invoke the concept of "néantisation", in brief "néant" (Van Lier, *L'existentialisme de J.-P. Sartre*, in L'Encyclopédie française, vol. XIX). The indescribability of this event explains the historical infirmities of the vocabulary. Initially, in Latin, *praesentia* designated only a simple physical or mental "being before" (*prae, esse*) ; two thousand years were required to elicit Sartre's acceptance of the term, with the inadmissible relay of Shakespeare, of whom the "as presence did present them" and the "present-absent" for sure designate a physical and mental "being before", but also take into account the mystery of the autotranslucencies of the two consciousnesses in the game ; the Jewish *chekhina* does not help here, as it designates a qualified presence, that of the God. Still, the *presence* or *presence-absence* or *autotranslucency* seems to be already active in the prehuman animality, as we all suppose when petting our dog, and more remotely our tortoise. But in the animal brain this aspect is *unthematized*, while humans, by means of their suspensive properties, **thematize** it or **aim at** it thematically. Aristocratically, in many sophisticated practices, say *sam-a-dhi* (en-stasis) in Yoga, *dikr* dance in Islam, *tch'an* in China, *satori* in Japan. Occasionally or festively, since Homo Erectus, or even Homo Habilis, in the extensive use of drugs, mainly alcoholic. Daily, in the sexual orgasms or para-orgasmic conducts, as dance-music. In all cases, an anthropogeny cannot ignore that the transverse and suspensive primate is a **presentive** and **presentifying** primate, i.e. a primate thematizing and enhancing his autotranslucencies. So it could be profitable, as suggested in French, to distinguish "**la Réalité**" (**the reality**), where in the *world the presence is only vagant, and "**le Réel**" (**the real**), where it is thematically aimed at. -The **distinction functionings (continual, describable) / presence (intermittent, indescribable)** should be initial and fundamental in ontology and epistemology. Between both terms, one can establish a relation of *occasion* (cadere, ob, to fall away), not of *causality*, which would suppose that the cause and the effect are both describable.

D. Integrating senses

18. A focalizing, lateralizing and globalizing vision - In the dense environment of the canopy, monkeys and apes needed, for hundreds of thousands of years, a very efficient vision to control their long jumps from branch to branch, selecting colored fruit, identifying the bare face of their congeners, so that Evolution has selected polychromate monkeys (some females being pentachromate?) with convergent eyes displaying stereoscopic abilities, and combining also a focal vision needed by the primatal delousing, and a peripheral one required by the dominance relationship. All that was a wonderful preparation for the human sight, which has to be continuous and discontinuous, transverse, tactical and strategic, with a peculiar aptitude for angles and planes to be selected, and even adapted to the perception of the "processional effect", when mobile and non-mobile objects are perceived as regularly gliding one behind the

other (a prevalent effect in cinematographic images). After that, the capacity of optically lateralizing and globalizing an environment has privileged a human vision sensitive to electromagnetic waves between 500 and 700 nanometers, the most energetic in the light of a sun that is 8,000°C hot on its surface (Weinberg). Such a *globalizing* vision was achieved when the *foramen magnum* now being median permitted a gracile mobile neck, and consequently a vision embracing 2 x 80° with the neck rotating, and 2 x 180° with the upright trunk rotating.

19. A proportioning and echoing hearing - The apes had also a hearing equipped to become a human one. The upright skull and face of Homo improved the stereophonic ability of two coordinated ears in favor of a transversalizing and frontalizing hearing, fond of echoes and sound proportions. Extreme pitches, as the ones heard by saimiri apes, were excluded as too rostral or scattering, while the medium frequencies, i.e. beneath 20,000 hertz, were favored, particularly around 2,000 hertz, thus yielding the measured information necessary to speaking, dancing, singing, musing, and more generally the technical manipulation to adjust. So, the afferences and efferences of human hearing (regulatory feedback afferences were first detected in their case) are able to catch precisely and instantaneously the modulations emitted by the handling of human *tools*, possibly the origin of the *musical instruments*, and mostly those of the human *voice* innovated by the new angle of the pharynx-larynx and the new innervation of the vocal cords determined by the upright station. Even more, the transverse mammal must find some relief in the global and rhythmic massage of his whole body by the modulated sound, enhanced by the endotropic resonance in his modified middle ear. That could but reinforce human interest for the sequential and internal properties of chords, and thus proportionate sounds. Transverse as the human sight, the human hearing became a globalizing and digitalizing activity, helping perceive and produce sounds sometimes chiefly intense (*music*), sometimes chiefly articulatory (*speech*), by neuronal paths and relays never coinciding, though running alongside.

20. Caressing touch, hovering smell, substantial taste - The **touching**, now smooth and smoothing by means of surface- and deep sensors besides kinesthetic and proprioceptive ones, reinforced the spatial and temporal *continuity* of the transverse primate, so that it was considered for a long time to be the *reality sense*, preserved from all the extravagancies of dream and imagination, both pretty *discontinuous*. Sea and earth mammals had already invented the *caress*, a kind of tactile insistence useful for their groupal coherence, and especially the perseverance of coitus, where genital touching became cumulative up to the *male orgasm*. In the case of Homo, the plane hands and their bilateral symmetry allowed embracing moves that refined the caress and finally selected a *bisexual orgasm*. - As to the **smell** and the **taste**, the acuity of those primeval and genetically well-endowed senses was less required for primates whose vision was able to distinguish their prey at long range by color and shape. Homo exploited their relative blurring for the benefit of his transversalizing drive. Thus, *smell* provided memories as much persistent as they are confused, so scarcely affected by new experiences. Equally confused, *taste* attested to the mysterious density of substances (*stare sub*) confirmed by the chewing of the human regularly cut teeth. All in all, smell and taste became privileged senses of *presence* in the physical and mental meaning of the term <17>. - As a panoplic and protocolar animal, Homo must establish a hierarchy amongst his five major senses. For an animal organizing his surroundings against the background of a horizon two

senses were judged superior: that of the surrounding atmospheric vibrations, *hearing*, and that of the electromagnetic vibrations coming from the remotest part of the Universe, *sight*? The archaic senses of the chemical proximity, *smell* and *taste*, and that of the physical proximity, *touching*, were subordinated, when technique and semiotic prevailed. But all the human senses have something in common: while those of the prehuman animality are highly specialized, those of Homo are *measured*, *measuring*, hence *mediated* and *mediating*. - Endowed with such a sensori-motor array, Homo is **holosomic**, i.e. he enjoys perceiving and motor performances that are very global centrally and differentiated distally. The human holosomy is no doubt in a circular bond with the desire of pure presence-absence <17>. And a particular development of the thalamus, the sensori-motor somatic coordinator, is consequently expected. Indeed, a medio-retro-ventral part of the thalamus is conspicuously bigger in Homo than in other primates.

E. Community

21. Family and filiation. A rhetorical organism. Self-evidence. The clothes. The face
- The hordes of the common Ancestor of Homo and Chimpanzee (-5 MY or more) presumably separate the male group defending the territory borders, from the female group nursing the cubs, but also, when in estrus, transgressing the territorial borders in order to mate with multiple partners, so that the filiation is not identifiable, for the benefit of protecting their offspring from males rivalries. On the contrary, Homo established a social system founded upon the family, where males and females meet daily. How to conceive this leap? The answers, announced by the previous theses about panoplies and protocols, will multiply with the following theses about the encounter and the signs, and we shall let the reader collect them himself. Let us remark rather that in the prehuman animality there was no vital reason for exhibiting the functions of an organism ; rather for dissimulating them. The digestive, respiratory, sexual organs are scarcely apparent ; male ostentations, like deer antlers or peacock tails, as means of sexual selection (Darwin), are more ostentatory than organic. Instead, the upright and traverse trunk of Homo proposes itself as an edifice, a tectural panoply and protocol, stratifying from bottom to top its physiological urgencies: reproduction, excretion, digestion, respiration, blood circulation - all that framed by four limbs rhetorically capable of right angles and transverse expansion, beneath a high head declaring receptive and emitting activities, either sensori-physical (mouth, nose), or merely sensory (eyes, ears). So, the caudal-rostral axis of the prehuman animality has been replaced by another reference system, that of the transverse plane now distinguishing the couple forward / backward, where *forward* is not only the rostral termination of aggression and ingestion, but the face of groupal relationships and the belly of intimacy ; while *backward* implies the retro, the unknown, the back, even the hostile. On the evidence of a progressively bare organism (- 1,200,000, when considering the appearance of skin pigments), **clothing** (160,000 B.P., when considering the appearance of cloth louse, versus the pubian and the hair lice) will develop a kind of *rhetoric organic reduplication*, and not simply a utility for a body that had lost the intimate protection of the fur. Transverse body plus declarative clothing make the human organism a *façade*, i.e. an insistent face, that one day will correspond to the house façade, as opposed to the inner and rear parts of tectures <45> great and small. That will be achieved when thirty facial muscles will have made the human face a

mirror of intentions for primates endowed with an outstanding cerebral equipment of face reading <18>.

22. The encounter. The living and the dead. The sacred. The bereavement as a continued intercerebrality - As a result of all this, the human transverse and self-evidencing organism has introduced in the solar system the *encounter*, more strongly expressed in French as "**r-en-contre**", where "contre" designates frontal opposition, "en" a mix of exteriority and interiority, "re" the reduplicative, intensive and wondering character of the confrontation. In the Universe, the **(re)encounter** is an event where intercerebrality <16> culminates. Then, the gait of a transverse holosomic and endotropic organism crosses the gait of another of its species, in an event confronting hazardously the "same" and the "other" (alter), since the confronted beings are no more canalized by stimuli-signals <25> ; nobody exactly anticipates what happens behind the forehead of a possibilizing being. This trouble rebounds in front of the **dead**. Before a transverse motionless human corpse, the immanence of the moving acquires the transcendence of a suspended motion. The **sacred**, i.e. an area and a while separated from those of the daily life, was probably initiated and enhanced by the encounter of the lying dead Ancestor, besides appearing sometimes as ghosts in a dream. In Homo, **intercerebrality** <16> is so intense and stable that it survives groupally and individually even when one of its terms has disappeared. Over a time varying with the cultures, often three or four generations, the Ancestor is surviving his life, and the endotropic encounter with him goes far beyond the exotropic encounter. The permanence of the dead will become a major part of the survival of the living <77>.

23. The sexual complementarity made ostensible: affronted coitus and female orgasm. The contrasted and marked ages. The neighbor and the community - His rhetorical upright body and the encounter have evidenced in Homo the differences and complementarity of both sexes: a protuberant breast even after the milking period (a sexual stimulus when the coitus ceased to be dorsal, as often suggested (?), but chiefly a vulva/penis complementarity in the middle hairy triangular site of the pubes. The ventral coitus, already performed by the Pan paniscus (Bonobo), now became, at least virtually, a properly transverse and frontal one ; it became the archetype or physical and logical complementarity and implication, prepared by the caress <20> and the embracing obtained by the bilateral symmetry of the plane hands <2>. In any case, the *punctual male orgasm* was completed by a more *diffused-diffusing female orgasm*, by means of somewhat different cerebral paths and relays. The rationale for this anthropogenic leap was seemingly that, in the case of possibilizing bodies, the coitus could be more frequently interrupted and required a reinforced imbrication of sexual parts. Now, by a fertile evolutionary bifurcation again, this behavioral requisite has provided the ideal of logical and fleshy implication, unlimited possibilization and intercerebrality, realization of the presence-absence up to ecstasy, even conciliating death and life ("petite mort"), not excluding the exemplar holosomic intercerebrality. The transverse and upright station plus the nakedness of the skin emphasized the **contrasting ages** of a fetalized animal <8>: childhood, infancy, adolescence, adult age, old age. Finally, the coital complementarity combined with the marked differentiated ages contributed to the transformation of the primatal *pack or horde of congeners* into the human **community** of

comrades and **neighbors**, that will become the **society** of the *socii*, after the emergence of the signs to be considered now.

F. The signs

24. Signs as pure thematizers (versus technical thematizers) - Since the origin of the *woruld, i.e. the environment as appropriated by Homo <7>, the panoplic and protocolar elements technically refer to one another. The boar hoof in the mud refers to the chased wild boar, like the hammer to the nail which it hits, the screwdriver to the screw ; but also the nail to the screw, the hammer to the screwdriver. Those thematizers are *operative*, i.e. presupposed by actual or virtual performances ; in the urgency of the operation, they escape being perceived as thematizers. Now, when human technical operations result from a transverse and substituting (exchanging) body endowed with a very endotropic brain, it is not excluded that at least sometimes certain more important thematizations would appear as such, i.e. independently of actual or virtual realization. In this case, they function as **signs** ; they designate and signify. Let us venture a definition: *A sign is a segment of a technicized *woruld which thematizes another segment of this *woruld, and in which nothing else is taken into account except this thematization or reference*, thus independently of the effectiveness (actual or virtual) resulting in the technical action. Their purely designating status does not exclude the fact that some *performative* or *imperative* signs, although *per se* thematizers, would start some concrete actions included in their theme ; but provoking, inducing, pointing at is not equivalent to operating. Intercerebrality <16>, and particularly the aptitude of superior primatal brains for imitating virtually a perceived action, must have taken a major role in the conversion of instruments and tools into signs.

25. Signals, stimuli-signals, signs. Indicia (full) and indices (empty) - Alongside the mineral world that proposes only **signals**, i.e. effects signaling their causes ; and the animal world determined by **stimuli-signals**, i.e. signals being transformed into nervous stimuli of motor reactions (innate or learned), Homo introduced in his environment the **signs**, segments of which he retains exclusively their thematizing aspect, independently of any actual technical effectiveness. Therefore two kinds of signs have been generated. (1) Some refer naturally to determined objects or actions, like the hoof refers to the boar, the boar to the hunter, hunting, etc. ; or like the hammer refers to the nail, the carpenter, the nailing action, an assassin. They are **indicia**, **filled signs**, pregnant with the natural or artificial themes to which they refer. (2) But Homo also generates **empty signs**. Indeed, many of his body parts - nose, arms, hands, fingers, eyes - are able to create visual or auditory convections that point to a particular element of the surroundings, thus thematized as a theme, without any further determination. In French, those empty signs are called **index**, from the name of their ideal pointer, the *index finger*, that in German is explicitly called "**Zeigefinger**", predestined to that function because it stands next to and against an opposable thumb, even in an orthogonal position, with which it performs its most subtle graspings. The couple *indicia/index*, where *index* (*pl. indices*) is going from the subject to the object, and *indicium* (*pl. indicia*) from the object to the subject, has been an outstanding epistemological achievement of Latin, still active today in Romance languages, but

unfortunately obliterated in English, even by Peirce, who uses *index* in the confused acceptance of both. Anthropogenetically, *indicia* and *indices* have reinforced one another ; most filled *indicia* suscitated most refined *indices*, and most insistent *indices* charge the *indicia* indexed with powerful internal motions. Affects and sentiments have followed those two kinds of reinforcement. Disseminating when they are *indicia*. Concentrating, distinguishing, accusing, excommunicating when *indices*. The circuit *indices/indicia* has confirmed amongst humans the distinction between *open perceptions* and *focusing focused (fixing fixed, cleaved) perceptions* <9>, so weighing in passions and leaderships.

26. Analog signs and digital signs. Socius and society. From semiotic to convention. Interpretation, superstition, paranoia, accusation, almightiness. Magic. The Latin-French couple: torture/supplice. Astrology - *Indicia* chiefly work as *analog* signs ; so, a wound is frequently the converse image of the thrusting weapon. *Indexes* chiefly work as *digital* signs, sometimes designating a thing by focalizing the attention upon it, sometimes operating the same designation by successive exclusions of others in a panoply or a protocol: yes/no, flip/flop, 0/1, as do digital computers. So, the *indices* inaugurated negation and affirmation, association (and...and), disjunction (either...or), causality (when...then), i.e. the whole practical and theoretical logic, not excluding the mathematics <55>. In short, the *woruld of things was transversalized as a set of **indexed *indicia*. And the *woruld of congeners too, as each one was indicially positioned as "so-and-so", and indexally as "I"- "thou"- "he-she-it" in turn. On that account, the *neighbor* in the *community* became the **socius** in the **society**. On the other hand, indiciality and indexation converged to generate the **convention**, as the ease between the *designans* and the *designatum* would be progressively extended. The *indicializing* animal became **superstitious** (stare super) and **paranoid** (noein para), as a restless interpreter, whereas the *indexating* animal became an **accuser**, everywhere cutting through the couple good / wicked, and by the same token a **potentate** : at Taragona, the extending arm of Augustus towards the sea suffices to establish his imperium through the whole Mediterranean basin. Finally, as the signating and signated animal, Homo was the *magical* one, a magician, if **magic** consists in a mix of technique and semiotic, such that a set of signs could determine some physical operations. Directly, pouring water on the soil, as physically similar to the rain, would convectively induce it ; indirectly, a rain goddess, sign of rain, would induce rain even effectively. In the same way, Homo will torture, and the French couple: torture / supplice is enlightening, as "**torture**" (torquere, to twist) is the search of a sign (secret or altered) in the enemy or alien body, and "**supplice**" (lat. supplicium) a reinscription of social signs (social code) into the akin body, when it has transgressed the law. **Astrology** consists in situating someone in the most remote and prestigious field of *indices* and *indicia*, that of the stars in heaven.**

G. Field effects and rhythm. Distance grades

27. Field effects. Their two kinds: perceptivo-motor and logico-semiotic - All animals are simultaneously subjected to many attractors, which determine in their brain what one may call *attraction fields* (a word of differential topology and Gestalt Theory), from which

is elicited a particular behavior as a resultant. Moved by hunger or stress, a chicken pecks at grains of a certain form in a certain contrast, while a cat catches or teases moving mice, in both cases the attractors being channeled along the cerebral paths and relays of animal stimuli-signals <25>. Instead, in the transversalized *woruld of Homo, attractors are indefinitely varied and opened, because of the human ability to convert everything: number and order, natural and technical, actual and virtual, analog and digital, technical and semiotic, motivated and conventional. So, the human attractors are shaken by all sorts of instabilities, tensions, distances ("distanciations") between the designating sign and the designated object. Consequently, the relationships between the human attractors are often to be described as *field effects*, mainly of two sorts: *perceptive-motor field effects* make compatible visual, auditory, tactile, olfactory, and gustatory divergent attractors ; *logico-semiotic field effects* render compatible categorial, grammatical, indicial, and indexing attractors.

28. Field effects. Their four modes: stable, kinetic, dynamic, excited - The **perceptive-motor field effects** display four kinds of working modes, any of which being common to prehuman and human animals. (1) The **stable** modes detach the grain for the chicken, and for humans also a triangle, a circle, a rhombus, but in the human case with some latitude, given that in the eyes of a substituting primate a square is a square, but also virtually or really two triangles. (2) The **kinetic** modes allow an archer to aim at a mobile enemy by a cerebral calculation less infallible, but more tactical and strategical than that of a cat "playing" with a mouse. (3) The **dynamic** modes integrate not only movements but the forces they originate from ; hence a fight between a human specimen, who perceives such forces well, and a carnivore, that perceives them poorly or not at all, is not symmetric. (4) Lastly, Homo enjoys **excited** field effects, i.e. (according to the "excited states" of an equation in differential topology, René Thom) those where attractors are so numerous and so excentric that they do not have a determined resultant, nor are they *coordinatable* by a *de facto* calculus, nor by one *de jure* ; so that they can only be *compatibilized by rhythmic* operation or behavior. Excited field effects would have been more noxious than useful in the prehuman animals, and therefore were not selected by Evolution before Homo. Homo, as a transversalizing primate, not only has been activating and supporting such fields, but everywhere and every time has privileged them, making them a *thema*, particularly in order to obtain intense experiences of presence-autotranslucency <17, 70-73>. - As for **logic and semiotic field effects**, even if *semiotic data* are not similar to *perceptive-motor data*, they exhibit the same four working modes: stable, kinetic, dynamic, excited. The excited ones are not coordinatable either, and have again to be *compatibilized by means of rhythm*.

29. Field effects and phantasms. Fascinating and opening phantasms. The absolute signs - If we define *phantasm as any theme physical or mental when it is surrounded by field effects*, there are as many phantasms as there are field effects: stable, kinetic, dynamic, excited phantasms. And also there are as many phantasms as there are major themes: phantasms of things, of actions, tools, congeners, indicia, indexes, even one may experience *woruld phantasms and presence-autotranslucency phantasms <17>. Much more, an anthropogeny needs not ignore that phantasms undergo **two opposite cybernetic regimes** : compulsory and dilative. **(1)** In the first case, the field effects fulgurating from the theme initiate a kind of vortex irresistibly attractive ; so are **fascinating phantasms**, the most familiar of which lead to

reiterated robbery, rape, swift killing, torture and unquenchable punishments <26> ; they also sustain the perseveration of certain passions, the compulsory ; in all those phantasms, the focusing focused (fixing fixed, cleaved) *perceptions* assume a major role, either individual in mental diseases, or groupal in charismatic leaders. (2) Instead, the field effects can render the theme they surround with their radiant and moderate light more porous, complementary, dialectical, unlimited ; let us call them **aperture phantasms**. The four different kinds of field effects may sustain both cybernetic regimes ; but in many cases, fixed, kinetic and dynamic field effects elicit the fascinating phantasms, the excited ones the aperture phantasms. **Absolute signs**, like the Indian swastika, the Christian cross, the Chinese taijì, the Malay kris, the double triangle of the magem David (shield), etc., are those that combine all the resources of the phantasm with the ambiguity of being simultaneously powerfully analog and digital.

30. Non-coordinatable attractors and their compatibilization by the rhythm with its eight resources - The excited perceptivo-motor and logico-semiotic field effects, as being non-coordinatable *de facto*, and even *de jure*, may obtain a transitory resolution only from the rhythm, this exercise of *compatibilization of non-coordinatables*, through a succession of concentration and deconcentration. For that aim, rhythm has eight resources, all exploiting the orthogonal, transverse, frontal, lateral, holosomic properties of the human body. Let us enumerate them at random, so intermingled they are: (1) periodic and metronomic alternance, (2) interstability, or states between stability and unstability, (3) accent putting, (4) undergoing various tempi, (5) autogeneration up to suspension, (6) convection, (7) strophism as going to and fro, (8) distribution by kernels (Bach), envelopes (Mozart), resonances (Beethoven, Schumann), interfaces (Wagner). Rhythm plays regularities, but with shifts, and one has spoken of its *irregular regularity*. The baby gesticulating in its cradle, then trying to compatibilize (more than coordinate) his four limbs, proposes a brief history of the gest and gesture, later of the dance, music and speech. Animals do not care about rhythm, as their behavior is cleaved by stimuli-signals <25>. The field effects and the recourse to rhythm complete the homosomy in Homo <20>.

31. Pleasure, joy, "jouissance" - As a rhythmic animal, Homo not only compensates his heterogeneities, but, partially contradicting homeostatic theories, he stimulates, excites, feeds them ; not only to solve their tensions but because when destabilizing his habits and playing various points of view simultaneously he reorganizes his possibilizing power, enriches endotropies by exotropies, homeostasis by allostasis, multiplies his exploration drive (already active in prehuman primates, and even in mice), reshuffles his systems of reference, even the prevalent one, the width <5>. Similar to genius <13>, rhythm compatibilizes divergent processes and creates new pregnant dispersions. So, like every prolonged behavior or conduct, it must be sustained by affects <16>, called **pleasure**, deriving from repetition and variation, so that the French often designates it in the plural: "les plaisirs". Rhythmic pleasure accompanies almost all the actions and passions of Homo eating, nursing, holosomically copulating, working, making strenuous efforts. When converted from affect to sentiment, it is named *happiness* or *joy*, those cases where the body seems to evaporate into signs. In French, "jouissance" designates the converse case in which pleasure, now compulsorily cyclic, quasi rivets together organ, object and sign.

32. Rhythm and thematization of the presence-absence-autotranslucency - Some functionings can be so highly sublimed or sublimated by rhythmic field effects, essentially excited ones, that they do not appear as functionings any more and are confined to thematized presences-autotranslucencies. And that, along two ways: either the rhythm (perceptivo-motor or logico-semiotic) neutralizes the functionings that are quasi-*suspended*, or it boosts them until they *explode*. In both cases the rhythm may be said to be *presentive* <17>, sometimes in an involuntary rapt, sometimes after sophisticated maneuvers, as in yoga. What matters for an anthropogeny is that the *presentive conducts*, that Maslow called *peak-experiences*, penetrate and inspire every normal life, as he demonstrated interrogating students previously said to be eminently normal by their colleagues. Such conducts are active in alleged elite, like the Occidental or Oriental mystics, artists, lovers, heroes, but commonplace as the consumption of alcohol, tobacco, and drugs, farniente, orgasm, or pre-, post-, para-orgastic exaltations. And an anthropogenist will observe the two opposite transcendencies of the rhythm when thematizing the presence-absence: **ecstasis** as its plenitude, **horror** as its emptiness.

33. Things-performances-IN-a-situation-UNDER-a-circumstance-AGAINST-a-horizon - Anthropogeny, i.e. the continuous constitution of Homo as a stage-moment of the Universe, has been articulated in the previous theses along two main aspects. For six million years, geographical and biological modifications have selected, among (African) primatal populations, new body and brain characteristics that when coordinating permitted that there emerged and stabilized, through multiple bifurcations, organisms not only bipedal but also angularizing, transversalizing, holosomic, endotropic, etc. Under the action of those revolutionary beings, portions of the Earth crust have been appropriated technically and semiotically as a *woruld. Could we characterize the *woruld by a handful of key terms? Etymologically, the English "**thing**", German "**Ding**", French "**chose**", all imply that the interchangeable elements of the human panoplies and protocols are *indexable indicia*, thus themes of contest and ordeal commercially and legally. **Performance** adds that, manipulating such possibilized and interchangeable things, *behaviors* become *conducts*, just as *affects* transform into *sentiments*. **Situation**, that is not just the Leibnizian *situs* determined by spatial and temporal coordinates, implicates that all operations geneously human display choices and flaws. **Circumstance** elegantly signals the multiplicity and heterogeneity of the attractors by which all situations are intermingled with *perceptivo-motor and logico-semiotic field effects*, often excited, and sometimes so intensely so that they become *presentive* <17>. **Horizon** concludes that the *woruld, just as the German Welt (Heidegger), is both a *limit* and an *aperture*, not excluding that it comprehends, besides its describable realities, indescribable *presences-autotranslucencies*, by which it becomes a thema not only of **needs** but of **desires**. In such a definition, the three *prepositions* "in", "under", "against", written in capitals in our title, are of a consequence equal to or greater than the substantives, as the concern here is chiefly topology, cybernetics, logico-semiotics, presentivity <42>. Or simply, that there are no objects without related actions.

H. Massive tectures, images, dances-musics, languages

34. The anthropogenic bed plate: proto-tecture, proto-image, proto-music, proto-language. Massive versus detailed - An anthropogeny has to describe things from the most genetic point of view. So, Homo appeared before us sufficiently endowed by his rhythmic gesture, that did not need tectures, images, musics, languages. The puppeteers, those gesture specialists, perfectly know and prove that a few indicia and chiefly a good set of indices, particularly some (dancing) gait, suffice to create and express a lot of narrative and descriptive events, not excluding philosophical, ontological, or metaphysical ones. In other words, a pre-tecture, pre-image, pre-music, pre-language human society has, two million years ago, been *phylogenetically* viable as HOMO HABILIS. Now we have to consider that, only hundreds of thousand years of technical, semiotic, biological maturation were enough in order to produce, by means of indicia/indices, what we may call *proto-tectures*, *proto-images*, *proto-musics*, *proto-languages*, "**massive**", not yet "**detailed**", assignable to HOMO ERGASTER-ERECTUS, since around a million years ago.

35. Ground settlements. The three logics of the tectures. The sacred versus the located - A shelter, first only accommodated, then built, soon became necessary for a transversalizing Homo Ergaster-Erectus who needed a sleep comprehending three or four (?) REM-sleep cycles <13>, but also a refuge to protect his staple, when being a scavenger unable by himself to kill swift and powerful preys, and expecting them from more apt predators. On the other hand, the places of work and of rest soon ceased to coincide in the case of an exploratory primate like Homo erectus, as is patent from the East African site of Melka Kunture. So, human groups begun to build, or even inscribe in a prefiguration of writing on the soil, a panoplic and protocolar domain, no longer the simple collection of gates and goals proper to animal territory <11>. Those so-called **ground settlements**, comprising *mobile tectures* (tools, utensils) and *immobile tectures* (wall, roof, fixed pillar?), were powerful anthropogenic stimuli by their convergent and divergent **three logics**: (a) logic of **constructing**, (b) logic of socially **functioning**, chiefly as a **daily intercerebral theatre** <16,40>, (c) logic of spatially-temporally **embracing**, this essential achievement in the case of mammals having sojourned ten lunar months in a womb of which they are indefectibly reminiscent. Much more, as another disturbing allostatic innovation, the relative closure of the ground establishments confirms the idea of an **elsewhere** far away, stranger, *sacred* (German *heilig*) <72>. That *anywhere* became naturally the domain of the Ancestors, those underground or celestial forebears not annihilated though invisible <22>.

36. Massive images and frontality. The bifaces. Monument and idol - Homo as an upright, transverse, angulating, possibilizing primate, master-lord of domains larger and more fluctuant than animal territories <11>, was predestined to privilege holosomic contours in *vis-à-vis* capable of strengthening, stimulating and reassuring himself. In other words, he needed *images*, intercerebral likenesses and similarities before and against his face (im-, sem-, similis). The **choppers** of Homo habilis made up of irregularly fractured stones were still poor in this

respect. On the contrary, the **bifaces** of Homo ergaster-erectus were akin to the bilateral symmetry of the human transverse body. Much more, they detached a contour the more effectively as they were massive images, i.e. without inner details. That was enough to make them hesitant between a status of *tool* and another of *sign*, more and more conventional <24>, thus initiating a life of art <70>. All in all, one may take the biface as the archetype of *artistic image*, when for Homo standing or sitting it provides wishful correspondences: between the fabricating body and the fabricated product ; between the gesture of the fabricator and that of the user ; the body of the self and that of the socius ; between human gestures and "things-performances-IN-a-situation-UNDER-a-circumstance-AGAINST-a-horizon" <33>. Much more, the massive image inaugurates the *suspense*, even the *fascination*, in accordance with the status of the *sacred* <35>. Fixed and fixating, every image, and even more so when elementary, is pregnant of the **monument** (monere, to rememorate and to prevent), and of the **idol**, either demonic or divine, and available to intense perceptions, open or cleaved.

37. Massive dance-music. Auditory proportion. An outstanding intensifier of presence-absence-autotranslucency - Dance and music were produced from the same requisite as images, the need of delimitation and self-reflection for a transversalizing and gestural primate. Sound is a fluctuant phenomenon, dispersing itself because of its harmonics, better said its *partials*, that activate mathematically irrational relations with their *fundamental*. But it is centralizing too: controlled by the proportioning hearing of Homo, it can instantly be recollected and dispersing again in respect of pitch, duration and intensity. There is nothing at the same time as precise and open, binding (analogically) and opposing (digitally) as sound. So, the rhythmic walker and dancer Homo must find early, in the calibrated technical sounds of his tools <6> and those equally calibrated vocal sounds that began to be emitted by his pulmonary pump and the revolutionary angle between his pharynx and larynx conjoined with a more regular mouth, the opportunity to produce a mix of autarcy and ease, a prominent experience of endotropy multiplied by echoes from the surrounding rock caves and river rock beaches, or simply the close returns of the choir. Thus orchestrating the ten existential modes <15> shared with the anterior animality, but which with Homo are thematized and rhythmically alternated through days and seasons ; in Arabic, the same term *maqam* designates musical and existential modes <15>. And, as nowhere are perceptivo-motor field effects and the eight recourses of the rhythm so economically produced, the massive dance-music became the common experience of presence-absence-autotranslucency <17>.

38. Massive language. A first vocal thematizer of the *woruld and the human gesture -While music operates sounds as a source of controlled resonance, language exploited the same sound both vocal and instrumental (in the tone languages) for its articulatory properties due to the larynx-pharynx new angle, the controlled pulmonary pump, the equal and semicircular teeth range of the more and more erected face, a tongue capable of very differentiated contacts with the palate (hear the click-language of African gatherers hunters), a mobile soft palate allowing contrasting buccal and nasal emissions. In short, where the dance-music is chiefly *intense*, language, the principal performance of our left hemisphere, is *oppositive, differentiating*, emphasizing digital oppositions, creating *vocal segments*, and consequently a spontaneous conspiracy with the **woruld already segmented* by the technique. In order to succeed in the designation of things-performances-IN-a-situation-UNDER-a

circumstance-AGAINST-a horizon <33>, the massive language had but to correlate progressively and relatively its segments with the segments of the *woruld. Nothing is more anthropogenically naive than the massive language. It did not need to *delineate* some parts of the *woruld, as does the image. Nor to *collect by opening*, as music performs. It is enough for a speaker to *intervene* (venir, inter) by *thematizing* somehow the distributions of something already distributed, the technicized and semiotized parts of a *woruld previously gestualized.

39. Filled and empty signs of the language. The convention, or rather institution. The specification -Composed with signs, pure thematizers, the massive language no doubt must exploit the distinction between *indicia* and *indices* <25>, common to technique and signs, and it did articulate its signs into *filled ones* (indicial, analog) and *empty ones* (indexal, digital). (A) The **filled massive vocables**, those *indicia*, ancestors of our substantives, adjectives, action and passion verbs, did specify their themes by a few minimal mimics of a perceived quality or quantity; or a contrast of quality-quantity, hence confirming effective or mimetic gestures already rather explicit, and thus corresponding by one or two aspects to the structure, or the texture, or the topology, or the visual, tactile, olfactive, gustative, auditory temporality of the thing-performance in account <33>. This kind of correspondence must relax and loosen, giving place to more and more "distanciating" speech **conventions**, or **institutions**, as it happens in the case of every analog sign, chiefly when it is prone to become digital. (B) The **empty massive vocables**, the *indexes*, thematized their theme uniquely by pointing it, directly by direct convections (of the sound emitted), and indirectly by progressive exclusions of what it is not in a panoply or a protocol sufficiently closed: yes/not, 0/1. No more was required than, accompanied by eloquent gestures, some vocal oppositions, announcing the vocalic couple of our demonstratives: this/that, ceci/cela, and *consonantal* (m-t-s) couple of our possessives: mine/thine/his (mon/ton/son). For both vocables, the grunts and growls sufficiently contrasted and modulated by Homo ergaster-erectus, perhaps earlier by Homo habilis, were convenient for a while. It is certain that, with those *indicia* and *indices*, though inchoative, the massive language favored mineral, vegetal, animal classifications into **genera** and **species**. This *specifying activity* would lead to privileging the verb *specify* to designate the particular thematization operated by the language in general.

I. The ergon-opus-oeuvre-work-Werk and the X-Self

40. Current and extreme erga-opera. The daily theater - Hannah Arendt has usefully stressed the Greek triad of (a) **ponos-labor**, whose results are daily produced and reproduced (like food preparation, housekeeping, reproduction) ; (b) **ergon-opus-oeuvre**, whose results go beyond daily consumption, and even beyond seasons and times of life, thus manifesting a relative independence of the product from the perishable body that produced and used them (like a bed or a container) ; *Werk-work* have the same root as <F>*ergon*, but took a broader and confusing sense, comprising *ponos-labor*, e.g. in Marx ; (c) **praxis**, verbal substantive of *prattein*, whose results are unforeseeable even for the subject of the action (like a combat order or any educational act). This triad clearly articulates the anthropogenetical role of the ergon-opus-oeuvre, and its consecration by the massive tectures, images, dances-musics and

languages. Its primeval form was the tool, like the biface and the water bottle of Melka Kunture, and its supreme accomplishment, the tombs. On the other hand, one has to carefully distinguish two **grades** of erga-opera-oeuvres: *daily* and *extreme*. (1) The **daily ones** go on along ordinary functionings, accompanied by some presence-absence-autotranslucency, but not thematizing it. (2) The **extreme ones** are those which, by means of excited field effects, induce their functionings to thematizing the presence-absence along tensions and suspensions <28> ; let us call them *presentive*, even *presentive-absentive*- <17, 22>. The archetype of the extreme ergon-oeuvre-opus is the funeral monument, with the dance-music that realizes the present-absent intercerebrality of the group around it. In any case, the common or extreme erga-opera-oeuvres are the support of the social **rôles**. They are the social **scene**, passive and active, witnessing, proposing, instigating, of the **daily theater**.

41. The ergon-opus vis-à-vis the human self. The X-Self - What one calls a human specimen is not an individual, something un-divided or indivisible, but, like every living thing, an "*interior milieu*" (Claude Bernard) coapted with an "*exterior milieu*" by and through appropriate *interfaces*. Among those, the greatest part have as their function to join the two milieus, but some permit to distinguish the organism as a whole from others. So, among the cerebral functions we find a *self function* <17>, that is some constant (principle or characteristic) of the memory <12> of an organism <12>, ensuring that this organism, despite its adventures, remains "this one", or at least "some one", inasmuch as such a constancy is required by its viability. In the transverse animal, the strategic signing and signed Homo, the **self** is of greater expansion and openness than in his cousins, canalized by their stimuli-signals <25>. Significantly, it is in the human brain that some region has been evidenced for this purpose, because it is inactivated when the *self* is asleep, e.g. in some ecstatic states. But the prominent human self is also more vulnerable than the prehuman one, and its subsistence requires many phases of REM-paradoxical sleep for its traumatisms to be repaired <12 >. Its awakening is no less a concern, and supposes the help of erga-opera-oeuvres, with their shape and temporal persistency, relative autarchy, various concordant and distinctive layers. With his greatness and weakness, mingling dispersion and unification, the *human specimen* (one in a species) could be said an **X-Self**, a formula here retained as useful. In the case, "**self**" marks the domain continuity, while "**x**" signals that such a showy selfishness is only a constantly moving resultant of infinitely various field effects, resulting from most heterogeneous series, evolutionary or acquired, having constantly to be rhythmically "compatibilized" ("coordinated" would be hubris) by perceptivo-motor and logico-semiotic modest or portentous field effects. Gesticulating and grasping in his cradle, then making his first steps, the baby demonstrates how much that rhythmic compatibilizing is problematic, due to aggregate innumerable series and modules, while the senile or the drug-addict show how the edifice is intrinsically prone to return to serial parcellarity. The repugnance of "self" and "x" signals this tension. Lastly, the capital "**X**" and that of "**Self**" remind us that probably from the very beginning (Homo ergaster at least?) the x-self(ves) have been designated by **names (surnames)**, thus by signs at the same time filled and empty, that designate and situate them as conjectural knots of indicia and indices.

42. Existential fate-option (destin-parti) of the X-Self as a singular topology, cybernetics, logico-semiotics, presentivity. The ergon-opus-oeuvre-work subjects - Any X-Self is **singular**, as being a result of infinite heterogeneities. Could it be, if not definable, at

least situatable, for the purpose of an anthropogeny? In agreement with our previous descriptions, four views seem to prevail. (1) **His topology** is the relation that an individual initially practices towards spatial extension (of his panoplies), before using any geometrical measures and figures, thus distinguishing: nearby / remote, continuous / discontinuous, opened / closed, embracing / embraced, all topological properties. (2) **His cybernetics** is his fundamental relation to the duration (of his protocols), before all abstract time measures, but implying a cerebral and gestural blend (rates) of action / retroaction, positive and negative retroaction, feed-back / feed-forward, straight / delayed, and most patently activity / passivity. (3) **His logico-semiotics** is his relation to the signs, when everyone practices a singular blend (rate) of indicia / indices, association (...and...) / disjunction (...or...) / implication (when...then) ; exclusive disjunction (either...or) or inclusive disjunction (or...or...) ; fixing / cinetic / dynamic / excited field effects. (4) His **presentivity** is his particular stressing on one of both terms in the couple: functioning / presence-absence-autotranslucency <17>, as some privilege functioning up to forgetting the presence, others cultivating presentive conducts up to conceiving that functionings are a mere appearance (maya, doxa). - Thus understood, the *fate-option* concept concerns groups as much as individuals. And in both cases it explains why essential aspects of human "erga-opera-oeuvres" have *meaningful contents independently from their narrative or descriptive content*, precisely their topology, cybernetics, etc. That content(s) will be called here **ergon-opus subject**, in French **sujet d'oeuvre**, in English rather ambiguously **work-subject**. The independence of the work-ergon is such that its fate-option and that of its producer (X-Self) are often far from strictly overlapping one another. The work-ergon produces its producer more than it is produced by him. Hence, the X-Self is more "X" than "Self".

2 - ACCOMPLISHMENTS

J. Three Worlds

43. An obliged suite: nearby continuous, remote continuous, discontinuous - Homo emerging from among the prehuman primates was the resultant of very heterogeneous suites or series: moves of the Earth crust, internal adventures of the Sun, oceanic streams and bottom vents, volcanic eruptions, epidemics, genetic mutations, conflicting species and genera, etc. But once the human specimens had been established as a genus (Homo) with some species (*habilis*, *ergaster-erectus*, *archaic sapiens*, *sapiens sapiens*), and definitively since the exclusion of *Homo neandertalensis* (30 BP) had reduced those species to one only, *sapiens sapiens*, circa 160,000 years ago at least (based on Ethiopian skulls recently reconstructed), some *suites* became perhaps obligatory, akin to *series*, *obliged suites*, as musicians say. That is proposed by the primordial place of *topology*, with its four fundamental concepts: nearby, remote, continuous, discontinuous, in our definition of the individual and groupal fates-options <42>. It is not easy to imagine that a transverse primate would practice the discontinuous before the continuous, the remote before the nearby. This ought rather to suppose another succession: (1) the *nearby continuous*, (2) the *remote continuous*, (3) the *discontinuous*. So, there would have been three **major *worulds**, three **worlds**, at least once Homo had become *sapiens sapiens*, i.e. gone forward from his first state of *massive* tectures, images, dances-musics, languages into his present state of *detailed* tectures, images, dances-musics, languages, since the **superior Paleolithic**, chiefly from 50 to 12 thousands years BP.

44. The three worlds - This topological suite (series) appears to be confirmed by archeology and history. The **WORLD 1**, that of the **nearby continuous**, was developed by the civilizations prior to the writing age, as proved by their remnants in the ascriptural traditions of the Polynesians, sub-Saharan Africans, or Eskimo groups ; and even after the beginning of writing, through the primary empires, as those of Sumer, Egypt, India, China, or Amerindia. Only, we ought to distinguish a **WORLD 1A**, ascriptural, and a **WORLD 1B**, scriptural. Later, around -800 BC, the Greek **WORLD 2**, that of the **remote continuous**, inaugurated its surprising practice of *sorting forms against background*, and correlatively of treating them as *wholes integrated by integrantes partes*, either in the "right" distance of the *theater stage* (*skènè*), or through the "rightly" distancing *frame* of the *theory* (*tHeôria*). This *totalizing perception* will be regarded as "classical" in the Western civilization through 1850-1950,

excluding the diversion of the barbarian invasions, between +400 and +1000. Lastly, since the years 1850-1950, the **WORLD 3**, that of the **discontinuous**, has been going on around our Planet, overlaying all traditional civilizations by the advanced technics and planetary media, all deriving from the Archimedean sciences <59-60>. - We will examine first whether this anthropogenic three-moment punctuation is verified in the detailed tectures, images, dances, musics ; later, in the detailed languages leading to writings, and consequently to mathematics, philosophies, sciences, and logics. Hence the title of this second part: the accomplishments of Homo.

K. Detailed tectures, images, dances-musics

45. Detailed tectures: topoi, frame, sub-frames, perspective, reticulation, windows
- In **WORLD 1A**, at the time of the **Upper Paleolithic**, 50,000 BP, succeeding to the *ground establishments* <35> of Homo erectus, those of Homo sapiens sapiens began to be structured as *thematized topological organizations* partly inspired by the coaptative (sexual) suggestions of the breaks in the calcareous rocks. Since 30,000 BP, the caves of South Europe exploited the contrastive topologies of rooms, walls, vis-à-vis, gates and blind alleys for realizing, expressing, ritualizing an existential systemization of *topoi*, i.e. of appearing couples of nearby / remote, embracing / embraced, open / closed, whose detailed significations are forgotten, but are presumably accomplished shamanic rituals, mixes of signs related to the Generation, i.e. a cosmic process common to hunting, nurturing, eating, mating, giving birth, dying, and until recently active in North American and Siberian remnants of shamanism. With the **Neolithic**, those topologic dispositions acquired a first geometrical regularity in the circular stone monument of Göblike Tepe (Turkey), 11,000 BP, long before the cromlech of Stonehenge. Soon after and still around the Fertile Crescent, Homo started domesticating cereals and flocks, making crowded villages, where walls of houses, until then curved or circular, turned to being right and crossing at right angles, the most economical articulation. So, the Neolithic "tecter" inaugurated what will become for the orthogonal and transverse primate perhaps the most pregnant of all his institutions: **the frame**, and especially **the square**. And in a matter of centuries, the framing-squaring articulation of the Neolithic tectures gave birth to the **subarticulation** of the quadrangular network of streets in the cities, and the ground measuring in the countryside, inducing writings, the most subarticulating of all human practices, in Egypt, Sumer, India, China, Pre-Columbia, during the *primary empires* of the scriptural **WORLD 1B**. Thus subarticulating, the "tect" became the archi-tect, i.e. the "tect" in chief, potent coordinator of increasingly larger architectural projects with huge corporations of workers ; discipline was born. In a new formidable step, around -800 A.D., in the requiring sealing conditions of the East-Mediterranean Sea, and among peoples practicing several Indo-European languages (being very syntactical) and a complete and equal writing, the *nearby continuous* of WORLD 1A and B was transformed into the *remote continuous* of the abstractive **WORLD 2**, detaching forms against their background and constructing wholes integrated by integrating parts <44>, thus generating the Sicilian and Athenian temples, and more generally the **perspective**, this totalizing squaring in depth, which dominated the Western World until recently. Last, since 1950, the tectures were multisquared following the *discontinuities* of **WORLD 3**, where the continuous *expansion-duration* was replaced by a windowed-windowing *space-time*, entailing a basal redefinition of the ancestral logics of all tectures: constructive, functional, embracing

<35>. Now, as such discontinuities are already a difficult performance in *little tectures*, like tools, because of the stable anatomical and physiological continuities of the human gesture which they must fit, they are much more difficult to generate with respect to *big tectures*, like houses, because of the inertia of the raw tectural materials, the social requirements of physical contact, the embracing space postulated by a mammal that has spent ten prenatal unforgettable months in a uterus. So, tectures and architectures of WORLD 3, despite revolutionary theories like those of the Harvard School of Design, remain nowadays pretty archaic, even with Calatrava (construction) and Gehry (social function and bodily embracement). Will they be one day capable of actualizing anything of those dynamic sequentiations (aminoid sequences? <61>) that our biology demonstrates in the living formations, which add to the traditional paradigms of *structures* and *textures* the new one of *ultrastructures* exhibited in histology <47>? What kind of buildings could be adapted to human specimens windowing-windowed and decidedly idiosyncratic <67>, often living alone in "a city for the other", subject matter of "a sociology of the singularities".

46. Detailed images - We have seen Homo erectus-ergaster invited to conceive *massive images* when manipulating his technical bifaces <36>. Similarly, Homo sapiens sapiens, when fabricating his multiface and detailed tools, in operations that supposed feedback and feedforward imagination and gesture, became prone to envisage *detailed image*. So, in the **Upper Paleolithic**, about 50,000 BP, there appeared images of animals (Europe) and humans (Australia) made up of internal parts: a leg, a head, a trunk, a nose, an eye ; body organs parallel to tool organs. Anthropogenetically, it was the birth of the **imagic re-presentation**, i.e. an occasion for presenting *again (re-)* and presenting *in another manner (re-)* a set of visual data, comparably to the nervous *re-presentations* (Young) that the nervous system had been operating for millions of years, when - relay after relay - it re-elaborates exterior stimuli in order to adapt them to the vital perceptivo-motor reactions of an organism. And just as the nervous representations may be *very free* in their topography and intensity, thanks to the stability of the stimuli-signals they convey, so the imagic representations can be free thanks to the stability and technical generality of the panoplies and protocols of which they are parts. Thus, a few details in a quasi-arbitrary disposition are generally enough, amid things-performances-In-a-situation-Under-a-circumstance-Against-a-horizon <33>, for being identified as a woman, a man, a horse, a bison, even *that* particular variety of bisons. At the same time, **imagic field effects** began to proliferate, perceptivo-motor as well as logico-semiotic <27>. First, because they complete the representation, at least when they are fixed, cinetic or dynamic <28> (it is frequently its aspect that allows the identification of a species, even a sub-species), but also, when being excited <28>, they may induce the desired presence-autotranslucency <17> in the spectator. Moreover, the detailed images developed, more effectively than the detailed tectures, the virtualities of the framing. Since the **Upper Paleolithic**, the "dorsal spinal line" of painted animal and the "rhombus contour" of sculptured Venus inaugurated a sort of *presquaring*. And so, in the **Neolithic**, perhaps under the influence of the walls crossing at right angles <45>, the three superposed buffalo heads of Çatal Hüyük declared a *frontal squared frame*, which in the later centuries until now will become the spontaneous referential system of Homo as a theorist. The Upper Paleolithic *Generation* <45> became the Neolithic *generating schematism*, startlingly documented by *The Goddesses and Gods of Old Europe* by Marija Gimbutas. So much so that, in the transition from **WORLD 1A** to **WORLD 1B**, the images (and writings) of primary empires easily developed their *generative sub-squaring* practices. Around -700, the

Greek painters and sculptors, with WORLD 2, in the same spirit as their brothers architects, began to sort the forms against the background and build wholes integrated by integrating parts <45>, soon exploring all the resources of the **perspective** up to the Renaissance projective geometry, linear but also colored and luminous with Piero della Franscesca (*De prospectiva pingendi*). Finally, such an objectivism produced a dramatic turn. With photography, cinematography and magnetoscopy, the images, which constantly until then had been **traced**, began to be **granular** <78>, no longer made up of traits but of grains, and thus digitalizable, and consequently capable of *blow up*, *mounting*, *incrustation*, *accentuation* of all kinds, thus favoring the general windowing-windowed multisquaring trend of the WORLD 3. Even the surviving *drawn images*, i.e. paintings and sculptures, were influenced by the *granular ones*. They first produced the pointillism of impressionism, the multiframe of cubism (Picasso, 1905) and the comic strip (McCay, 1905), the quantal drawings of Marcel Duchamp <Trébuchets, 1910>. In a last avatar of this granularity, some paintings recently exemplified the seven characteristics of the dynamic sequences of the "living formations", amino formations <45,61>, with their **ultrastructures**, versus **structures** and **textures** ; so that they can be said to be "aminoid". Decisively so in Micheline Lo's *Les Chemins des écritures*, 1997. Inchoatively in the "alphabets" of Jasper Johns since 1960.

47. Detailed dance-music - About the origins of the dance-music, so fundamental for an endotropic mammal <14> in quest of echoes and endowed with a proportionating hearing <19>, an anthropogeny is frustrated by the rare and indirect documentation: a few instruments or some images representing them with or without musicians. Thus, an image of the Grotte des Trois Frères that has inspired Jacques Chaillet for his title of *30,000 Years of Music* depicts a dancing body, semi-prehuman semi-human, holding an alleged musical bow, whose single string seems to correspond to the imagetic proto-squaring of the superior Paleolithic <46>, and could exploit the echoes of rocky caves complementing coarse shamanistic voices. Otherwise, the anthropogeny of the detailed dance-music, as soon as we have any testimony of it, seems to be parallel to that of the detailed images. (1) **Square framed** in Neolithic societies, as suggested by the percussions prevalent nowadays in the ascriptural **WORLD 1A**, for instance in Africa. (2) **Subsquare framed** in the politico-cosmic music of the scriptural **WORLD 1B**, patently witnessed by Chinese texts, but also by the *chironomies* (kHair, hand, nomos, law), i.e. coded movements of the hands, elbows, and legs by the choir master, that can be seen on Egyptian frescoes, and have endured until recently through the Coptic liturgy. (3) **Sorted out and squared as forms integrated against their background** in the Greek **WORLD 2**, outstandingly in the double Dorian *tetrachord* (a musical equivalent of visual *perspective*) until the appearance of the *accompanied melody* of the Western opera (an equivalent of *projective geometry*). (4) Lastly, **reticular** and **windowing-windowed** in the *discontinuities* of the **WORLD 3** and parallel to granular images <46>, becoming granular from the nature of its magnetic recordings and sound synthesizers, both favoring the revolutionary construction not only of pitches and intensities but also of timbers, a working largely digital, though partially analog. Sequential by nature, and thus very capable of miming not only forms (Gestalt) but formations (Gestaltung), music has become the practice most prone to espouse the dynamic sequences of living formations, amino formations <61>. In that sense, the compositions of Steve Reich since 1970 could be called **aminoid**, more explicitly even than some images <46>. Similarly, in the work of the film-maker and musician Thierry De Mey and his sister choreographer Anne De Mey, the structures and textures, where traditionally the dancing bodies

realized mental exemplar forms, are now anticipated by *ultrastructures*, where the body forms are generated by the vital singularities of the organisms involved (aminoid formations <45, 61>), particularly when inspired by a natural or an archaic milieu (*Love Sonnets*).

L. Detailed languages

48. A larynx-pharynx innovative angulation and the achieved passage from human vocal sound to tonal sound circa 50,000 BP - From our anthropogenic survey thus far, there emerges a crucial interrogation. For 2,500,000 years, there has been a relative technical and cultural stagnation of Homo through his stages-stadia-strata Habilis, Ergaster-Erectus, Archaic sapiens, and even in the first times of Sapiens sapiens, i.e. during the Lower and Middle Paleolithic, where only *massive* tectures, images, dances-musics and languages took place <34-39>. Now, with the so-called Upper Paleolithic, emerged *detailed* tectures, images, dances-musics, languages, and in the space of 50 thousand years also the electronic microscopes, space shuttles, atomic plants, decryption of genome and proteome, glimpses into the confines of the Universe dating back to billions of years. Could there be found an innovation accounting for such a steep contrast? It seems that there is one principal, if not the sole: that the angle formed by the human larynx and pharynx, combining with a more differentiated mouth and tongue, already responsible for the *articulated vocal sound* of the *massive language*, would get a new transformation so as to produce **tones**, i.e. *vocal sounds tensed, stretched and sustained* (teinein), capable of a *detailed language*.

49. Phonematics and phonosemy - Tones were vocal (or instrumental) units where interlocutors now could hear and produce *detailed sub-units*, the vocal **tokens**. Such a distinctive linguistic unit composed by such sub-units was called a **phoneme** by Troubetzkoi (1930). Later, c.1950, by one of the rare major findings in the field of human sciences, Jakobson and Halle established that all the phonemes of the world could be reduced to one dozen tokens conveniently available in a universal **matrix** with **twelve entries** : (1) vocalic (with clearly definite formants) / no~ ; (2) consonantic (with blurred formants) / no~ ; (3) compact / diffuse ; (4) bass / high ; (5) tense / loose ; (6) voiced / unvoiced ; (7) nasal / oral ; (8) discontinuous / continuous ; (9) strident / no~ ; (10) blocked / fluid ; (11) flat / no~ ; (12) sharp / no~. Much more, they suspected that the tokens composing this matrix derived from *fundamental categories of Physics* : (a) energy / information, (b) direct / indirect information, (c) tempo. The phonemes were thus something predictable, physical, natural, much more existential. Indeed, hearing and producing events that are nasal or buccal, high or deep, etc., must produce and sustain in the producers and receivers very different topologies, cybernetics, logico-semiotics, presentivities, i.e. *existential fates / options* <42>. In sum, **phonemes are phonosemic**, i.e. vocally distinctive and meaningful at the same time. And consequently *glossemes* (generating words), *sequencemes* (generating phrases), *speech phrasing*, as all composed by phonemes, are **phonosemic**, too ; a feature that points to some consanguinity shared by language and music, "both deriving from gesture" (Augustine, Wittgenstein). So that *detailed languages*, like all other languages of Homo, are largely *motivated*, as selected by the anatomical dispositions of their interlocutors as much as by their existential fate / option <42>. Would they be "natural

languages" transmitted by tradition, or "jargons" created by terminologists? Jakobson's vocalic and consonant triangle (**a-u-i**, **k-p-t**), i.e. compact / diffuse, low / high, and the buccal / nasal labial opposition (**p-m**), in combination with the labial performance of the sucking child, provide physically and existentially the base of the familial triangle: **Ma(m)-Pa(b,d)**, and the other infantile words: kaka, pipi, dada. Our augmented knowledge of the brain and neural system confirms that there are no languages escaping such a base and such a frame.

50. The four layers (strata) of the detailed language: phonemes, glossemes, syntaxemes, speech phrasing. Linguistic variation, selection, amplification. The circuit between word and term - The detailed language is no more mysterious than the massive one, and for the same reasons <38>: it consists of vocal differentiated *segments (boxes, modules)* arranged in panoplies and protocols, and it intervenes (venire, inter), amongst a previous gestually and technically segmented environment, panoplic and protocolar, in order to thematize and specify (we do not say: represent) this environment, in an emotional, technical, performative, and increasingly theoretical manner. Once provided with phonemes, the detailed language was able to construct **glossemes**, filled (indicial) and empty (indexal), combining them frequently into those *practical semantical units* that are *words*, specifying thing-performance-IN-a-situation-UNDER-a-circumstance-AGAINST-a-horizon <33>. Then, as Chinese patently demonstrates, very few obvious **syntaxemes**, i.e. canonic *word orders* (e.g. the posting of the determinant before or after the determined, of the subject before or after the object, etc.), were sufficient, in the human already technically and socially segmentarized context, to express all linguistic and logical relations. Those were the vital ones: association, disjunction (exclusive and inclusive), consecution, causality (efficient, final, material, formal, instrumental) ; then, the major temporal and spatial subordinations (when, where, as, during) ; lastly, more remote and mental instruments: condition, concession, thematization (English "as such", Greek "ἐ", French "en tant que"). Soon, the sequence of phonemes, glossemes, syntaxemes took place in a speech **phrasing**, some kind of vocal field effect <27>, between musical resonance and linguistic articulation, the first lingual layer, the earliest to acquire for the nursing baby, who very rapidly perceives and appropriates it by prattling. - As to their **evolution**, the detailed languages have used the three main resources of all *living evolutionary processes* : variation, selection, amplification <61>. In their case, **variation** proceeds along systemic derivation (phonic, semantic, syntactic), exterior borrowing, technical or social change, and **selection** along the phonosemic appropriation of this variation with the also varying referent, not forgetting the compatibility with the previous elements of the dialect and most generally with the existential fate-option of the group <42>. Lastly, accordingly to urgencies, pleasures, fashions, **amplification** could emphasize such or such phonematic token, or a new family of glossemes and sequencemes, or the bond with some prevalent linguistic neighbor. As a result of all that, each language is *phonosemically and existentially satisfying* for those who natively speak it ; conversely, every speaker needs a rare mind openness to tolerate a foreign language as not too strange, barbarous or fascinating. Besides their linear evolution, languages display the internal **cycle** of words and terms. **Words**, those rather *polysemic* and *emotional* practical semantic units of glossemes, tend to convert into **terms**, rather *cold*, *definite*, even *univocal* semantic units, chiefly in highly technical societies. Conversely, the artificial and desiccated **terms**, when used by griots or simply by natural living speakers, tend to be recharged by the flesh and the flavor of **words**. Whether native or terminologized, language is *phonosemical*, spontaneously in the word, artificially in the term.

51. Language as spontaneous. As multifunctional. As idiolect, dialect, fixed home tongues - Now, when the phonemes? When the glossemes? When the syntaxemes? When the speech phrasing? Did the empty detailed glossemes (indexating) appear before the filled ones (indicializing), or in the inverse sequence? Actually, the four layers of the detailed language are so intricate that they certainly occurred in a circular causality, following the urgencies and desires of the interlocutors. At all events, the surviving texts of Sumer and Egypt are evidence that the dialects have thus far been extremely stable in their resources, whereas techniques and social customs (mores) have evolved substantially. This comes as no surprise considering that the four linguistic layers (phonemes, etc.) largely suffice, by their intercourse, to designate (thematize, specify) all possible and impossible events <4>, all functionings and presence-autotranslucency <17>, all classifications and abstractions, up to creating the metalanguage of grammars and lexicons. The startling simplicity of language structuring, condition of its infinite power, explains why the nursing child needs only three or four years to decode *ab ovo* the principles of its parental tongue (sometimes of three or four parental tongues), uniquely **observing** the usage object / action / word used by its parents (Augustine, Wittgenstein) and **intervening** in it. At the age of four, the novel speaker begins to perceive and produce the finest speech realizations: lies, paradoxes, humor. Much more, he operates all this as a **multifunctional process** : (1) as informational or referential, (2) as imperative-exhortative-performative up to magical performances, (3) as lyrical, (4) as presentive ("phatic", Jakobson), (5) as reverberant (when ruminating in forms of literature or publicity), (6) as citative and paraphrasal, (7) as metalinguistic and intertextual, (8) as structurally normative, generalizing, singularizing (so contributing to the spinning up of the X-Self <41>). Surely, all this supposes that one accurately distinguishes among idiolect, dialect, fixed home tongue, as does the *Cambridge Encyclopaedia of Language* (1987). Then, **idiolect** designates that language proper to each singular speaker, almost coinciding partly with his practical logic <63>, partly with his gesture. But, as developed in the intercerebrality <16> of a society <26>, every idiolect becomes a **dialect**, i.e. an inter-controlling exercise of idiolects. Lastly, for technical, political or religious reasons, a dialect can generate a **fixed home tongue**, as French and English in the 17th century and German in the 19th century, by means of imposed normative grammars, lexicons, academies, assuming the role of a moral regent. The linguists have observed that, whereas *fixed home tongues* define geographical *localities*, *dialects* display a geographical *continuum*, where speakers B, C, D do understand A, but E, who understands F, G, H, no longer understands A. Every anthropogeny must first take into account *dialects*, spontaneous and general phenomena, before paying attention to the particular cases that are the tongues, politically stabilized.

M. Writings and mathematics

52. The proto-writings of the Neolithic counter chips. The stages of writings: intense, contractual, consonantic, consonantic + vocalic - Denise Schwandt-Besserat made another major anthropogenic contribution when she discovered that the mysterious chips stocked in Neolithic museums were book-keeping pieces. There, the nature of the exchangeable (merx-, merchandise) <4> was expressed *analogically* by an *image* (an ovine, a bovine, a

cereal) and its score *digitally* by the *geometry* (circle, square, rhombus) of the prop. Every piece was to be read: "Here is *this* score of *this* kind of exchangeable". At the same time, the maquettes of the temples of Azor, similarly combining analogy and digitality, told: "Here is the generating schematism <46> of the temple of *this* goddess or god". Neolithic times thus demonstrated the intimate link between the **squared framing** of great tectures <45> or images and musics <46>, on the one hand, and proto-writing or arithmetic, on the other hand. Preceded by such a conjunction in the ascriptural **WORLD 1A**, the primary empires of the scriptural **WORLD 1B**, already **sub-framing** in their tectures <45>, images and musics <46>, must be prone to conceive the **sub-framed speech writings**, sometimes conveying a particular dialect (Egyptian, Sumerian, Semitic), sometimes the dialect in its generality: Chinese characters were and are understood by readers who did not speak Chinese, thus assuring the political unity of an immense polyglot empire. Just as languages became *detailed languages* when their phonemes were perceived as a set of *phonematic tokens* <49>, so the Neolithic proto-writings became detailed writings when composed by *graphical tokens*, rather numerous in the Egyptian writing, which did not outlive Egypt, and rather few in the cuneiform Akkado-Sumerian writing, which would generate all the future types of scripture. Once composed of distinguishable graphical tokens, the **characters** were *ideographic* (China), *ideographic and phonematic* (Egypt), *syllabic polysemic* (Mesopotamia), *alphabetical and consonantic* (ancient Semites), *alphabetically consonantic and vocalic and remarkably equal in size*, i.e. *no one emerging* (Greek and Rome).

53. The ontological and epistemological revolution inherent in graphic tokens.
From the first cunei up to the windows - As something problematic for the reader and the scribe, the writings invited Homo to contemplate up to what point the referents they convey may be known, thus generating epistemology and ontology. With writings, and not before, the philosophies *sensu stricto* were born, as general allegedly coherent systems <57>. So, in the scriptural **WORLD 1B**, the Akkado-Sumerian cunei, each written syllable of which had several pronunciations and acceptations, promoted a view where the nouns of things-performances <33>, spoken out and especially written down, gave birth to **rebounding interpretations** ; about -1150 AD, the fifty names of Marduk, the supreme god, were literally his theology and cosmogony (Kramer, Bottero). Similarly, the Chinese ideograms have suggested a logic with **inclusive disjunction** and **without third included** (cf. Heatings algebra), yin-yang, and grammatical classes remaining evanescent, the same written character being prone to function as a verb and a preposition. About -1000, the three prevalent alphabetic Semitic writings, - Phoenician, Aramean, Archaic Hebraic, - effected one of the greatest anthropogenic revolutions in history when, renouncing to be graphically intense writings like their ancestors (Sumerian, Egyptian, Indian, Chinese), they became so to speak **contractual**, expressing and confirming a kind of human and divine generalized negotiation about all possible things-performances (the Ark of the Covenant) ; the Hebraic square writings of our era, Massoretic and kabalistic, prolong this ciphering option. Since -650, the Greek alphabet has been so *transparent* to the *language* and also to its *designata* that it might bear, or even implicate, an ontology and an epistemology of the "to on" (the **being**, das Seiende, l'étant) as such ("**è on**"), and even of the "to ti èn einai" (the **essence**), simultaneously with a logic of the third excluded generating a Boole algebra (that is that OR ~ that), which remained the only one of the **WORLD 2**. Nowadays, our computer writings, windowing-windowed, contribute to make all events,

statements and wordings *reticular* and *quantal* <61>, thus confirming the **WORLD 3**. Graphosemy is as anthropogenic as phonosemy.

54. Epistemologies and ontologies inherent in the implements and props of writing. The computer screen. The prevalence of the production means versus the production relations - Besides being the tokens proper to a writing, its graphic **implements** also powerfully determine the existential fates-choices of their writer when they are soft or hard, pointed or blunt, direct or indirect, in other words cunei, brushes, calami, quills, markers, computer keyboard or mouse ; one cannot write a Cartesian discourse or a Mozartian opera moving a marker. The same has to be noted about writing **props**, influential by their material sometimes magical sometimes neutral, as tortoise shells, ostraka, rocks (of the Açoka edicts), papyri, parchments, papers ; and chiefly having such and such shapes, better said, topologies. So, in the first century of our era, the replacement of the Greek **byblos**, foldable, by the Roman **codex**, turnable over, must invite the Mediterranean readers of the **WORLD 2** to compare easily and instantaneously page 30 of a volume with, say, pages 83 and 158, thus inciting Roman lawyers, then other Roman scholars, to become aware of distant contradictions, and thus to construct pretty coherent systems, like Plotin, rather than loose dialogues or eloquent monologues, like Plato or Aristotle (exoteric). Much more, the double symmetric page and the central intimate fold of the codex promoted the Occidental formal X-Self, when "in angulo cum libello" he was prone to conceive himself as an "anima quodammodo omnia", destined to become the classical capitalized "Moi" of Descartes before the "Ich bin Ich" of Fichte. Today, the screen of the **WORLD 3** computers, windowed-windowing by its inserts and admittedly ignoring the central fold of the codex, has created X-Selves equally windowing-windowed. - From those adventures of writing, an anthropology must verify the general sociologic law that, in the cultural phylogenesis of Homo, the **production means**, fathomed by Mumford (*Technics and Civilization*, 1934), Simondon (*Du mode d'existence des objets techniques*, 1956), Mac Luhan (*Understanding Media*, 1962) and Van Lier (*Le nouvel âge*, 1962), influence the existential fates-options <42> of human groups much more than the **production social relations**, favored by Marx (1850).

55. Mathematics as the absolute practice of purified indices (discharged and disindicialized), and the general theory of purified indexations - Writings are the source of mathematics for two main reasons: (a) on their props, writings propose data transversely, thus suggesting exact substitutions that are ideally possible about indices, not about indicia <25>, and more precisely *purified indices*, i.e. cleaned from all indicialities and discharged from affects or cognitive drives ; (b) writing implements are spontaneously indexating. More essentially, writings are also the inescapable and privileged instrument of mathematics, when in the case or indices and indexations the concept (indexations) and the writing (written indices) are *equipollent* ; working on the one is working on the other. Such a discipline was so straight in its nature that anthropogenically its genesis was essentially obliged. As early as the ascriptural **WORLD 1A**, mathematics had their dawn in the Neolithic counting tokens <52>, and with the scriptural **WORLD 1B** they reached a first maturity in the squaring activities of the Egyptian soil surveyors and the Sumerian astronomers-astrologers, of whom up until today we piously practice the vigesimal numeration with our sixty minutes and seconds. Yet, the Greek **WORLD 2** detaching out the forms from their background was a precondition for the

passage from soil and heaven survey to Geometry, just as the Greek writing, complete, equal and transparent, was a precondition of the Euclidian and Archimedean idea of geometrical demonstration. Nevertheless, neither the Greek figures (alphabet characters) nor the Roman ones (too monumental) afforded the swiftness required by an Algebra, that supposed the position numeration of India, with zero and light numerals, transmitted through Arabs mathematicians, and finally adopted by Europe when its substantilism tempered its repugnance for the void (zero). Lastly, c. 1630, coinciding with the first triumph of the Archimedean science <60>, Descartes conceived an Analytical Geometry, figurating Algebra as a Geometry, and conversely generalizing Geometry as an Algebra. The potent idea of function illustrated on that occasion, $y = ax + b$, $y = f(x)$, and soon that of infinitesimal calculus, sufficed for Newtonian physics to develop until the beginning of 20th century, except for aporias, limited but sharp enough to start the project of a theoretical foundation of the field. So, after the Geometries had been generalized by Klein's Transformation Group Theory (1872), there consistently followed the Arithmetic Axiomatization by Peano (1900), the Set Theory of the Bourbaki (1936), the Categories Theory of Eilenberg and McLean (1950). This theory, of greatest interest for an anthropogeny, connects the different fields of mathematics (sets, topologies, groups, etc.) by "natural transformations" (i.e. supposing few restrictive conditions), where the double arrows of the functors have a prevalent role (for the anthropogeny of arrows, see www.anthropogenie.be, Compl.11, by René Lavendhomme). The Information Theory and Cybernetics (1948), that popularly initiated the **WORLD 3**, introduced new writing instruments that favored new kinds of mathematics. The CD-ROM, for instance, allowed the theorist of the Chaos Theory to visualize almost instantaneously the upward and downward states of their equations. Spin electronics (Fert) will presumably be even more effective.

56. Mathematics, truth and coherence (consistency). Axiomatization - The mathematical writing has gradually displaced the idea of Western truth. Introducing his geometry, Euclid (-250) formulated some **demands** (aitiai), for instance the license of using the compass and the ruler, in other words of drawing (pointing, indexing) right lines and circles. He added **axioms** (axiomata), chiefly that of the unique parallel that can be drawn besides a right line from a point exterior to it. Thus expliciting their presupposed assumptions, mathematics commenced sensu stricto. But this first step led surreptitiously to something unpredictable. For Euclid, while his parallelism axiom was undemonstratable, yet it corresponded to a natural space ; in sum, it was true despite its undemonstratability ; such was the acceptation of the Greek verb *axioein*, and thus of the substantive *axioma*, typical of **WORLD 2**. On the contrary, around 1900, with the dawn of **WORLD 3**, the axioms of a system were mathematical sets of equalities estimated to be of consequence because pregnant theorems could be deduced from them by means of definitions, but not evident or natural ; so that in the same system some theorems could become axioms, and axioms theorems. In such a view, the Occidental **truth** understood as *alètheia* (unveiling) in Greece, and *adaequatio inter intellectum et rem* in Rome, was now replaced by a mere **coherence** or **consistency** of indices-indexations, requiring uniquely the exclusion of the simultaneous demonstration of p and $\sim p$ in the system. And that, not because it would shock the common sense, but for the reason that such operation would be inoperative, when allowing to demonstrate whatsoever wherever whenever.

N. Philosophy and Archimedean science: physics, biology, humane sciences

57. The philosophies - Philosophies were emerging about -500 in China, Iran, Greece, and also among the Amerindian Olmecs, significantly at the time when spoken languages were becoming syntactically mature, i.e. able to express explicitly all fundamental relations, and writings began to display those relations on transverse props. The transverse, suspensive, holosomic primate, situating all things-performances against a horizon <33>, found there a privileged occasion for satisfying his desire of embracing justification (Umgreifende, Jaspers), i.e. of *primary* Principles and *ultimate* Ends. With this scope, he had for millenaries intensively exploited the eight properties of rhythm <30>, which was *dance-music* ; ritual gesture, which was *religion* <72> ; proclamations seeming transhistorical as much as being anhistorical, which was *prophecy* ; finally, speeches and writings aiming at the latest structures of the Universe, which was *philosophy*. But the metaphorical *indicia* favored by the prophets were too vague in the eyes of the philosopher, who preferred the *indices*, but powerfully *charged*, versus the discharged indices of the mathematicians <55>. One index pointing up to heaven and another down to the ground were enough for Rafael, in his *Athene School*, to not equivocally oppose Plato and Aristotle. Those charged indexations were ordinarily transformed into *abstract adverbs and conjunctions* : as such, è, quatalis, formaliter, materialiter, en tant que ; or into *logical operators of negation, position, implication, dialectical motions*, like the logical generation of thesis, antithesis, synthesis. Such prestigious themes were what the frontalizing Greek called **ideas** (Fid, to see), and the lateralizing Romans **concepts** (capere cum), both consisting in capitalized *substantives*, apt to become the scope of fixing fixed perceptions <9>, sometimes reinforced by definite articles: the One, the Multiple, the Sublime, the Finite, the Infinite, the A priori, the A posteriori, the Cause, the Consequence, the Finis, the Beginning, the All, the Participation, the Sense, the Tao yin-yang, the Tad (that) of the Indian Vedanta (Çankara, Ramanuya). In some cases, those superlatives (Wittgenstein) generated illuminating views of the Reality <17>: e.g. when Democritus asserted that seeing quantities behind superficial qualities can give profound apperceptions, like the continuity between cone and cylinder, sphere and angle, etc. ; or when Aristotle emphasized that all transformations are sustained by morphological stabilities ; they even elicited effective invocations of the Real <17> when Sartre pointed at a part of "presence" (autotranslucency) <17> in the Hamiltonian "consciousness". But the extreme autarchy of speculative life <69 > has also favored many normalized psychotic discourses, like those of Descartes proclaiming that he could imagine "he had no body nor world where he dwells" ; Leibniz postulating that any fact is comprehensible only if necessary, so that the victory of Alexander at Issos must beforehand inhabit the subject "Alexander", himself a resultant of the set of all compossibles comprehended in the divine Thought, the Integral of all integrals ; Kant supposing a Categorical Imperative ; Bergson inferring from the "One" of Plotin a "concrete duration" eschewing the "abstract physical time" and discarding all cerebral functionings. Let us conclude with a model of philosophical thinking by a French mathematician: "C'est en plein milieu de rien que surgit comme par décompression la **nécessité** / C'est dans la nécessité que surgit l'**improbable** / C'est de l'improbable que surgit le **champ** / C'est du champ que surgit l'**extase** / C'est de l'extase que surgit le tout / C'est du tout que, comme dans un soupir, surgit le **rien**." (René Lavendhomme, *Alphes*, 1997).

58. The restrained panoply of philosophies - Thus being indexative more than indiciative, and consequently in a gentle relationship with mathematics since the Pythagoricians, philosophers have displayed the indices adapted to (partly deriving from) the nature of the *woruld and of Homo himself as a transverse and angulating primate. Here is their summarized panoply: (A) There is **one living principle** that diffuses among the beings like the Polynesian *mana*, or that multiplies through the beings like the Japanese *kami*. (B) There are **two principles** converting one into the other, the Luminous (*yang*) and the Obscure (*yin*), in China ; or both figuring an irreducible opposition of the Wicked (Ahriman) and the Good (Ahura Mazda), in Persia. (C) There is a hierarchy of **ordinators** and shapers elaborating a previous matter: the goddesses and gods, immortal and powerful but unpredictable, and the heroes-craftsmen, Human beings, mortal and less potent, but tactical and strategical (Mesopotamia -1750) ; or one triumphant **chief ordinator** (ib., Marduk -1150) ; or an **ordinator** so **unique** that he is theocidal (Aton of Tel Amarna -1360) or jealous and genocidal (the Yahweh of Deuteronomy -620) ; or a mythic **geometer** (the Platonistic Demiurge -400). (D) There is a **creator ex nihilo** who not only shapes the matter but suscitates it, producing his effect through a necessary Immanent procession-recession process (Plotin +250, Neo-Platonism), or a Transcendent (i.e. free) decision of his Glory wherefrom have surged simultaneously the *intelligibilia* and the *intelligentes*, thus adequately corresponding to one another (Augustine, +400). More generally, between -100 and +100 around the Mediterranean, the Principle-Finis began to be increasingly conceived as something humane, according to an ascendent quadruple stratification: *sôma / psychè / noûs / pneuma*, in a shared *Vergilian-stoical-Christian-Neoplatonic-Neojudaic* view soon echoed in the Middle Ages by the Scholastic "ens est unum, verum, bonum, activum". (E) There has never been any ordinator at all, but **only the void** and **the rebounding atoms** obeying mathematical fecundities (Democritus) or Fortuna and Venus (Lucretius) <61> - To those philosophical indexations of the **FUNCTIONINGS** in the Universe must be added others pointing at the **PRESENCE** <17>. Indeed, if in ordinary life the latter silently accompanies certain cerebral functionings, or is boosted by the presentifying behaviors of lovers and mystics, it has been philosophically thematized along two main streams. In the first, typical of the Orient where functionings are frequently deemed not essential, it has been pointed at directly as **nir-guna** <without object> (Yoga), or **nirvana** <without wind, breath> (Buddhism), or **tad** <that> (Vedanta), in India (-500) ; as **tch'an** in China (+600) around the indescribable tao ; as **satori** in archaic zen in Japan (+1200) ; and indirectly as **not-such** of the negative theologies (circa + 400), with the help of the negative Indo-European prefix "a-", in the Middle-East. Along another main stream, typical of the Occident so exclusively fond of functionings that it generated the Archimedean science <59>, the indescribable presence was banned (behaviorisms), or alleged paradoxically under the form of **hyper-functionings** : *illimited* and often *transcendent* in the divinity, as Eternity, Autarchy, Omniscience, *limited* and *immanent* in the creatures participating in the divinity, as Immortality, Freedom, Absolute Consciousness, all permanent themes of the Occidental philosophy.

59. The Archimedean science as physics. Universe and Multiverse - After considering the writings, with mathematics and philosophies as their consequences, we are in a condition to perceive the originality of Archimedes' legendary bath about -250. That was an isolated system (water in a tub), where one could observe the density of a liquid (water) and that of a solid (the bather's body), two variables capable of being purely indexed (in the

mathematical sense <55>), two **pure indexables** (in the now inaugurated physical sense). In other words, such indexations enabled to quantify the successive states of a (supposedly) "isolated" system. Anthropogenetically, to create such a modelization Archimedes must have been prepared for centuries in different ways: the detaching forms against the background proper to the Greek WORLD 2 ; the totalizing theoría (tHeastHai) of the Greek theatron ; Democritus' assertion that quantities are more essential than qualities ; his own theory of geometrical demonstration, aside from that of Euclid. Since the Archimedean "**Eureka**", mathematics have definitely been conditioning physics, up to when Langevin declared, when speaking of Relativity, that the tensorial calculus knows physics better than the physicist does. All that has endured until today when certain cosmologists contemplate our Universe as a particular solution of a Multiverse (Rees, Weinberg), having accidentally universal constants (light speed, electron charge, etc.) proper to it ; constants may be less constant than traditionally presupposed. As subordinated to Mathematics, *the Archimedean physics remain the science that pursues the pure indexations <55> of all the phenomena of the Universe that can be treated as pure indexables*. Only, it has been divided today into physics, chemistry, biology.

60. The secular rejection and final triumph (1630) of Archimedean physics - Archimедism afforded huge technical powers to Homo, and nevertheless it was largely ignored from -250 through the 17th century. Assuredly, its full development required (a) an Algebra, supposing a position numeration <55> ; (b) an Infinitesimal calculus excluded by the stereometric mind of Greece (thought Spengler), and not acquired before the triad: Pascal-Leibniz-Newton. But how do we explain that such a practical tool did not seduce at least in part the merchants of the Mediterranean *koinè* between -250 and + 400, and later the medieval burghers perceiving themselves as engineers cocreators helping the Creator Engineer between +1050, and +1550? That strange behavior supposed that Homo, a transverse, angular and possibilizing primate, would spontaneously satisfy *desires*, as did traditional philosophies and theologies, a comfort disturbed by Archimедism. Pure indexations of pure indexables, the Archimedean statements are constitutively relative, refutable, prosaically communicable, generating a democracy of knowledge and collaboration. Being modeling, and not exemplarist at all, far from declaring ultimate Principles and Goals, they only quantify and organize successive quantitative states of supposedly isolated systems. They require untiring researches, admitting no laziness, no prestige of vague generality ; the modesty of a precise idea can be more fertile in this field than the success of a fuzzy one. Surely, the views of the physicists are today less humble than those of the Mack and Poincaré "pragmatism" circa 1900 ; since 1927, Heisenberg's uncertainty principle, while excluding Homo from the hope of ever *seeing directly* chunks of Nature, has shown him *effectively intervening INTO nature* along calculable processes, producing at least "probability trains". And nowadays the *cross-bracing* of the innumerable physical results and tools in the remotest field give the physical *inductions* a natural consistency never expected before. Yet, the "model object" and "theoretical model" (Bunge) of the physicist remain "models", i.e. schemes that are only more or less pertinent, symmetric, embracing, previsional vis-à-vis the minute facts they organize. Let us thus repeat it: Archimедism is something wonderfully powerful, but far from what Homo had always been expecting from teaching theologians, philosophers, artists or psychoanalysts.

61. Archimedean science as biology. Amino formations perceived as the key to the living. Open and yet intertwined variations. An Evolution as punctuated equilibria and evolutive, emphasizing bottlenecks, and generalized as successive local hierarchies of quantal effects. Ultrastructures vs. structures and textures. The aminoid formations parallel to amino formations (Gestaltungen) - Yet, the defiance towards Archimedium has been even stronger in Chemistry, and chiefly in Biology. While he became an Archimedean physicist with Galileo around 1600, Homo did not become an *Archimedean chemist* before Lavoisier, a little before 1800, and an *Archimedean biochemist* only a century later, say in 1890 with Büchner and Fischer. Also in 1880, Louis Pasteur estimated that ferments suppose, for their action, a "vital principle" irreducible to chemical properties ; Homo is congenitally a magician <26>. Only with the 20th century would scientists cease defining living as life, and on the contrary defining life as the set of characteristics of the living, and organize those traits chiefly around the amazing properties of twenty *amino acids* ("amino", for in Antiquity nitrogen was available next to a temple of Amon). An anthropogeny must underscore this cultural mutation, that has definitively established the **WORLD 3**. Let us thematize three main aspects: **[A] First of all, amino acids perform SEVEN FORMATIONS (GESTALTUNGEN) NEVER BEFORE KNOWN OR EVEN IMAGINED. (1) The dynamic sequentiation.** Amino acids are chemical compounds having on the one hand a *common part*, activating an *amino function* (hence their name) and an *acidic function*, so that they can bind together easily and rather firmly in long chains ; and on the other hand an *original part* (the so-called "side chain") by which they are distinguishable from one another as to size, shape, electric charge, binding capacity, chemical reactivity. In that case, among the multiple amino acids scattered through our solar system, there are twenty whose chains wind upon themselves so that they form piled balls, called **proteins**, which are infinitely diversified given the *myriads of possible sequentiations* of the amino acids they result from. Proteins were rightly said "of prime importance" (proteios) by Berzelius, who discovered them (1840) in their function of enzymes (zuma, fermentum), before the discovery of their key-keyhole properties gave Fisher the first Nobel prize in chemistry in 1902. Indeed, by means of their fixation and activation sites, their infinite variety has been enough (aided by confinement phospholipids and energy polysaccharides) to support all living things on the Earth with respect to *anatomy*, when they were structure proteins, and to *physiology*, when they were enzymes (accelerators of chemical reactions). Even the DNA-RNA, or informational living system, could be understood in their realm, as assuring their sequential replication. So that living beings result not from **shaping forces**, as in the traditional Geneses, but from **innovative sequentiations**. Homo, as a transverse, angular, and thus shaping primate, was awaiting all but that. **(2) The consecution: digitality >> analogy.** Spontaneously, a transverse technician would conceive uniquely the consecution: analogy >> digitality, as being the only one intuitionable. **(3) The consecution: form >> function >> use**, while the consecution ancestrally imagined by the transverse primate was until yesterday: use >> function >> form. **(4) Hierarchy of quantal effects.** Even when he became a Darwinian biologist after 1860 at the end of **WORLD 2**, Homo began imagining the Evolution as orthogeneses without abrupt leaps, in a kind of global progress (Spencer). On the opposite, the innovative sequentiation of amino acid formations suggests hazardous encounters between very heterogeneous series giving birth to a *bushy or mosaic horizontal process articulated by "punctuated equilibria"* (Stephen J. Gould) and **vertical** bottleneck emphasizing phenomena (De Duve) ; so, what we shall call **hierarchized quantal effects** (micro-, medio-, macro-quantal), extends first to inanimate and animate beings, and later to technical and semiotic productions. **(5) Absolutely unforeseeable and yet bound variations.** Before he became a biochemist, the transverse primate had conceived *chances* of three kinds only: (a) *encounters-*

kicks of atoms (Democritus' tukHè), (b) *unworthy encounters between heterogeneous series* (Aristotle's tukHè), like the tile falling from the roof upon a dweller, (c) *successive sorting-out in a closed panoply*, thus with calculable probabilities, as in the throw of dice (*az-zahr* of the Arabs, Pascal and Newton). Now, as a consequence of their score and their sequentiation, amino acids produce *a new kind of chance* : proteins and finally living, surely *contingent*, i.e. not inscribed in a previous cosmos design, but *plausible*, knowing the physics and chemistry of our Universe. **(6) living as states-moments of the Universe.** Every living is thus a *unique coincidence* (*cadere*, *in*, *cum*). Such a singularity is something all the more surprising, disconcerting, a matter of wondering <72> because it results from the spatio-temporal crossing of largely heterogeneous series, and in no way from a merely numerical multiplication of ideal models (species and genera), as was presupposed by the exemplarism of the Indian dharma, the Chinese yin-yang, the Occidental cosmos-mundus. **(7) Ultrastructures vs. structures and textures.** Since his origin, the transverse and orthogonalizing primate never conceived other formations (*Gestaltungen*) than that of *structures*, prone to mathematics, and *textures*, escaping mathematization. The amino formations, via the proteins, introduced *ultrastructures*, a word created by histologists, where the six previous formational originalities interact. We can realize the inexhaustible anatomical and physiological fecundities of the ultrastructures directly by turning over the pages of an atlas of histology, and indirectly by the recent art works responding to *amino formations* by *aminoid formations*, in painting <46>, music <47>, literature <77>. [B] The amino acids have made conceivable **THE CONTINUITY FROM INANIMATE TO ANIMATE**. Actually, they are produced from five elements most common in our terrestrial environment: hydrogen, oxygen, nitrogen, carbon, sulfur, combining by means of an almost undifferentiated energy, like the electric discharges they were submitted to by Stanley Miller in 1953. Surely, we do not yet know, and perhaps shall never know, along what particular stades some proteinic aggregations have become living, i.e. capable of reproducing themselves as organisms, but we know enough on the living in general to be sure that it happened *without deus ex machina* along the coincidences between biochemical processes and favorable environments, in successive punctual equilibria, evolutive bottlenecks, enhancing complementarities, etc. [C] Lastly, the amino acids as sources of proteins provide an **EXPLANATION OF THE LIVING VARIABILITY PRESUPPOSED BY THE LIVING COMPATIBILITIES**. Here are some of those to suggest how much they require: (1) *Molecular compatibility*, since the winding of an amino acid chain does not fatally produce a protein, nor is the produced protein of vital interest. (2) *Anatomical compatibility*, since any variation must fit the requirements of morphogenesis (Aristotle, D'Arcy Thompson, Thom). (3) *Physiological compatibility*, since biochemical constraints require a lot of information (say that of ARN-ADN) and energy (say that of ATP). (4) *Behavioral compatibility*, given the required groupal coherences. (5) *Technical and semiotical compatibilizations*, when human conducts are at stake. Darwin already had emphasized how imperatively, for his Natural Selection to operate, such compatibilizations presupposed a biological Variation power incredibly multiple and swift, given that when one element is changing, the others must compatibilize with it in a very short time. Now, just that kind of infinite and swift variety is provided by amino acids, whose dynamic sequentiations elicit proteins.- All that points to an Evolution deprived of *a global Sense*, but simultaneously capable of *intense events* (happenings), and consequently of *particular senses* consisting of retrospections, anticipations, resonances, wherever and whenever some cerebral functionings are accompanied by a kind of *presence* <17>, and thus give place to *wondering*, actual or imaginary, solitary or even better intercerebral <16, 72>.

62. Archimedean humane sciences. Their limits - Since the very beginning, Homo has been treating himself as a thing-performance amid other things-performances <33>. His limited imagination (Borges) has thus conceived a mix of clay and wind (breath) ; a knot of contraries: yin-yang, evil-good ; a mirror of a priori ideas ; an agent-intellect (Aristotle) making essential abstractions ; various blends of *sôma-psychè-noûs-pneuma* ; a stage-stratum in the procession-recession of the One (Plotinus) ; a cocreator of the Creator ; a rational giant Atlas bearing the great Axiom ; an insurgent against or a faithful of his Universe, etc. Consequently, the dominant Archimedism of the 18th century incited Homo to describe his basic activities in a spirit as Archimedean as possible, commencing with the most fundamental for an exchanging primate, and the more akin to mathematical treatment, the **Economy** (Bernouilli, Smith, Ricardo, Marx, Walras, yesterday Keynes, today Thaler's "behavioral economy" and Kahneman's "theory of prospects"). At the end of 19th century, now a thriving biologist, Homo perceived himself as a stage of the Darwinian Evolution, and started an experimental **Psychology** (Wundt) first behavioral (Dewey) later genetical (Piaget), a statistical **Sociology** (Quetelet, Durkheim), a general **Semiotic** (Peirce), a behaviorist, terminological and translational **Linguistics** (Saussure, Hjelmslev, Jakobson, Chomski, Fillmore), even a transcendental **Phenomenology** (Husserl) and an **Ontogenesis** and **Phylogenesis** (Freud), intermingling clinic and myth. - Why were the results of such a strenuous endeavor often rather senseless when sure, and dubious when significant, except in chapters borrowed directly from general Biology (for the sensorial psychology) or nervous Physiology (for the neurosciences)? Let us globally invoke **a relative lack of consanguinity with the strict Archimedean method**. Archimedism establishes correlations between states-moments independently from the intimate nature of the correlated ; now, when Homo is the matter, is it useful to multiply measures and curves (Gaussian, S or others) about art, artists, family, happiness, education, intelligence, memory, sexuality, without a pertinent and powerful description of those referents, chiefly when they are presumed to be common sense? In other words, there does not exist founded humane sciences without *a previous anthropogeny*, that is a discipline contemplating Homo as a state-stage-stratum-moment of the Universe, and exploring its singular quality of transverse and angular primate, possibilizing, rhythmic by field effects, holosomic, fond of presence-autotranslucency, etc. And now, a more topical response: **a lack of understanding of the genuine nature of language, gesture, practical logic, impact of the circumstances**, summarized in the misunderstanding of the *word* (versus *term*), particularly of its *phonosemy*, all that supposing an **anthropogenic linguistics** <50>, while the university linguistics has been prevalently behavioral, terminological, translational. Who could only *with terms* (not words) start a sociological survey work? And an economic theory of prospects? An enquiry about art and culture? About love? About religion? Actually, a fundamental, anthropogenic, phonosemical linguistics is as yet in its infancy, perhaps because it seems too crudely to illuminate the roots of human nature. Here are some rare achievements within this scope: Mallarmé, *Les mots anglais*, 1877 (the phonosemy of English consonants, "une nouvelle Science", he said) ; Worf, *Language, thought and mind*, posthumous 1956 (the epistemology of the Hopi syntax) ; Leenhardt, *Do Kamo*, 1947 (the ontology of the Canaque vocabulary) ; Van Lier, *Logiques de dix langues européennes*, 1988, and *Histoire langagière de la littérature française*, 1990-91 (the dialects as topology, cybernetics, logico-semiotic, presentivity, i.e. as fate-option, www.fdlm.org) ; Lavendhomme, *Alphes*, 2000 (a concrete phonosemy of the French vowels, corresponding to the abstract one of the English consonants by Mallarmé). Shakespeare was the greatest writer of human history because his literary subject <42,79> was to display "with the power of natural event and without any particular message" (Wittgenstein) the indefinite resources of the natural language and practical logic ; and that, on a theatrical

stage, as only the theater allows to practice the discourse universes with such variety and intensity <65>. - One humane science has yet escaped the inflated vacuity of the others, **cultural anthropology**. In the face of *ascriptural Neolithic societies*, it could not ignore some roots of mankind, and has thus been compelled into an *inchoative anthropogeny* since Morgan, Frazer, Malinowski, Whorf, Leenhardt, Mauss. In a counter-proof, "structural anthropogeny", inspired by the terminological linguistics of Jakobson, has perceived only the formal coherence of cultures, adding nothing to their understanding. No hints in Lévi-Strauss, nor in Freud, of their topology, cybernetics, logico-semiotics, presentivity, nor even of perceptivo-motor or logico-semiotic field effects, thus of existential fates-options <42>, just as with all those who believe that music is something combinational or roughly emotional.

O. Logic

63. The practical Logic - Why conclude this second part on the essential achievements of Homo with Logic? In fact, Logic is at the very beginning of Homo, and perhaps at his last end. Every human specimen has to begin his life edifying, through every one of his early experiences, a *practical logic*. As immersed among things-performances-IN-a-situation-UNDER-circumstances-AGAINST-a-horizon <33> articulated by the nurturing group, his available brain and rather immature sensorial and motor system have to catch multiple attractors where he must sort out bits of *invariants* and *operative axes*, first local, then pretty more general, as those of aggregation, disjunction (inclusive, exclusive), consecution, equivalent exchange, equal exchange between indexable indicia <25>. This progressive, tentative *practical logic*, constructed by *conditional learning* (Pavlovian) but chiefly by *active learning* (trials and errors) with very few innate behaviors, is the inescapable condition, and thus the initial power and ultimate limit for all ulterior logic. Like the gesture and the language <38,49>, with which it sustains a circular interaction, it enjoys quasi-infinite virtualities because of its naiveness ; its elaboration is as long as the human existence. It "cares for itself" and "cannot be deceived" (Wittgenstein), i.e. it does not find any help in any other instance, whether superior or inferior ; every theory needs a practical logic, while practical logic does not. Involving a pragmatic, a semantic and a syntax, it provides the *Pascalian "heart" of the X-self* <41>, so that everyone (each one) is for himself inescapably the measure of all usable things (*pantôn kHrèmatôn metron* <*anthropos*>). Its designation as "logic" (*logikè tekHnè*), i.e. a technical praxis <-ikos> concerning language, is a convenient one as marking the bond between Homo logicist and Homo idiolectal and dialectal speaker. But it is misleading when occulting the fundamental part of *gesticulation and gesture*, as well as *technical panoplies* and *protocols*, presupposed by this bond.

64. The theoretical logic of ontological spirit - Yet, from Mesopotamia onward, the scribes of the scriptural **WORLD 1B** have observed that it was impossible to translate or even to adequately understand a written text (the Sumerian ones were eminently polysemic) unless some questions of *theoretical logic* were previously attended to, case after case. In India, the grammaticists intensely developed this concern, because of their way of working as disciples, i.e. as a collective brain chewing and digesting the same texts through centuries. Nevertheless,

the complete and transparent Greek writings of WORLD 2 <53> were required to design a *systematic logic*, still opportunistic for the Sophists, eristic for Socrates, then displaying many smartnesses for Plato, finally strictly systematized by Aristotle. *The Aristotelician syllogistic logic* became the intellectual and moral canon of the entire **WORLD 2**. It exhibited four traits: (a) *Disregard for the pragmatics* ; surely, the subtleties of rhetoric do exist, like those of the politics it counsels, but only under the control of a natural Logos ; (b) *Suspicion toward the semantic interpretation* ; equivocity must be banned ; analogy requires circumspection ; only univocity is plain and straight ; (c) *Prevalence of syntax* ; by which logics and mathematics are intimate relatives ; (d) *Exclusive disjunction* ; supposing the third excluded principle (to on esti, to mèn-on ouk esti, Parmenides). Such an *epistemology* implied an *ontology*, and conversely. All events in the world were *operations* proper to *faculties* proper to *substances* (superposed along the Neoplatonician Porphyrean tree: mineral, vegetal, animal, rational) ; they are thus "essential" or "accidental". Epistemologically, the logic paradigm became for centuries the **sylogism**, more *comprehensive than extensive* when putting first a *medial* term ("man") into a *large* term ("mortal") and then a *little* term ("Socrates") into the medial one ("man"). Actually, that *Aristotelian ontological logic*, apparently natural, was far from the practical logic and the natural language. This discordance will not lessen in the case of the *Archimedean logic*.

65. The theoretical logic of Archimedean spirit. From terms to propositions. From comprehension to extension - Archimedism made a breakthrough circa -250, in logic as in physics. It considered only the suites: **if** state A, **then** state B ; **if** not-B, **then** not-A ; **if** B, **then** not fatally A. In other words, it needed a *logic of propositions*, no longer a *logic of terms* (univocal words), as did the Aristotelian one. Such a logic made light of essences, and hence was called *nominalistic*, happy when it could apply pure indexations upon pure (physically) indexables: volumes, temperatures, speeds. Dependently or independently, Stoics too at the same time were developing a logic of propositions on behalf of their cosmology and epistemology. @@@But the whole enterprise soon turned sharply. Perhaps because of the discrepancy between the apparent naiveness of such implications ("**if** it is raining, **then** I take my umbrella") and the subtleties of the accompanying Stoic semantic ; more certainly, the Romans, being wise politicians indeed, placed more interest in Stoical ethic than in Stoical epistemology ; and most of all, Archimedean logic must fatally share the fate of Archimedism in general <61> ; during the Middle Ages, it survived only through the nominalist movement, and still being suspected of sophism. Actually, it was not before the definitive triumph of Archimedism, in the physics of the 17th. century, that Descartes dared to proclaim that the syllogism was futile for the mathematician-physicist, who, seeing $A=B$, $B=C$, $C=D$, knows that $D=A$; Pascal added that the mathematician affords himself his logic without any exterior aid from the logicists. Since those days, as it happens frequently in anthropogeny, the new prestigious knowledge, here the mathematical physics, has imposed its logic everywhere. And Homo has witnessed successively: the Leibnizian universal combinatorics ; Euler's circles, preparing the conversion from comprehension to extension ; Russell's class paradox (Is the class of classes a class?) ; Lukasiewicz's axiomatization of the propositional logic, with the definition of inclusion: *p implicates q* is equivalent to the (exclusive) disjunction *p or q* ; Tarsky's impossibility of formalizing the truth values (right / false) of natural language ; tentative formalizations of modal propositions ("it is necessary", "it is contingent"), and deontic ones ("it must be", "one may", "it is forbidden") ; Spencer-Brown's "indications logic" ; "intuitionist", "naive" or "weak" logics, i.e. without third excluded principle, that not only permitted an

axiomatization of the straight line (Lavendhomme), but has been considered by many as the genuine logic of natural language. In such a way, since 1980, the formalized or axiomatized logics has generated a *Toposes theory*, a theory of "the discourse universes", adding truth values (right / false) to the tools of the mathematical *Categories theory* <55> ; toposists and categoricians frequently wear the same hat. - Some anthropogenic consequences follow from this brief survey: **(1) The shift from "comprehension logics" (Aristotelician) to "extension logics" (Archimedean)** has been one of the most abrupt leap in anthropogeny. An outstanding instance: from the point of view of Descartes, Spinoza, Leibniz, who were all "comprehensive" logicists (although operating "extensively" when physicists), the *ideas* of Perfect, Substance, Necessity were still *acts* of a spirit *in actu*, in other words "clear and distinct ideas" or "adequate ideas" implicating the "existence" of their theme ; hence, their so-called "ontological argument", saying that the *idea* of God already implicates His *existence*. On the contrary, the "extensive" philosophers of today estimate that, since Kant (in the aftermaths of the Euler circles), all shifts from an essence to an existence are undue. For Leibniz, the "necessary" was "what cannot not be", in comprehension, while for almost all our logicians nowadays it is "what is inherent in all beings", in extension. Such leaps cleave almost two mankinds. **(2) The axiomatized logic of the Archimedean spirit falls short of the pragmatic, semantic and syntactic performances of practical logic** <63>. On that point, Wittgenstein is exemplary as his *Tractatus logico-philosophicus* (1921) "demonstrated" negatively and abstractly certain limits of formal logic, whereas, after his philosophical conversion of 1929, he discovered the preliminary characters of the Sprachspiele (speech games) <62>, thoroughly explored in his *Philosophische Untersuchungen* (posthumous 1953). **(3) Strict (but intolerable) prudence should recommend the following choice of words** : (a) **truth** (veritas) for propositions (less or more true) about events of common sense experience ; (b) **coherence** or **consistence** for mathematical propositions, i.e. those concerning pure indices and indexations (tolerating axiomatization) ; (c) **pertinence** and **power** for the modelizing (Bunge) propositions of Archimedean sciences ; (d) **fecundity** for the propositions of humane sciences. According to this narrow vocabulary, an anthropogeny of Archimedean spirit articulates propositions of the four kinds.

3 - SOCIAL ARTICULATIONS

P. The human ethos

66. From behaviors to conducts. Education and teaching - All animals activate an ethos ; it is the scope of ethology, thus far the most pertinent of the Archimedean psychological disciplines. Yet, the animal ethos is channeled along the simili-signal gates and ways <25>. There remains very few stimuli-signals among human groups, if only because they are dissolved by the transversalization (suspensive, distancing) of the angular and possibilizing primate <1-5> that on the contrary induces *technical gestures* , operative thematizers, and *semiotic gestures* and *signs*, pure thematizers <24> ; not forgetting the intrusion of the "peak-experiences" (Maslow) where human describable functionings intend the indescribable presence-absence (autotranslucency <17>). In sum, our *behaviors* are taken over by *conducts*. Now, conducts are much more large and complex but even more fragile and escaping than behaviors. So that *human ethos* has the task of coordinating the coordinatables, or at least of compatibilizing those novel powers and lacks, often uncoordinatables. Now, alleging compatibilization of non-coordinatable elements is implicitly invoking *rhythm*, with its eight aspects <30-32>. Education, whose teaching is only the visible and most tangible part, endeavors to transmit the human ethos, i.e. the fundamental rhythm proper to every human group. That occurs mainly by tangential and allusive convections more than with words, and even examples. *Teaching* follows the sequence: thing > performance > situation > circumstance > horizon. *Education* (ducere ex) goes in the reverse direction: horizon > circumstance > situation > performance > thing <33>. The German word *Erziehung* is illuminating, as the prefix "Er-" signals that the educational process is simultaneously active and passive: the educated is due to educate himself, the convection of a *socius* only helping him. Education, before any particular learnings, has to *situate* a human newborn in the plural existential *dimensions* of his society, especially its topology, cybernetics, logico-semiotic, presentivity, i.e. its existential fate-option <42>.

67. The sick and healthy animal. Illness as an anthropogenic opportunity. Homo the therapist. Nosography. Idiosyncrasies (complexions). DSM-IV and the talk show - Rhythm is not an application of rules, but rules shattered and reinstated at the same time. Thus, even before being the **healthy animal**, Homo is the **unhealthy animal**, thematically ill, driving across illnesses that can be dehumanizing but humanizing too, while usually a lame animal is excluded rather swiftly from the group. An anthropogeny will thus retain three main points. (A)

THE DEFICIENCIES ANTHROPOGENICALLY POSITIVE. (a) The uneasy bearing and delivery of children with large brains by mothers whose birth canal, no longer transverse or oblique as in archaic female primates, has become axial in a narrow pelvis adapted to the bipedal running, must favor the collaboration between childbearing and aging females, even suggesting an **inchoative scientific approach among the sages-femmes (midwives)**. (b) The newborn baby, a very impotent walker and with a brain developed only to one third, must project himself towards elements out of reach, thus stimulating his **projective and endotropic cerebral powers**. (c) At the time of adolescence, a human being undergoes physical but also cerebral, technical and semiotic reconditioning. Thus turning around from the irresponsible childhood to adult responsibility by means of a second **debut, an initiation (initium)** after the first debut of being born. (d) In the adult age, the technical and semiotic practices frequently induce rhythm losses of various kinds, but simultaneously very inventive means of **re-establishing rhythm**, particularly **by works** (erga) and the **daily life theater** <40>. (e) The final illness and the fascinating transverse corpse suscitated rather early a **cult of the dead**, whose commemoration became the paradigm of all feasts and arts. (f) Diagnoses and therapies of anatomo-physiological (physical) and techno-semiotic (mental) illnesses must develop imaginations and even an imaginary field (French "imaginaire") <14>, when an indiciating and indexing primate, and consequently prone to paranoia and hypochondria, is predominantly seeking the origin of his troubles in the adverse intentions of goddesses, gods, devils, spirits (ingested by the shaman aiming at extruding others), enemies, providence, menacing and benevolent forms and numbers of stars (astrology, numerology), or even of a self, conceived as an Id (Es, Ça) or unconscious. Homo had to wait for the prestige of Pasteur c.1880 before he admitted that his illnesses were caused by *microbes* rather than by *miasmas* (the results of latent crimes), and not until the beginning of WORLD 3 did he begin to connect many mental diseases with very humble circumstances, such as social discrepancies between his predispositions, acquired or innate, and daily life hazards. - **(B) THE MENTAL ILLNESSES AND THE LIFETIMES.** Their age of first confirmation (not to be confused with their cause) can cast a light on the nature of some mental diseases. (a) In the 18-month old child, visual exchange deficiencies first signal "**autism**", confirmed at 3 years of age as an inability to construct a sufficient *body image* (the mixed-up brain body maps of the autistic chiefly concern visage recognition), at least when we consider the case of Tito Mukopadhyas, an autistic writer mastering written English, who published *Beyond the Silence*. (b) It is frequently at the end of adolescence that the cerebral characteristics of "**schizophrenia**" ("**psychosis**" **stricto sensu**) often become manifest by troubles of the distance (French: *distanciation*) between indices and indicia, analogy and digitality, designating and designates, sign and being. (c) Symptoms of "**manic depression**", **bipolarity**, frequently become salient about the age of thirty, after the subject has accomplished a first tour of his adult world, and then shows two exaggerated cybernetic regimes of positive and negative feedback and feed forward in the exchanges (commercial, theoretical, erotic), thus effervescing and stagnating, in either case arrhythmically. (d) The same age of thirty is frequently that when the "**hysterical and obsessive neurosis**" becomes intolerable, when those tendencies to perceive the remote social relationships as categorical, and the nearby ones (e.g. familial) as invasive <27>. - **(C) THE PREVALENCE OF IDIOSYNCRASY.** In the case of a transverse, techno-semiotic, analog-digital, indicial-indexating primate, the common sense distinctions: confused / distinct, open / confined, endotropic / exotropic, etc., do not make sense as "ill" and "healthy", but designate only theoretical poles of functioning <8-17> in the middle course of which the X-selves <41> are **idiosyncrasies** (complexions), a very singular blend, that persists or decays insofar as it is rhythmically viable or not-viable, i.e. techno-semiotically adapted. Those idiosyncrasies, that "born psychologists" better perceive than the scholars, are

what the worldwide work of DSM, conceived in the 1960s, and now DSM-IV, is trying to reach through a classification of symptoms and cures defined transculturally and factorially. Such an approach confirms the transition of Homo therapist to the discontinuous of WORLD 3, in this case to more topical and rather rapid therapies, in the framework of an Evolution now understood as a process of quantal equilibria <61>, where the distinction between surface structure and profound structure is no longer relevant, and has been repudiated even in the linguistics, not only of Wittgenstein and Searle, but also of Chomsky in *Reflection on Language*. Idiosyncrasy as a paradigm agrees with the new impetus of TV and radio talk shows.

Q. Counterbalancing the human ethos

68. Constitutive ethical answers: infallibility, privilege of the tractable, naturalization of convention, common error, finagling and humor, Byzantine complication and complexity, smile and tears - To counterbalance the dysrhythmia and the discrepancies of his ethos, and mainly of his techno-semiotic (called mental) illnesses, Homo developed, long before specialized therapies, some basal conducts that are to be found in every act in every culture, and thus can be called *constitutive ethical answers*. **(1)** First of all, the **three infallibilities** : memorative, judicative, moral. Every one is pretty sure to "have seen" *this* friend or *this* enemy doing precisely *that* thing at *that* place at *that* moment, and the judicial systems everywhere since the primary empires have simulated being convinced as soon as someone produces three or at least two witnesses ; yet the cerebral memoration <12> makes us certain that nothing is more fallible than testimony, chiefly when discarding any doubt. Much more, even if he is cautious enough to mind his *factual memory*, the transverse and angular primate rarely puts into question his ability to discriminate the "right" from the "false", and even much more his moral consciousness, to decide whether the others and himself are doing right or wrong. **(2)** Those degrees of infallibility point to another ethical maneuver: **the privileged status of the tractable** (Marx). The greatest infallibility is attributed to moral consciousness, which is yet the most dubious, but seems to be tractable, educable. Societies feel intolerable toward acknowledging that their errors proceed more from their blindness, often incurable, than from their malignity, seemingly curable. **(3)** By the **naturalization of convention** the social convention claims to be somehow natural. For instance, the Latin *mos* was originally a mere habit, then became a custom, then a trait or character ; before that *moralitas*, earlier designating only manners, became good manners, then manners founded in nature, up to our present-day "morality", estimated rational. **(4)** About every essential practical question, especially political, "it must be a **common error** fixing the minds", according to Pascal, the most fundamental of political writers. **(5)** Underlying every gesture and language, there is a part of *finagling* and *humor*, given that **finagling** consists of those minute secret shiftings (Italian, *scroccare*) of facts and language (such as the *speech games* of Wittgenstein) supposed by the daily life communication, where the circumstances (atmosphere) weigh more than their specific messages <39> ; while the inherent **humor** consists in manifesting those language and gesture shifts by subtle tacklings, not without a bit of tenderness for the human condition as such (*Pickwickian mood*). **(6)** Every social group sustains an adapted rate of **gratuitous complexity and complication** (Byzantinism) <61>, hour by hour thus distracting everyone from the troughs of the Real under the techno-semiotized surface of Reality <17>. Those subtleties expand from the phonemes, glossemes, sequencemes, phrasing of the language

to the gestural bowings, scrapings, or roundabouts of good or academic manners. (7) The **smile** makes use of almost all the muscular resources of the upright face of Homo. Prepared in the uterine life, it appears after birth as accompanying the suckling repletion, but conveniently with the suspensive primate, its suspense will soon express the thematized intercerebrality <16> of the nursing, the humility of humor, the ecstasy of the boddhisattva, the luminous acceptance of the dying. (8) The **tears** show the same conversion of a physical resource (the eyes watering) into a semiotic resource of intimidation, nervous relaxing, social pacification, not forgetting the overwhelming emotions of the convivial, social and sacred faith <72>. The Christian tenderness of Bach followed note after note the ultimous inflexions of the tears in "Erbarne dich, mein Gott, um meiner Zähren willen" in the *Matthäus-Passion*.

69. The system of the lives. Mundanity as their blend and equilibrium - Counterbalancing his existential discrepancies, along with those constitutive answers, ordinarily unconscious and episodic, Homo keeps up explicit and more continuous defense attitudes, which our languages call *lives* (Fr. vies, Germ. Leben). Therefore, he exploited all the resources of a transverse and rhythmical primate: filling in, emigrating, hovering, jumping over, defying, dissolving, and fusing ÷ seven behaviors and conducts that, compensating one another, compose an individual equilibrium. (1) In this way, the **peace and war life fills in** the human gaps by care, concern, regard (Germ. *Sorge*, Heidegger), where peace is a parenthesis of war, and war a parenthesis of peace, war and peace alternating in the course of the day-to-day life (Fr. vie courante). Let us keep in mind that war proceeds not from the homospecific aggressivity, nor from the allospecific predation proper to the anterior animality, but from the transversalizing domination ; a matter of domain and of a globalizing vision, more than of territory, traced by olfaction and specialized vision <11, 20>. (2) The **game life** (entertainment, sports) *emigrates* out of the human gaps by defining, in the ocean of Reality and Real <17>, areas-durations artificially protected from the contingencies of daily life (Huyzinga) and supporting gratuitous, risky or hazardous, solitary or groupal activities. (3) The **speculative life hovers** over the human gaps, assuming or subsuming the exotropic (exterior) events, often menacing or unstable, into endotropic systems <8-17>, like analog and digital, stable and almost immaterial signs standing instead of their shakable referents. (4) The **art, love, faith life jumps over** the human gaps by rhythmically starting fixed, kinetic, dynamic, excited field effects up to the fervor of the adherence <27-32>. (5) The **comic life**, in the circle of humor, irony and grotesque, *defy* the human gaps ; the voice and breathing of Homo have endowed him with the shaking of laughter, simultaneously weapon and witness of his failings. (6) The **mystic life** and **feast life** dissolve or fuse the human gaps. - As all those remedies are largely uncoordinatable and contending against one another, the **mundane life** has the subtle task of assuring their compatibilization for a scholar exchanging words or gestures with a military, a priest with a coquette, an actor with a true hero at least the time of a dinner or a stroll ; and also for everyone inside himself due to conciliate the scholar, the coquette, or the hero who try to monopolize his X-Self <41>. **Mundanity**, continually revitalized by **fashion**, is a daily practice in the anthropogeny. In the ascriptural WORLD 1A, it animates the "house of the people" of Polynesia ; in the scriptural WORLD 1B of primary empires, the imperial court of China, India, Amerindia ; in WORLD 2, the Greek Gymnasium, the Roman baths, the French "cafés", the English pubs ; in WORLD 3, the Internet clubs, the media ceremony and the mediatized stars.

70. Art life. A thematic compatibilization of uncoordinatables. Daily art, extreme art. Complication and complexity - Among those eight lives of Homo, three, those of art, love and faith, will have our special attention because of their privileged relationship with rhythm, and thus with the criterion of human ethos <66>. It happens frequently that human specimens endeavor to regularly produce "works" <40> (dances, musics, sculptures, paintings, discourses, texts, buildings) where there emerges some coordination (harmony) but mainly a compatibilization of uncoordinatables by means of perceptive and logical excited field effects <28>. All and every rhythmical performance is a *spontaneous* compatibilization of uncoordinatables, but art is a *thematized* and *developed* one. The *art life* has as its aim the production of works (oeuvres) <40>. Such a life can be called **daily art life** whenever its excited field effects do not shatter the established codes, limiting themselves to combining vivacity and surprise of some dissonances with a final or global appeasement, like that of resolution chords in daily music. On the contrary, it can be called **extreme art life** when, by means of its excited field effects, it is seeking the Real beyond Reality <17>, and so indirectly intensifying presence-autotranslucency <17> here by *explosive*, there by *implosive* or *suspensive* functionings. - The art life entrenches the couple **complicated / complex**. Indeed, many art works multiply diverse and rare elements, nevertheless creating only reduced excited field effects; they are *complicated*. Others, with very simple means, started powerful excited field effects; they are *complex* <61>, with this complexity that astonished Beethoven listening to Handel, or the French reader reading Racine or Duras. As art life is a compatibilizing tool in the most complex and fundamental manner (Kant), it has as its essential theme and scope to thematize the universal formation (Gestaltung), i.e. the ways along which the Universe is supposed to be generating its events. Thus were evoked and produced *structures* or *textures* during WORLDS 1 and 2. Now, in the beginning of WORLD 3, *ultrastructures* are appearing <61>, those of the dynamic sequenciations of the amino acids of the living, that some art works are approaching through aminoid formations <46,47,77>.

71. Love life. Grief of bereavement and immortality. Friendship. Hatred and indignation - Love does not create works, as art does, but an intersystem, an intercerebrality <16>, where the product of every one's performances is superior to, or even of another order than, their addition. This intercerebrality depends on the number of its participants, and the couple is privileged here because its product can use the excited <28> rhythmical resources of the frontal coitus and the bisexual orgasm, and even, in the long run, of the parental fertility. In this case, an anthropogeny would carefully distinguish sexuality, a cosmic phenomenon, from eroticism, pornography and obscenity, that are episodic techno-semiotic modalities of it. More basically, one must observe that the Two, or Both, is of foremost interest, as by its echoes in all fields, particularly in the interweaving of discourse universes <65> and in the reciprocal exaltation of the presence-absence of the X-selves <41>, it favors the leap from relative senses to absolute Sense <72>. The love of God often takes the form of a couple (Indian *bhakti*), and this instance reminds us that the human possibilization power is such that the term "*alter*" of love can only be supposed, alleged: it is then the passionate or imaginary love (that of Werther). The love experience seems to have appeared at least in **WORLD 1A** in Neolithic times, when we encounter it in today's ascriptural societies; and ÷ why not? ÷ since the Paleolithic times, if the language supposed by the rock and cave images was certainly able to sustain consistent discourse universes (toposes) <65>; and even before, as soon as human gestures were able to interweave techno-semiotic intercerebralities. In any case, the plastic works and the first texts

in the primary empires of **WORLD 1B** show a love practice perceived as a cosmogonical manifestation and archetype, witnessed by the Egyptian Amarnian conjugal theology, the Hebraic Song of Solomon, the Indian Kama Sutra and other Chinese and Japanese erotic treaties. Only throughout the whole of **WORLD 2**, did love constitute a *theoretical problem*, if not a *practical one*. Indeed, a merging conduct (like coitus) and defying rationality (like orgasm), was in contradiction with its sorting out of the forms out of their background and its logic of the third excluded ; so that there appeared continuous conflicts mind / body, drive / reason, that furnished themes of tragedy and comedy, and even of epistemology and metaphysics in Plato's *Banquet* ; the *De bono conjugali* of Augustine and the "omne masculinum adaperiens vulvam sacrum domini vocabitur" of Ambrosius never would overcome this aporia. As for **WORLD 3**, it remains all the more concerned with love life because its contraceptive technics have dissociated sexual behavior from procreation and not less because, in its generalized engineering and discontinuities, human copulation and orgasm provide the last experience of almost pure naturality. - **Rhythm** is *not thematized in love life* as in *art life*, but it takes an essential part in it, so that its fluctuations, particularly in the discourse universes, announce the beginning and the end of love. As to the **grief of bereavement**, it results not only from the loss of any prevalent object-subject-symbol, but from a disrupted intercerebrality that creates in the survivor unfathomable rhythmical gaps. Such an intercerebral deficiency, conjugal, familial, clanic, tribal, national, is the main source or the idea of immortality, when joined with the survival of works (erga), names and surnames. - Otherwise, an anthropogenist will not be in any haste to see an attenuated form of love in **friendship**, that has other functions, peculiarly during adolescence <67>, when it establishes microsocieties and chiefly discourse universes (toposes) independent from the common law, not without similarities to the gang law. Similarly, he would be careful before acknowledging a converse of love in **hatred**, as the latter is a semiotic cramp of the fixed fixing perception <9,29>, only furnishing, like **indignation**, the most economical means of posting and sustaining one's self.

72. The faith life: convivial, civic, sacred. The sacred faith as religion, belief, admiring mind - The transverse primate possesses so much possibilization power and incompleteness, while his technics and signs postulate coherence, that human specimens are prone to give a large role to *faith*, this adherence to stable wholes mostly unknown, only suspected, partly fantasized, along phantasms sometimes open, sometimes closed <29>. **(1)** Already a **convivial faith** is required in each encounter (re-en-contre) <22> with a congener, an *alter* or an *alius*, for the very reason that everyone can only conjecture what happens beyond the forehead of a transverse and possibilizing congener, while other animals even in their games reach the congener, the prey or the enemy, along the fixed gates of their stimuli-signals and Huxleyan rituals <25>. **(2)** The leader of a techno-semiotic group, the *chief*, must expect a **civic faith** aimed at his person (personage), as being an individual incarnation of the gestural and linguistic rhythm of the group, before any particular program. The human chief remains in a spatial or at least a techno-semiotic (mental) *distance* as he is the external stalk and stake of a groupal endotropic elaboration. The group expects from him a double clear-sightedness: of the specific human challenges and constitutive responses, in general <66-73> ; of the quality of adherence of every member, in particular. **(3)** Ultimately, a **sacred faith** is induced by the secret forces supposed to dominate or perfuse the *woruld in its wholeness. Its scope has been the *sacred* (Hitt saklai-, rite, Osc kaila, temple), amazing, terrifying and blissing at the same time (Rudolf Otto, *Das Heilige*, 1917). The sacred faith life is made less of adhering to some

personae (actors) than of ratifying a general course of things, managed or at least animated by *instances* (goddesses, gods, demons, general laws), with as a horizon the indescribable presence-absence-autotranslucency <17>. Thus far, the sacred faith has responded to three major anthropogenic moments, parallel to our three "worlds": religion, belief, and admiring suspense. (a) In WORLD 1, sacred faith met **religion** in both etymological senses of the Latin "religio", (1) a scrupulous respect (re-legere) of rites during the ascriptural WORLD 1A, of texts during the scriptural WORLD 1B ; (2) the binding together (re-ligare) of the coreligionists in a totally justified environment, where no accidental death or illness or other "accidents" (cadere, ad) of any kind can occur. (b) The sacred faith became **belief** with WORLD 2, since the Physis (generation) or the Christian creator-engineer God were reasonable enough to define dogmas. Those dogmas dispatched consequently believers and unbelievers, heretics, orthodox, schismatics. (c) The sacred faith is **admiring suspense** in WORLD 3. For certain, such kind of suspense has been very primeval, but it has taken a central influence since the Archimedean science, giving a quantified description of all functionings, and has stretched by contrast the indescribable presence-autotranslucency (whose concept effectively was denominated as *presence* only around 1940, in Lavelle and Sartre). Thus, the sacred faith can no longer have as a theme an efficient cause or a final one determining a **Preliminary Global Sense**, as in WORLD 2. Its aim is the intrinsic tension (limit and aperture) between the describable and the indescribable as the ultimate horizon, able only to promise the local and transitory **plural senses of an bushy Evolution characterized by quantal effects** <61> crossing the functional and the presential, and where salvation consists of the admiration of events apprehended singularly in their intensity, and universally in their resonances. Obviously, the deprivation of ultimous finality is something hardly conceivable for a technosemiotic primate, primarily prone to operate along means and ends, and whose mental slope is to invoke first means and last ends. But an animal simultaneously describing and presentive may perhaps find some existential satisfaction when adhering to a Universe where particular sense become Sense, at least locally and transitorily because of the thematized intercerebrality of its X-selves <71>. Such a view supposes that the couple sense-Sense proceeds more from a satisfying intercerebrality than a sole rationality. Which verified the case of the Occidental personal God, who, before an absolute intelligibility, endowed His adherents with an absolute intercerebrality.

73. The invocations in the faith life. Faith and rhythm. Sacred faith and blank theme - In the three kinds of faith (convivial, civic, sacred), the invocations (vocare, in) are a mix of words and dance-music about two major themes, attested from the time of Sumer and Egypt. The **exchange**, where requests (*prières*) and thanks (*actions de grâce*) alternate. The **adherence**, flourishing in praise (glorification) and renunciation (exstasis, enstasis). The invocation is often of itself sufficient, pretty indifferent to the invoked and the invoking ; its endotropic intercerebrality can even succeed without an existing invoked <16>. For certain, the *convivial faith* of the salutations "ni hao" (you good) and "kairé" (be enjoying yourself) is proper to China and ancient Greece ; the *civic faith* of "El pueblo unido jamas sera vencido" proper to Amerindia ; the *sacred faith* of the 9th Symphony supposed the romantic deism of the young Schiller and the old Beethoven ; but, in every case, the resultant invocation can serve rather opposed ideologies. So, in the sacred faith, Israel's Psalms, many of which enunciate the genocidal violence and barbaric ecstasies of tribal groups fascinated by the power of surrounding primary empires, can be repeated for centuries on bellicose and pacific lips ; so that the monolithic pacifism of the New Testament was derived from its Gregorian song through

the Coptic communities. Indeed, Homo seems to have felt, as the Greeks and the Latins emphasized, that the powers he is invoking know better than he does what is useful for him in the end. Because he himself does not know the total sum, or maybe there is no total sum at all. - As for the **rhythm**, the faithful ordinarily considers it as a simple subsidiary gratification deriving from the theme of the faith, while indeed it is the source and the end of this theme or at least its only validation (*beatitudo non est virtutis proemium, sed ipsa virtus* ÷ Spinoza). So that the theme of the sacred faith is often blank, as a mere scope of indexation <57,58>, and its peculiar nouns, now utterable (DeF, Ell), now unutterable (Yahwe-Adonai), have only to express, in a radical rhythmic submission, the unpronounceability of the ultimate Real <17> (the tension between universal continuous functionings and the discontinuous presence-autotranslucency <72>). So much so that there are no ultimate discordances opposing the following formulae when pronounced rhythmically and faithfully enough: "Sun, that embraces all the peoples of Egypt" of Akhen-Aton (-1360) or "A-OU-M" of the Vishnuist Indian, in WORLD 1B ; "Zeû poluônume" (Zeus with multiple denominations) of the Stoic Cleanthes (-250) or even "Our father in heaven" of the Christian Vulgate (+50), both in WORLD 2 ; "Our self-sufficient and presential Universe(s), horizon of suspended mind" (+2000), in the beginning of WORLD 3. The matter being every time the human intercerebrality as hypostasized.

R. Spatial stabilizers

74. The ethnic groups: great-races or sub-species, sexes, family-clan-tribe-people, corporates, confessions, parental dialects and logics, civilizations - Besides all those individual remedies to the gaps of his ethos, Homo has elaborated groupal answers, emphasizing all that is configuring and delimiting in the community or society bonds. The Greeks have given anthropogeny a useful tool when designating with the unique word *ethnos* (akin to *ethos*, custom) all groups precisely large enough and delimited enough, natural enough and cultural enough, to favor *collective existential rhythmization* <66>. An anthropogeny has to sort out at least six of those groupings. **(1)** First, **the great-races or subspecies**, whose *physical anthropology* for long could observe only skin color and foot shape differences: indeed "white" nakedness with its "pink" contrasting mucous membranes is not the same as the "black" or "red" ones, and the African's foot without arch, although not a flat foot, must favor the feeling that cosmic energies are arising from the soil upwards through the raucous voice in the energetic bottleneck of the throat, or the dancing hands thumping the drums. Today, the same *physical anthropology*, biochemical since the Human Genome Project, is exploring the genetic originalities of five sub-specific groups: Caucasians, Sub-Saharians, Asians, Polynesians, Amerindians. **(2)** In human groups, **sexes** are blatantly articulated, as the *contrast vulvar / penile* became patent in the bodily façade of the upright and transverse primate <5> ; all the more so because this physical contrast shows correspondence with the *topological couples* <43>: continuous / discontinuous, embracing / embraced, neighboring / remote, open / close ; and resonance with the complementary roles of *generation (female)* and *war (masculine)*, both equally lethal from the human origin up to recently. **(3)** The **family**, ostensible in the chimpanzees, later the **clans and tribes** <21>, have regulated directly the matrimonial exchanges (usefully studied by the structural anthropology), and indirectly the commercial, conflicting, sacred ones, in order to maintain a rate of groupal openness / closeness biologically

and techno-semiotically viable. (4) The craftsmen's **guilds**, reminiscent of shamanism, extend the naturalization of the convention <68> up to the practical technics and exchanges ; the Indian system of castes (castus, pure, strictly natural) proposes their paragon. (5) The **civic and religious confessions** (*groupal* organizations not to be confused with civic and religious *faith*, that are *lives* <72>) reproduce in their rites and sentences a supposed natural order of the *woruld. (6) The parental **dialects and logics**, those not learned by rules, compatibilize and even coordinate the idiolects <51> and the practical logics <63> of every one. (7) Every **civilization** emphasizes one of the fundamental components of the fates-choices of Homo <42>. - The swiftness that today characterizes the transition of the specimens of Homo sapiens sapiens from one ethnic group to another shows overwhelmingly that human anatomo-physiological and techno-semiotic performances (languages, images, musics, sciences) are based upon physical and biological principles that are pretty simple and fundamental, and therefore paradoxically easily cleavable <9> and exchangeable <4> at the same time.

75. The exemplary ethnic group: the people - But among the ethnic groups, two require a more attentive description: the people <75> and the culture-civilization <76>. Thus far the prominent ethnic group has been the *people*, that *plenum* (populus) of an ideal size for closing and opening a horizon <33 >, giving every one the assurance of taking and being part in an achieved ensemble and thus becoming himself a defined "every one", "some one", "each one". The people, the fatherland-motherland, is often planted (it has roots) "in" a "*pays*" (pagus, central pillar fixed in the soil and determining a topologic proximity of close and far), but it can also be scattered in *diasporas* remote but related to a promised land or at least to a native earth, existing or fantasized. The people is a group sufficiently dense to harvest the advantages of endogamy ("do not give your daughter to the stranger", Deuteronomy) with limited inconveniences of consanguinity. Whereas resulting from historic and geographic chances, the people claims and supposes a foundation principle, *eponymic hero of heroine* (Jewish *Song of Deborah*, -1100) or some miraculous event, with thousands of more or less genocidal varieties between a racism by monotheistic divine election (*Deuteronomy*, -620) and one by biological selection (*Mein Kampf*, +1923); both reclaiming their "vital space". People verifies most clearly the unique ascertained law of sociology: a *we-group* could not be consistent unless contrasting with an *out-group*. Explicitly or implicitly, all peoples have their election feast (there are two fates, *pourim*, ours and that of the others) and their initiation ceremony, *bar mitzvah* (the boy of the sacred law) or at least a military service. Whether it be singularist (Japan) or universalist (U.S.A.), triumphalist (ancient Rome) or persecutionist (Israel), and even endowed with democratic institutions, the people needs no solid reason, even with democratic institutions, to largely despise the other peoples, held to be barbaroi, even inhumane. In that sense, every people perceives itself as sovereign, deciding independently of its "vital" interest as an ultimate instance and in the last resort. As declared by the UN Charter of 1948, that still alleges "sovereign states", this trend initiated by the primary empires of WORLD 1B, and now said Westphalian (1648), persists through WORLD 3, despite the globalized exchange of commerce, health organization, travel, research, emigrations, and so on, where the soft legal system (le droit mou) of lobbies and lawyers sweep out frontiers, leading behind to the regions, and beyond to common markets and joint ventures. The consciousness of being a people includes such fixating fixed perceptions <9> that Homo has often been induced to ask whether his people would have to contain the extravagancies of its citizens by means of its legality, as

Kant or Hegel thought, or on the contrary whether the individuals by their intimate justice and sanctity have to redeem the criminal and genocidal endeavor of their people.

76. The pervasive ethnic group: culture-civilization. The nine major planetary civilizations as existential fates-options - Among ethnic groups, the cultures-civilizations are the less ostensible, but the more invasive or pervasive. For centuries or millenaries, there have been produced and sustained *groupal existential fates-choices* <42>, that permeate all conducts from cooking to erotic, dialect, writing, faiths, technics, daily theater, politics, etc., for very large populations exceeding the limits of nations. If culture-civilizations are so extensive and holding up, it is probably because they have their roots in the fundamental structures of Homo: topology (as to space), cybernetics (as to time), logico-semiotic (as to signs), presentivity (as to the relation immanence / transcendence), every one of which emphasizes biologically, technically, semiotically better productivity. Nine of them still enjoy today a planetary influence following their compatibility with WORLD 3, and an anthropogeny is obligated to characterize them sufficiently. **(A) Japan**, an insular and seismic territory, with sharp climate peaks and troughs, ancestrally living close to famine to the point of making parental cannibalism a literary and musical theme, has valorized the spatial and temporal interval, called *ma*, a kind of annulment making every process a suite of discontinuous intensities, like a samurai strike ; the affinity with discontinuity assured the swift adaptation of Japan to WORLD 3. - **(B) China**, a gigantic mountainous hydraulic machine, the "Empire of the middle", must favor a *tao*, comprising two polar principles, yin-yang, feminine / masculine, but primarily obscure / luminous, in a *reciprocal conversion* where the development of the first pole already comprises the resurgence of the second, in a constant feedback and feed forward of *inclusive disjunction* (a logic without third excluded) versus the exclusive disjunction of the Western third excluded logic. This *radical naturalism*, favoring strategy more than tactic, conciliates evolution and archaism, daily functionings and the presence-absence-autotranslucency cultivated by the *tch'an* and the Song culture. Such a view pretty much agrees with the generalized ecology of WORLD 3, so much so that it admits a strict birth control as presupposed by any effective politics. - **(C) India**, in the infinite shades of the luminosity of its pullulating and polluting *monsoon*, has generated the indefinite *subarticulation* of metempsychosis, symplectic geometry (of monsters), multidirectional copulation and orgasmic tantristic protocols, gods-goddesses demultiplied to the point of tolerating contradiction of their attributes, body canals pervaded by innumerable cosmic fluxes, countless nuances of the sitar, restless phonematic and culinary *samdhi*, unfathomable grammatical subtleties of the Sanskrit (the perfect) with its "disciplic" interpretations, a fluent arithmetic endowed with a position numeration comprising a 0 and an infinite notated 111111..., rotation of the *swastika* and the noria wheel of *samsara* (this throng of the things-performances of the *woruld), where salvation consists in eschewing the Multiple up to retrieving the One of the nir-guna (without objects) of yoga, the nir-vana (without wind) of Buddhism, of sam-dhi (compact-interiorized state) of Vedanta. The attention to every idiosyncrasy keeps apace with strong statistical and informational aptitudes.- **(D) Israel**, a set of Semitic tribes (-1025) on a Mediterranean South-North coastal meatus surrounded by the greatest ancient empires (Egypt, Persia, Greece, Rome, Europe), and therefore prone to diaspora, according to the paradigm of Joseph and Mordecai, advisers of Egyptian and Persian kings, exercising a pervasive power more tactically than strategically and thus suscitating frequent pogroms, in an intimate blend of people-race-domain-tongue-religion (Chouraki) that excluded proselytism and replaced it by the

interpretative exchange (numeral Sem esthetics vs Japheth harmony, Talmud, Massoretism, kabbalah, interest rate <Deut. 23:21>, psychoanalysis) of the reversible TA'AT (tav-heth-tav), i.e. Hammurabi's "an eye for an eye" but here untiringly re-interpretative, sustained as it is by a Semitic language itself strengthened since -1000 by contractual Semitic writings <53>, the archaic, later quadrated Hebraic, right-left memorizing. During the whole of the 20th century, that fate-option has exhibited many consonances with the beginning of the discontinuous WORLD 3 ("the best photographers are Jewish", Winogrand), confirming its ability to interpretative reconversion, whose historical climax remains the leap, around 1 AD, from the genocidal Deuteronomic violence of *Esther 2* et *Maccabees 1* and *2* to the supranational and radical pacifism up to some self-annihilation (exinanivit semetipsum) preached by the apostle Paul and the evangelist Mark about the abysmal figure of Jesus of Nazareth, continuing Job and the Jobian psalms ; *kidush* (moral exigency) where the human justice rivals that of God along the "freaks" of Diane Arbus and the Westerbork of Etty Hillesum ("Dass man soviel Liebe in sich hat, dass man Gott verzeihen kann"), Yiddish humor, Wittgenstein's Sprachspiele, the lateral swing of Charlie Chaplin, the "slightly out of" in the snapshots of Robert Capa, the tilted hats of the Hassidim, all under the incurable (Freudian) anxiety that in the beginning there was, and persists, the Tohu-Bohu. - **(E) The Occident** around the Mediterranean "mare nostrum", an interior sea with a tempered climate and a risky navigation but beacons by luminous islands, where several Indo-European dialects (very syntactical) are spoken, has introduced the sorting out of the forms from their background and the perception of Reality as a set of wholes composed of *partes integrantes*, thus conceiving the universal mediation of thesis, antithesis and synthesis, a complete writing <53> transparent to the being <53>, the strictly equal exchange (A = A, vs TA'AT), and consequently postulating the ideal of an exact honesty up to the equal vote of the Athenian *eleftheroi*, the commerce as an explicit relation, the law and the treaties being pretty much fixed, the Archimedean equations, a logic of the third excluded under the isosceles triangle of Euclid and the Parthenon, before that of the Christian Trinity and of the White House. On the background of that exact exchange system, the practice of a neutral exchanger (money) <4> must induce successive concepts of liberty, first civic equality, later moral choice, then hedonic choice, lastly power of creating moral values. The resulting paradoxes are only apparent: a missing consistent artistic theory (due to the rationalist negation of field effects <28>) and yet a quasi-Promethean artistic practice ; the human sexuality deemed unintelligible, because orgasm and copulation are incompatible with presupposed autarchic individuals, and yet the interpersonal love valorized as an absolute ; the death of a spiritual being perceived as intolerable, and yet a recurrent allegation of immortality. - **(F) The Arabic Islam**, in the no man's land and the mirage without mediation of the contrasting desert, drawing vertically and anhistorically the transcendence of Ell (Allah), whose fulgurating and ubiquitous presence-absence and the sounding and visual dazzlings of the Matrixes and the Signs, exalted by the cry (Qu'ran) of a sole Prophet, must suscite nothing but the blindness of the Deleters and the stupor of the Awakes, and for every one the veil (mucharabié) of the ontologic and epistemologic suspense, of which the veil of the woman, privileged center of the matrixes, is exemplar ; also the interpretation and temporality conceived as successive identic instants (vs the Hebraic TA'AT) in a rigid right-left writing (kufic script), isolated stars (Altair, Aldebaran) more than constellations, transitory razzias without strategy, in the Ibn Khaldun cycle (+1380): desert > city > culture > idle luxury > desert > city... Among all the traditional civilizations, this one, despite its algebra and logarithms, seems to be the less adapted to the very functioning WORLD 3, that is yet fascinated by its vertical stressing of the presence-absence <17>. - **(G) The Sub-Saharan Africa**, on the soil of a tropical-equatorial electro-magnet between the thunder of heaven and the wild beasts of the earth, bound by the Dogon forked lightning and

the energies rising from the soil, this double move activated by the *shifting* of the beat and swing arising from a multiple base numeration: 7-8-9 (Griaule), nurturing a speech-gesture-energy mostly tactile (WORLD 1A), and thus positively ascriptural, while the only writing is sculpturing and weaving ; ostensible rhythmization of the life that explains a surprising calm acceptance of death, and whose jazz (coitus) has become the ultimate resource of feast (that blend of life and death <69>) in WORLD 3. - **(H) Amerindia**, embedded in the Cordillera, under the volcano, among the jungle, has practiced a generalized **constriction** to the point of excluding the wheel, and put at the principle of the world and the sacrifices the *quik*, first the thick blood shared by gods and men (*Popol Vuh*), second the *casings into casings*, those of the jaguar dentate jaws, but also of human visages here sharing their nose and eyes (Chavin de Huantar), there as heads containing protruding heads, temporarily from the subsequent to the precedent ; the Colombian mamagallo initiated the literature of WORLD 3 <77>. - **(I) Planetary Contemporaneity**, arisen from the Archimedean science, put in place, on the bed plate of the previous civilizations, the *quantal compatibilization* of the heterogeneous series of the Universe and our advanced Technique <61>, along the "windows" of the analog sign of the graph and the digital one of the bit 0/1, on the eve of the quantal objects of the spin electronics. ÷ An anthropogenist will observe that in order to characterize those nine civilizations of the signated and signating animal (Homo), something essential can be said by only three major kinds of signs: (1) **A digital sign** : 0 for Japan, 2 for China, 1111...for India, 7 for Israel, 7-8-9 for Africa, 3 for the Occident, 1 for the Arabic Islam, 20 x 20 for Amerindia, 0/1 for Contemporaneity. b) **An analog sign** : taijì for China, swastika for India, magen David for Israel, isosceles triangle for the Occident, veil for the Arabic Islam, Dogon lightning for the Sub-Sahara, jaguar jaw for Amerindia, graph for Contemporaneity. (c) **A dominant word-concept** : interval (ma) for Japan, reciprocal conversion for China, subarticulation for India, TA'AT for Israel, mediation for the Occident, suspended mind for the Arabic Islam, shifting for Africa, constriction for Amerindia, binarity for Contemporaneity, etc.

S. Temporal stabilizers

77. Historic stages. Intensive language and literature - Along with spatial stabilizers, as people or sex, all ethnic groups <74> have been given temporal stabilizers, the *epochs* (epi, ekHein), i.e. *stances* articulating the past (ancestral) and sometimes the future (messianic, parousiac). The suite of epochs has been perceived as static, dynamic, going up-and-down, cyclic, alternative, bushy, etc., according to the particular fates-options of each culture-civilization <76>. Like peoples, epochs suppose **foundational figures** : "great men", "great women". Those in the ascriptural WORLD 1A were *instances of origin* ; in the scriptural WORLD 1B, *eponymic kings* ; in WORLD 2, Promethean *heroes* ; in WORLD 3 mediagenic *stars*. Those prominent figures go along with **foundational events**: deluge, epidemic, revolution, massacre ÷ here undergone (the Shoah), there inflicted (the feast of both Pourim), not excluding legal constitution allegedly written by sages (Greece) or prophets (Islam). At all events, **Homo geographicus has also been Homo historicus**. In the ascriptural WORLD 1A, practicing "intense phrases" (falsely called "oral literature"), he first narrated origin *analogizing myths*, then told *digitalizing tales* ("contes" and "comptes" have "evidently" one same etymology, said Littré). In the scriptural WORLD 1B, as aedes (singer), he sang or wrote *epos* denominating and enumerating royal titles, enemies falling down, seminal succession of

generations (X genuit Y, Y genuit Z), thus inaugurating direct or indirect literature (matter of littera, letters). In WORLD 2, after the *lyric* of X-self astonished when discovering himself as forms standing out against the background (Archiloques, -680), he *produced*, with the same astonishment, the tragedies of his semi-goddesses-gods (Aeschylus, Sophocles, Euripides) and the *comedies* of his congeners socii (Aristophanes), before conceiving "historiai" (researches): *differential history* (Herodotus), *causal history* (Thucydides), and *edifying history* (Plutarch, Gibbon, Michelet). It is from those last texts (*legenda*, the ones to be read) that were born, in the now interiorized "anima" of the Romano-Christian-Stoic-Neoplatonician-Neohebraic Mediterranean of the 1st century A.D. <58>, the *romances*, those imaginary histories often more complete, profound, and true than the event-focused histories ; thus, about 1950, *O teleFtaios peirasmos* (the last temptation) of Kazantsakis recapitulated almost the ultimate interrogations of the Mediterranean Occident. With WORLD 3, the edifying historicism of Homo has even created a new ethnical group, numerous and influential, the *historians-newswriters-reporters*, assuring for a planetary audience, in a blend of scoops and consensus, the constitutive ethical answers <68>: memorative, judicative and moral infallibilities, the privilege of the tractable, naturalized convention, the common error fixing the minds, inherent finagling and humor <68>. -Yet, for an anthropogeny, all those forms of history faded when Homo, about 1810-1850, popularly discovered himself as a species among species in a process of quantal equilibria that profoundly disturbed History as a stabilizing reference. More radically, the living beings appeared as only states-moments of a Universe of which the age is strictly calculable, 15 billions of years, since the discovery of the fossil radiation in 1963, so that today looking at the heaven is to open oneself to time as much as to space. And the space-time horizon has become still broader since 2000, when the Universe began to be contemplated just as a singular solution amid the Multiverse <59>. There is some echo of all this in the images and dances-musics that we called aminoid <46-47>. In literature, those dynamic sequenciations have taken the form of a self-generating syntax, decisively accomplished in the romance-oratorio *Zelsa* (2000), by Luc Eravil (published on the Web), and prepared by Gabriel García Márquez in *El otoño del patriarca* (1975), and earlier in the tale *El ultimo viaje del buque fantasma* (1968). In *Kaspar* (1967). Peter Handke has proposed such a syntactic self-generation of the body and speech on the theater stage.

78. The props of history. The rupture between drawn signs and granular signs, i.e. photography, cinema, magnetoscopy. Medias and media. The "specific" biological dossier
- The writing implements gave us an opportunity to verify how the *production means* have determined groupal existential fates-options <42> even as or more than the *production relationship* <54>. So, the perception of human history was profoundly modified depending on whether it was broadcast by means of images, musics, spoken words, manuscripts or printed texts ; there is no modern State without printing. So, an anthropogeny must insist on the radical revolution introduced by **photography** in 1840. Indeed, all the signs used by Homo had thus far confirmed him as the center of his history ; he himself *drew his* paintings, his sculptures, his engravings, thus all images, *drew his* spoken or written phrases, *drew* the going up and down of *his* gesturing (dancing)-musical phrases. So, he was perceiving himself as a *little Demiurge* and, "according to his own image", conceived his goddesses-gods as *great Demiurges*, who were drawers too, who painted, carved, spoke, wrote their creatures with their destiny. Now, photography does not result from any drawing ; contrary to its etymology (pHôs, graphein), photography is not at all a writing by light ; it is a physical encounter between a radiant energy

(as photons) reflected by a external spectacle and a sensitized surface ; it was **no longer a drawn but a granular image**. Far from being a Demiurge, the photographer was an **attendant**, a **shutter releaser**, a **switchman** of something happening largely beyond his control ; so that a camera obscura fallen in a bush and automatically started could provide unpredictable and yet innovative shots. As to the photographed event, even in the most controlled photo, it cannot be more than **involuntary indicia** <25> (the contrast between modified and non-modified emulsion grains) only susceptible to being articulated by **indices** <25>, like a frame, an aperture, a lens, film sensitivity, shot moment, blowing up. Now, **indicia** <25> are constantly interpretable, first because their blow up results from "*quantal mass effects*" ; then because they can be submitted to various enlargements, reframing, reprinting of all kinds. The pixel proper to the current trend from analog to digital has afresh emphasized this granularity. So that every photograph implies a reserve of innumerable unpredictable events ; even when a principal global event can be distinguished in a photograph, it contains in it some internal dissemination; an objectal not objective result, despite the French term for the lens (l'objectif). In that ontological seism of the notion of event, it was History as a whole that became a field of dissemination. It was also for Homo as an epistemologist the occasion for at last realizing that in all his native experiences, he is always first starting from indicia and indices, **indexed indicia**, and in no way directly from ideas and concepts imagined by his philosophers <57> ; so that the **deduction** and the **induction** follow far behind the **abduction**, this reasoning of the detective (Peirce) ; the couple **indices** / **index** is the nerve of practical logic <63>, without which there is no formal logic at all <64>, ontogenetically for the adult as much as for the new born, and phylogenetically for Homo sapiens sapiens as much as for Homo erectus. In sum, the photographic granularity implied an epistemological and ontological revolution that since 1900 has been confirmed by the granularity of the cinematographic image, and since 1950 by that of the magnetoscopic image and sound recordings, though yet without the insistence of the photographic grain, in its fascinating immobility. From such a radical questioning of their whole endeavor the philosophers have prudently departed during a century and a half, and for their more daring interest it was probably supposed that the perception of the Evolution of the living would be perceived as a sequence of punctuated equilibria, in the middle of a Universe itself being a set of quantal effects <61>. Perhaps symptomatically, in the case of the author, his *Philosophy of Photography* (1983) preceded the insistence of the present *Anthropogeny* on the couple indicia / index as the knowledge proper to a transverse primate. - The revolution operated by the **granular media** (sg. *medium*), photography, radio recording, magnetoscopy, identity documents, illustrates all the more the cultural power of production forces <54> because they have created **capitalized Medias** (sg *media*): the Photo, the Radio, the Television, the Magazine, the Identity dossier, really new ethnic groups and noospheres that have displaced the (Romano-Christian) private life toward public life, the prominent hero toward the fellow creature, with the long-term prospect of a planetary biological inventory of the species-gender Homo as such.

79. The X-selves galaxy. The universal singularities of the X-selves and the work-opus subjects <42> as theme of the ultimate admiring mind - At the same time as they helped dilute the traditional generalities, the media and medias enhanced the spatial and temporal unicities, no matter whether they were galaxy, star, planet, oceanic trough, mountain, plant, magnificent or furtive animals, humble or glorious human specimens, each being understood by geology and biology as singular and plural, proceeding from innumerable

convergent and divergent anterior and posterior phenomena, together perishable and radiant. Nevertheless, the admiring suspense about singularities, that is the form of the sacred faith proper to WORLD 3 <72>, culminates when confronted with the most complex phenomenon, the human X-selves <41>, that, mediatized or directly encountered, intertwines describable functionings and indescribable presence-autotranslucency <17>, in consideration of which their death is as pregnant as their life for the intercerebrality of the group <16>. An anthropogeny has yet to remark that, despite their unicity, the successive human X-selves are subjected, more than other livings, to a kind of dialectics, proposed in Chapter 30 of the complete text of www.anthropogenie.be, of which we sum up here the ten principal stadia-stages-strata: (1) **Clanic and tribal** X-selves of the ascriptural WORLD 1A ; (2) **Conjunctive** X-selves of the scriptural WORLD 1B in the primary empires ; (3) **Integral** (integrative) X-selves in the frontal Greek WORLD 2 ; (4) **Modest** X-selves in the WORLD 2 of the Roman ipseitas, proprietas, gloria ; (5) **Glorious** X-selves of the apocalyptic Christianity of the 1st millenary ; (6) **Operative** X-selves of the "inherentiae subjectum" of the cocreative Christianity of the 2^d millenary ; (7) **Zoomorphic** X-selves of the Renaissance ; (8) **Barred body** X-selves of the rational burghers society until the Victorian times ; (9) **Autogenerating** X-selves of the German romantic ; (10) **Universal (multiversal)** and **windowing-windowed** X-selves of WORLD 3. - Every X-self is largely summarized and persisting, even beyond his life time, in his work, and singularly in his "work-opus subject" <42>, whether he be an artist, a craftsman, or a simple user. The work-opus subjects are the matter of the anthropogenic historians, for instance in our oral *Histoire langagière de la littérature française* (1980) <France Culture, www.fdlm.org> and *Histoire photographique de la photographie* (1992).

80. Contemporaneity and contemporization. Homo autoconstructor - Being contemporary with some congeners must have been perceived early among primatal groups where ages were biologically and technosemiotically sharply differentiated <23>. This sentiment became broader when human groups inaugurated oral narration, then wrote them, and so designated not only intragroupal but intergroupal contemporaneities: the contemporaries Descartes and La Tour, Spinoza and Vermeer, Beethoven and Hegel explain one another. Someone could even be feeling *contemporized*, i.e. intensely and very consciously contemporary, in major historical ruptures, for instance in the turning point of +400 between six centuries of Roman order and six centuries of Barbarian invasions, witnessed by Augustine's *De Civitate Dei*. Nowadays, the transition from WORLD 2 to WORLD 3 induces an extreme feeling of urgency, and thus an extreme **contemporization**. On the contrary of Homo faber, who could suppose that his ecological problems would be the responsibility of Mother Nature, Homo **autoconstructor** is strongly responsible for the processes of his environment, and thus of his own fate, as much as he largely controls the atom, the genome, the proteome, the ocean-earth equilibria, the population rate, the couple energy / information, the money, the electron spin, etc. So, an anthropogeny could be induced to propose a list of human urgencies. But such conclusions would fatally reach prescriptions that are beyond the scope and the competence of the anthropogenical method and criteria. Let us add only that the current challenges of the human species seem to be beyond human control, given the ethos of Homo as just described <66-80>. So, there would be no future at all, unless, given the surprising idiosyncrasies <67> and conversion abilities of human beings, those challenges, as stringent and urgent as they are, would induce, at least in the conscious few, novel technosemiotic (mental) lucidities. It would also be conceivable that Homo autoconstructor would become the site of biological bifurcations

making humankind capable of biological and technosemiotical as yet unknown performances. In one case remaining a primate angularizing, transversalizing, lateralizing, exchanging, possibilizing, holosomic, indicializing, indexing, presentive, capable of gesture, speech, writing, etc. Or also by means of anatomical and physiological unpredictable mutations provided by a natural evolution or a genetic engineering, sometimes innovating organs and functions, sometimes accelerating and amplifying natural opportunities.

* * *

Summary - God does not play dice. He plays the dynamical sequences of twenty amino acids, that support all the building of the Living. It is in the course of this game that Homo has been selected as an angularizing and transversalizing primate, producer of indicia and indices. A technician together effective and thirsty for presence-absence. Now in the stage of becoming Homo autoconstructor.

* * *

Definition - As a fact, anthropogeny is the continuous constitution of homo as a state-moment of the universe. As a theory, it is the discipline that has as its scope the faculties proper to Homo, his properties: angularization, orthogonalization, transversality, possibilization, segmentarization of his environment as a set of indexable indicia, holosomy, bodily rhetoric, rhythm, presentivity, field effects, the (r)encounter, existential modes thematized, mathematical approach, etc.

4 - SYSTEMATIC TABLE

1 - THE BASIS

A. A technical and semiotic body

1. Fixable angularity. Orthogonality. Erect and sitting posture
2. Bilaterally symmetrical plane hands making planes. Matching and mapping
3. The slowing of the couple continuous/discontinuous. Pace and gesture, the technical segment. Topology and rhythm
4. Substitution and the realm of possibility. The possibilizing primate. Exchanging and segmenting. The commerce
5. A transverse body. The prevalent breadth. Evidence and suspension (of mind). The transverse and suspensive primate

*B. The *woruld*

6. Panoplies and protocols. Utensils versus instruments. Articulation
7. The *woruld. Segments and horizon

C. An endotropic brain

8. The consequences of a transversalizing primatal body upon the evolution of the brain: enhanced cerebellum and neocortex. The fetalization
9. A brain usefully modeled as a biochemical simultaneously analog and digital computer, i.e. a biochemical hybrid computer. A perceptive system sometimes flexible, sometimes fixing-fixed (cleaved)
10. Lateralization of the cerebral hemispheres. Vectorialization of the transverse plane
11. The frontal lobe: tactic and strategy. Human domain and domination versus animal territory. From behavior to conduct. The physiological unconscious
12. Memorizing and remembering. Memory and memoration. The REM-paradoxical sleep and dreams
13. Perceptive traumas and REM sleep. Intelligence and genius
14. Exotropic and endotropic *woruld. Imagination and imaginary world (Fr. l'imaginaire). Ten existential modes: affront / solitude, submission / bluff, earnestness / game, exploration / coquetry, dream / reverie
15. From affects to sentiments
16. Intercerebrality
17. The presence or presence-absence or autotranslucency as part of the

consciousness. The primordial universal distinction: functionings (continual, describable) / presence-absence (intermittent, indescribable). Cause and occasion

D. Integrating senses

18. A focalizing, lateralizing and globalizing vision
19. A proportioning and echoing hearing
20. Caressing touch, hovering smell, substantial taste

E. Community

21. Family and filiation. A rhetorical organism. Self-evidence. The clothes. The face
22. The encounter. The living and the dead. The sacred. The bereavement as a continued intercerebrality
23. The sexual complementarity made ostensible: affronted coitus and female orgasm. The contrasted and marked ages. The neighbor and the community

F. The signs

24. Signs as pure thematizers (versus technical thematizers)
25. Signals, stimuli-signals, signs. Indicia (full) and indices (empty)
26. Analog signs and digital signs. Socius and society. From semiotic to convention. Interpretation, superstition, paranoia, accusation, almightiness. Magic. The Latin-French couple: torture/supplice. Astrology

G. Field effects and rhythm. Distance grades

27. Field effects. Their two kinds: perceptivo-motor and logico-semiotic
28. Field effects. Their four modes: stable, kinetic, dynamic, excited
29. Field effects and phantasms. Fascinating and opening phantasms. The absolute signs
30. Non-coordinatable attractors and their compatibilization by the rhythm with its eight resources
31. Pleasure, joy, "jouissance"
32. Rhythm and thematization of the presence-absence-autotranslucency
33. Things-performances-IN-a-situation-UNDER-a-circumstance-AGAINST-a-horizon

H. Massive tectures, images, dances-musics, languages

34. The anthropogenic bed plate: proto-tecture, proto-image, proto-music, proto-language. Massive versus detailed
35. Ground settlements. The three logics of the tectures. The sacred versus the located
36. Massive images and frontality. The bifaces. Monument and idol
37. Massive dance-music. Auditory proportion. An outstanding intensifier of presence-absence-autotranslucency
38. Massive language. A first vocal thematizer of the *world and the human gesture
39. Filled and empty signs of the language. The convention, or rather institution. The specification

I. The ergon-opus-oeuvre-work-Werk and the X-Self

- 40. Current and extreme erga-opera. The daily theater
- 41. The ergon-opus vis-à-vis the human self. The X-Self
- 42. Existential fate-option (destin-parti) of the X-Self as a singular topology, cybernetics, logico-semiotics, presentivity. The ergon-opus-oeuvre-work subjects

2 - ACCOMPLISHMENTS

J. Three Worlds

- 43. An obliged suite: nearby continuous, remote continuous, discontinuous
- 44. The three worlds

K. Detailed tectures, images, dances-musics

- 45. Detailed tectures: topoi, frame, sub-frames, perspective, reticulation, windows
- 46. Detailed images
- 47. Detailed dance-music

L. Detailed languages

- 48. A larynx-pharynx innovative angulation and the achieved passage from human vocal sound to tonal sound circa 50,000 BP
- 49. Phonematics and phonosemy
- 50. The four layers (strata) of the detailed language: phonemes, glossems, syntaxemes, speech phrasing. Linguistic variation, selection, amplification. The circuit between word and term
- 51. Language as spontaneous. As multifunctional. As idiolect, dialect, fixed home tongues

M. Writings and mathematics

- 52. The proto-writings of the Neolithic counter chips. The stages of writings: intense, contractual, consonantic, consonantic + vocalic
- 53. The ontological and epistemological revolution inherent in graphic tokens. From the first cunei up to the windows
- 54. Epistemologies and ontologies inherent in the implements and props of writing. The computer screen. The prevalence of the production means versus the production relations
- 55. Mathematics as the absolute practice of purified indices (discharged and disindexicalized), and the general theory of purified indexations
- 56. Mathematics, truth and coherence (consistency). Axiomatization

N. Philosophy and Archimedean science: physics, biology, humane sciences

- 57. The philosophies
- 58. The restrained panoply of philosophies

- 59. The Archimedean science as physics. Universe and Multiverse
- 60. The secular rejection and final triumph (1630) of Archimedean physics
- 61. Archimedean science as biology. Amino formations perceived as the key to the living. Open and yet intertwined variations. An Evolution as punctuated equilibria and evolutive, emphasizing bottlenecks, and generalized as successive local hierarchies of quantal effects. Ultrastructures vs. structures and textures. The aminoid formations parallel to amino formations (Gestaltungen)
- 62. Archimedean humane sciences. Their limits

O. Logic

- 63. The practical Logic
- 64. The theoretical logic of ontological spirit
- 65. The theoretical logic of Archimedean spirit. From terms to propositions. From comprehension to extension

3 - SOCIAL ARTICULATIONS

P. The human ethos

- 66. From behaviors to conducts. Education and teaching
- 67. The sick and healthy animal. Illness as an anthropogenic opportunity. Homo the therapist. Nosography. Idiosyncrasies (complexions). DSM-IV and the talk show

Q. Counterbalancing the human ethos

- 68. Constitutive ethical answers: infallibility, privilege of the tractable, naturalization of convention, common error, finagling and humor, Byzantine complication and complexity, smile and tears
- 69. The system of the lives. Mundanity as their blend and equilibrium
- 70. Art life. A thematic compatibilization of uncoordinatables. Daily art, extreme art. Complication and complexity
- 71. Love life. Grief of bereavement and immortality. Friendship. Hatred and indignation
- 72. The faith life: convivial, civic, sacred. The sacred faith as religion, belief, admiring mind
- 73. The invocations in the faith life. Faith and rhythm. Sacred faith and blank theme

R. Spatial stabilizers

- 74. The ethnic groups: great-races or sub-species, sexes, family-clan-tribe-people, corporates, confessions, parental dialects and logics, civilizations
- 75. The exemplary ethnic group: the people

S. Temporal stabilizers

76. The pervasive ethnic group: culture-civilization. The nine major planetary civilizations as existential fates-options
77. Historic stages. Intensive language and literature
78. The props of history. The rupture between drawn signs and granular signs, i.e. photography, cinema, magnetoscopy. Medias and media. The "specific" biological dossier
79. The X-selves galaxy. The universal singularities of the X-selves and the work-opus subjects <42> as theme of the ultimate admiring mind
80. Contemporaneity and contemporization. Homo autoconstructor