Gilles Deleuze

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Metal, Metallurgy, Music, Husserl, Simondon

Richard Pinhas: I have two questions to formulate regarding the last session, although what I mean may be quite confused. It's in relation to this little phrase concerning the metallic synthesis or synthesis of metallization [métallisation]. We saw last year, on the subject of what you said about music, that a synthesis was a synthesis of disparate elements [disparates] which defines a certain degree of consistency in order to render heterogeneous elements [hétérogènes] discernible, we reviewed [Eugène] Dupréel's "famous" texts on consolidation, and concerning the process of metallization I asked myself if there were not a synthetic relation of metallization or a specifically metallic synthesis which would relate, among other things, on one side (and these are not strict oppositions, it would be necessary to view it in a much more precise manner) a smooth space or a striated space, a matter flow or matter movement, and perhaps matter of a more or less congealed [figé] sort, but that would remain to be determined, a certain sort of duration which would relate to a territorial duration, and a different sort of duration which would relate perhaps to an itinerant pole, and I would like to know if this synthesis, for you, could bring out [dégager] something like a properly qualitative pole which would make us apprehend affects that could be called metal affects or metallic affects.

At the level of music, I have the impression that these affects have their own sense, everything happens as if they constructed their own lines and as if they constructed their own contents, that is to say, their own lines of efficiency or their own lines of execution [effectuation]. I also have the impression that they are presented under a specific form, that is for example a singular power [puissance], a specific force and probably certain sorts of processes. I wanted to know if one could simply say that there are metal affects, that one can define them in a certain way, and I think that in music, if I disregard a whole eastern and western tradition, in modern music we began to speak of metallic music quite recently with the "new" American composers, and certain Englishmen, but we already began to speak of brass-heavy [cuivrée] orchestration starting with Stravinsky and Varèse. That is to say that there are two composers who are supposed to have brought about something new which made what I would call, for the moment, very quickly, a metal affect stand out. I wanted to know if you agreed in order to define more precisely something which would be a metallic synthesis or a synthesis of metallization, with its own specific character.

The second point is to know if one couldn't say that at least two technological lines exist, there are probably more of them which would result in two types that we've already been able to define [cerner]. One would be the crystal type, and you spoke of this last year, we made allusions

to Mozart's music, to certain uses of certain instruments, and perhaps a metal type defining a metal music. I relate it to music, but it could be related to a totally different domain. One would therefore have one resultant [aboutissant] line of execution, or rather one outcome [aboutissant] of a technological line which would relate to a metal type, and another related to a crystal type, each one having its singular powers, its specific definitions, its singular mode of affection, its specific affects.

Technically I would say that there are heterogeneous zones of efficiency, for example in music, in order to have crystalline relations or metallic relations one appeals to dynamic relations, timbre relations, selections of hot and cold, heaviness, frequency breaks [coupures de fréquence], in short filterings in very different harmonics in the cases of what one wishes to produce. It goes without saying that it's not inevitable that merely wanting to produce something would be sufficient for the result be of the metallic affect or crystal affect type. But I see [them] as two different lines of execution calling up two different types and the two would mainly be the metal and the crystal. I see a direct filiation as well between what is called metallic music today, or brass-heavy orchestration, and the metal affect of the blacksmith: definitions of this type of affection would very probably be the same, but they remain to be found.

Speaking of hot and cold, I take it as a qualitative example, it's perhaps a bit too simple, one sees right away in examples of analyses of musical pieces, one sees right away that it calls into question even more specific criteria, a whole palette of scales of colors, timbres, wave-forms in the case of synthesized music, there would still be break frequencies [fréquences de coupures], appropriate dynamic relations, specific speeds, etc. The metallic and crystalline lines of execution, obviously differentiated, as outcome, but not in a finalist sense, of two technological lines, equally differentiated, that would merge with another synthesis that would have to be produced, like two cosmic elements. That is to say, that these are two modes of harnessing, harnessings of cosmic elements in the sense that the molecularized matter, in this case musical material, is cosmic and I also thought of cosmic in the way in which Nietzsche defined it: there is an aphorism in the posthumous fragments from the era of *The Gay Science* in which he tells a whole story, and he finishes his aphorism by writing: "Perceive cosmically!" I would like to know if you agree to conceive these affects of metal and of crystal in this way.[1]

Deleuze: It's a beautiful presentation because, I don't know if you're like me, and it happens to me personally as well, it seems almost too beautiful. One realizes that it works too well. Actually it's a danger. This isn't a metaphor: if we attach two names to what Richard said, to his crystal line in music and to his brass line, it's not metaphorical that the crystal is something which obsessed Mozart. That brings together very technical things in music. Not only is the crystal an obsession that Mozart suffers in relation to his life, but he suffers it as well in relation to his work, and this is not only an obsession, it's a factor, it's an active element of this music. When Richard indicates the role, I don't much like the mythological tricks, all the myths recalling something to us and telling us something, to the point, but what's important is the musician-blacksmith link, there is an intimate relation.

I don't feel quite capable of doing a mythological analysis, but it must be seen. Does the myth, in its own way, grasp something which would be an intimate relation between a certain musical direction, not music in general, and a metallurgical direction, the direction of the blacksmith and

the direction of a certain music? If we leave myth behind, in western music, and of course there were brass instruments at all times, but broadly speaking, brasses made their great entry in the 19th century with two great names, and I'm generalizing broadly: the point at which the brasses made their royal irruption into music is with Berlioz and Wagner. These are fundamental moments. And it's one of the reasons why they, Wagner just as much as Berlioz, will be treated as barbarians. A barbarian music.

What does this link mean, brasses enter into music? What does this entail for music? If we succeed in posing the problem well, this is precisely why I must take up again, in closely related terms, what Richard said, if we perceive this problem well, then perhaps we may perceive the resurgence of ancient myths that have no connection with Berlioz or Wagner, and perhaps we will understand more clearly how a blacksmith-music link is forged. What happens when the brasses burst into music? We suddenly locate a type of sonority, but this type of sonority, if I were to try to situate things, after Wagner and Berlioz we start speaking of metallic sonority. Varèse constructs a theory of metallic sonorities. But what's odd is that Varèse straddles the great Berlioz-Wagner tradition of brasses and electronic music which he is one of the first to found and already to extend [effectuer]. There is certainly a relation. Music has been made possible only by a kind of current of metallic music.

We would need to find out why. Couldn't we speak of a kind of metallization, which of course doesn't at all exhaust the whole history of western music from the 19th century on, but isn't there a kind of process of metallization marked for us in a huge, visible way, made obvious by this eruption of brasses? But that is at the instrumental level. Isn't it this, among other things, which I'm not saying "determined," it's obviously not the entry of the brasses into music which would have determined it. I'm saying that there's a series of things which occur concomitantly, at the same time: the irruption of brasses, a totally new problem of orchestration, orchestration as a creative dimension, as forming part of the musical composition itself, where the musician, the creator in music becomes an orchestrator. The piano, from a certain moment on, is metallized. There's the formation of a metallic framework, and the strings are metallic. Doesn't the metallization of the piano coincide with a change in style, in the manner of playing? Couldn't we correlate, even quite vaguely, the eruption of the brasses into music, that is, the advent of a kind of metallic synthesis, the creative importance that orchestration takes on, the evolution of other instruments of the piano type, advent of new styles, the preparation of electronic music? And on what basis could we say that a kind of metallic line and musical line are wed, become entangled, even if it means separating anew?

It's not a matter of remaining there since, in my view, this will basically prepare the advent of an electronic music. But perhaps it was necessary to pass that way. But at that very moment, [there is] no question of saying that the crystal is finished, the crystalline line in music continues. At no time is Mozart surpassed by the brasses, that goes without saying, but it's going to reappear in a completely different form. Varèse is very much at a crossroads: he invokes at the same time notions like those of prisms, metallic sonorities, which lead on to electronic music. Just as the crystalline line passes by way of a whole complex conception of prisms, the metallic line passes by way of a whole complex conception of "ionization," and all that will get entangled, and it will be like the genealogical lines of an electronic music.

Therefore it's very complicated, and it all has interest only if you understand that these are not metaphors. It's not a matter of saying that Mozart's music is like a crystal, that would only be of minimal interest, it's a matter of saying that the crystal is an active operator in Mozart's techniques as well as in the conception of music that Mozart constructs for himself, in the same way that metal is an active operator in the conception of music that musicians like Wagner, like Berlioz, like Varèse, like the "electronicians" [électroniciens] construct for themselves.

Pinhas: I would just like to add that, in this synthesis, or in this 'synthesization of elements' -- and it's a question of differentiating as well as affirming as such lines of metal and of crystal – these lines are never replaced. All that can be had between the two are phenomena of resonance and percussion, that is, encounters of crystal lines and metal lines, but at no moment is there ascendancy or submission [descendance] of one in relation to the other, but what seems very important to me is that there aren't only metallic elements and elements of a crystal type, but effectively, beyond this, there's a process of crystallization and a process of metallization, and this process effectively passes by way of numerous criteria, numerous operators, there's really a fabrication. This process is a fabrication, and it's going to be a matter of capturing or taking up blocks of crystal or blocks of metal, here these are abstract blocks that one finds concretized in concrete machines, for example metal machines in our musical illustration (the synthesizer, the use of percussion, etc.), but it must be valid for many other things, for the crystal line as well as for the metal line.

Deleuze: And it reacts. It's obvious that there aren't just two lines. In the case of music, there's also a vocal line that has its own autonomy, there is a woodwind line which will never stop.

Pinhas: In these processes of metallization and crystallization, there's the formation of blocks of space-time, and it's through vibrations, transformations, compositions, projections, movements of exchange, movements of pure speed, movements of differential speed, that the fabrication of specific time, blocks of specific space-time, is produced, and perhaps it's these that are going to form the metallic syntheses or the crystalline syntheses.

Deleuze: That's what I called assemblages [agencements] last time. They're musical assemblages. These lines each have their own combinations, one cannot define them in an analogical [analogue] manner. In what we vaguely call a crystalline line, which has a whole history of its own, the determination of a crystalline line is not at all in relation to the material in the same situation as the determination of a metallic line is in its relation to its own material; therefore, neither of these lines will have any general formula. Being a crystalline line does not imply that the matter of the instruments which trace it is crystal. If I say metallic line, that implies that the instruments which trace it are brasses, at least at the beginning. Therefore, these two lines have different statuses. Actually they wobble [boîtent] in relation to each other. For the woodwinds, this will be something else as well, we clearly have wood as matter, but wood as matter in relation to a musical line of wood is not at all the same thing as metal as matter in relation to a musical line of metal.

Pinhas: In all cases, the plane of consistency on which the crystalline music or the metallic music will take shape, in the case of the musical example, is absolutely indifferent to the material. At first, obviously, we could say that such and such metallic or crystalline instruments

come into play, but what's really important is the process of synthesis itself, it's the plane of consistency that will bring out a process of affection of the metallic type or of the crystalline type, at such a point that purely electronic instruments could themselves release, while in themselves they don't have any composition, neither of wood, nor metal nor crystal, affects of such and such type.

Claire Parnet: It's the voice. In Mozart's era music starts from the voice and there was differentiation. The crystal affect starts perhaps from the voice while in the 19th century the process of transformation of the voice is completely different.

Deleuze: You know that Paul Klee was the painter who knew music most profoundly, and from within.[2] With Mozart he had a relation of which he often spoke in his journal, a very beautiful relation of affinity. He considered that what he did and what Mozart had done in music were not without relation. But the constant theme to which Klee clings when he compares himself to Mozart is obviously the key theme of the crystal. Obviously in neither one case nor the other is it a metaphor. I take the case of Varèse. There is a whole line which tries to establish sonorous lines, not at all in comparison with, but which would pass by way of or find in the sonorous world something analogous to optics. He thinks of a new sonorous space which would take account of certain optical phenomena, but which would take account of them in its own way.

But it seems to me that this whole line culminates in a very beautiful work by Varèse which is called "Hyperprism."[3] There's a whole theme of the crystal which comes out again in Varèse. Then there is a whole other direction. Along another track, which will tend toward an equally beautiful work, "Ionization," which is very important because it's at the root of electronic music. In "Hyperprism" there is actually a musical or sonorous crystallization, and "Ionization": it seems to me that electronic music arises from, or in any case it would not have been possible in Europe without precisely this kind of metallic synthesis which took place, which hasn't exhausted the music of the 19th century, but which is formed in the 19th century, beginning with Berlioz and Wagner. Why? These great stages of electronic music are founded on research linked to the phenomenon of ionization. A phenomenon which brings the electrons of the atom into play. There is ionization, and then there is the way of ionizing air. How is air ionized' Air is ionized, it's said, in the vicinity of red-hot metal plates. This introduction of metal is very important.

What does this do for music? Obviously it's a matter of making emitters of waves -- Martenot waves were important for the birth of electronic music -- emitters of waves that travel by ionization, the presence of metal in the process of ionization, and in short there would be reasons which could make us think that music is not a product of, but has been rendered possible by a metallic process which already concerned the sonorous world and the musical world.

I'll read several passages from this very good book by Odile Vivier on Varèse, in the Seuil collection [*1973*], regarding *Ionization*: "The variety of timbres is produced by selective groupings of instruments with reverberating membranes. Drum, bass drum." There you are, a line. Instruments of woody resonance: Chinese blocks, claves. Friction instruments, metallic sonorities: triangle, cymbals, anvil, low register, bells, etc., like instruments that are waved, that are shaken: tambourine, etc., plus sirens."[4] That's the ionization aggregate.

But in his commentary Varèse says this: "At a certain moment, there is a sudden crack, with resounding syncopated chords, and the musical scene changes completely. There are now only metallic sonorities." It's quite curious because this work is at the crossing of a thousand things of extreme richness, and he feels the need to construct a range of pure metallic music: "'there are now only metallic sonorities: the large Chinese cymbal, the gong, the tam-tam, the triangle and the anvil. While over them the sirens hover. The contrast produced by this metallic interlude is calculated so as to mark the natural division of the music. It is apparent that this metallic section is cast in the rhythmics of the opening pages. Only the instrumentation ostensibly differs." It's quite curious, because this work will be made out to be gathering at the beginning all sorts of lines which intersect, and then a kind of specifically metallic assemblage, which positions itself as an interlude before something explodes which, in my view, is like the herald of electronic music.

[There are] myths from time immemorial which tell us that there is a certain link between the musician and the blacksmith, but what would interest us would be to know, by way of a completely different horizon, why the blacksmith and the musician have something to do together, and if we get an answer, we will only get one aspect of metallurgy and one aspect of music, and we will simply ask ourselves if our result can serve for the analysis of myths. We will have gone into a completely different place.

I'm picking up where I was last time. We've acted as if we forgot the particular problem of metallurgy, and our question was: what does the "materialist" proposition mean, according to which matter is movement? Movement-matter or energy-matter? What does that mean? Is it the state of all matter, is it one type of matter? The problem must not be posed abstractly. When does intuition, in the simplest sense, apprehend matter in motion, when does intuition grasp matter as flow? You see well that my question is not to know if matter in itself is movement or energy. My question is much simpler: in which conditions is intuition determined to grasp matter in motion, and to grasp that which is in motion as matter? When I perceive a table, althouhg the physicist may have clearly explained to me that it's electrons and atoms, yes, but a table, I don't necessarily grasp it as movement-matter. I have been told, or I can understand that a table is a break [coupure] in a flow of wood, for example, but where is the flow of wood?[5]

Therefore my question is very simple: in which case are we determined, not to think of matter as movement, but in which case are we determined to apprehend matter as matter in motion? As flow-matter? If you understand the problem at the most concrete level on which I can pose it, it matters little that, for example, all matter is in motion in itself. This is not what interests me. I would tell myself that there are other ways of grasping matter, and in these other ways, equally determined, in which intuition does not grasp matter as movement-matter, how does intuition grasp it? We would have to confront not only intuitions but situations of intuition. Sensory intuitions and sensory apprehensions. And when I don't grasp matter as movement-matter or flow-matter, how do I grasp it: would we then have to distinguish several states of matter, not at all in itself, but in relation to the intuitions and the modes of apprehension of which we are capable?

Last time we made a little progress along this track, and we said that movement-matter is perhaps matter as bearer of singularities subject to operations of deformation and bearer of

affective qualities or traits of expression, in the mode of plus and minus. More or less hard [résistant], more or less elastic, more or less porous. Therefore matter as bearer of singularities, as bearer of affective qualities or traits of expression, and from that point on inseparable from processes of deformation which are practiced upon it, naturally or artificially, would be matter in motion. This would obviously imply that there would be situations in which one would not grasp matter as bearer of singularities or bearer of traits of expression.

Matter-flow must be that, since it bears singularities here and there. Roving [itinérer] from that point on is quite simple: it's following movement-matter. Roving is prospecting. The prospecter is the one who seeks matter as it presents one such singularity rather than another, one such affect rather than another, and makes this matter undergo operations to make the singularities converge on such and such trait of expression. A very simple example: wood fibers, wood fibers which sketch all the singularities of this tree trunk or this species of tree, converge on such a trait of expression, either porous (when I as an artisan want porous wood) or hard (when I want hard wood). And an assemblage is precisely a set of material singularities converging on a small number of well-determined traits of expression.

I would like to confirm this idea via two sorts of texts which seem very important to me. The first sort of text: [Edmund] Husserl. One of these texts is found in *Ideas*, paragraph 74, and the other is found in *The Origin of Geometry*.[6] I'll schematize what he says. He's a very severe author and here, all at once, is the only Husserl text in which there are amusing, very joyful things. I think that he makes a very important discovery.

He says that we distinguish fixed, intelligible, eternal essences. And then we distinguish as well sensible, perceived things. Formal, intelligible essences and sensible, formed things. For example, the circle as geometrical essence, and then round things, sensible, formed, perceived things. He says that there is nonetheless a domain which is intermediate, and he tries to christen this intermediate domain. He says that there are nonetheless essences, and nevertheless they are not fixed and they are not formal, it's intermediate; it's neither formal fixed essences nor formed, sensible and perceived things. What is it' These are morphological essences. These are morphological essences in opposition to fixed or formal essences.

He says further that these are inexact essences, or better, anexact ones. It's in opposition to formal essences which are all the more exact since they are metrical. These are therefore ametrical, anexact essences, and in a very beautiful formula he says: their inexactitude comes neither from chance nor from a defect, it's not a defect for them to be inexact; they are essentially inexact, even more, he goes so far as to say that they are deployed in a space and a time that are themselves anexact. Therefore there would be an exact space and time, yes, metrical space and time, and there would be an anexact, non-metrical space and time; and there would be essences which were deployed in an anexact space-time. He adds, sublime word, these are vague essences. He knows very well that "vague" is vague. These are vagabond essences.

They would have to be defined as a kind of corporeality [corporéité], and corporeality, Husserl says, is not the same thing as either thingness [choséité] or essentiality. Essentiality is the property of formal, fixed essences, the circle. Thingness is the property of sensible, perceived, formed things, for example the plate or the sun or the wheel. And from all that he distinguishes

corporeality, which he defines in two ways: it is inseparable from processes of deformation of which it is the site [siège], that's its first characteristic: ablation, deletion, increase, passage to the limit, events. Therefore corporeality is inseparable from processes of deformation of the event type of which it is the site, and on the other hand it is inseparable from certain types of qualities susceptible to greater and lesser intensities: color, density, weight, etc.

In the *Ideas* text, he says something to this effect: the circle is a formal essence. A plate, or the sun, or the wheel are sensible, formed things, be they natural or artificial. What would a vague essence be that's neither one nor the other? The vague essence is roundness [le rond]. Roundness as what? Roundness as corporeality. How does roundness answer to this corporeality and to the exigencies of corporeality? Because it's inseparable from event processes or from operations that you make diverse matters undergo. In effect, roundness is simply the result, or the passage to the limit, of the process of rounding [arrondir]. And roundness, which cannot be thought except as limit of the dynamic series, implies a passage to the limit, it doesn't imply the tranquil and fixed essence of the circle as it is defined by Euclid, it implies a fundamental passage to the limit, for example: the series of polygons of which the circle [le rond] will be the limit. Just as roundness, thus defined as vague essence, you see why it is anexact since I defined it as the limit toward which the series of inscribed polygons, the sides of which multiply, tends, there is fundamentally a passage to the limit; this will be roundness as Archimedes conceives it via passage to the limit, in opposition to the circle as Euclid conceives it by essential definition.

There's no opposition, they're two different worlds: the world of roundness, where you constantly have a passage to the limit. And I would say that, just as roundness is a corporeality inseparable from the passage to the limit defined by rounding, rounding being precisely the limit of inscribed polygons, then, in the same way, it is inseparable from affects and affective qualities susceptible to greater and lesser intensities, namely: what is the affect of roundness? I would say that the circle has essential properties, and the essential properties are properties which unfold [découlent] from the formal essence into matter where the essence is realized. Roundness is something else, it's inseparable from events, it's inseparable from affects. What is the affect of roundness? It's neither straight nor pointed. It's not negative, it's something which already implies the operation of the hand, and constant correction [rectification, straightening]. Constant correction or rather circulation. You have a sort of strolling couple, affect-event. Operation of deformation, affects which make these operations possible and which unfold from these operations.

All these Husserl texts are like a confirmation of what we sought, namely what we called matter in motion, that is to say, bearer of singularities and traits of expression. It's exactly what Husserl terms vague or morphological essences, which are actually defined by the processes of deformation of which they are capable on the one hand, and on the other, corresponding affects or qualities susceptible to greater and lesser intensities.

If I indicate another type of text, these are the most recent texts of Gilbert Simondon, of whom I've already spoken because he is very important in technology.[7] Simondon did a book on the mode of existence of technical objects, but also another book which is called *L'Individu et sa genèse physico-biologique*, from PUF [1964], and this book, between pages 35 and 60, develops an idea which seems to me to be very close to those of Husserl, but with other arguments, and

therefore he takes it up again on his own account. Exactly as Husserl just now said that we have a habit of thinking in terms of formal essences and sensible formed things, but this tradition forgets something; it forgets a sort of middle [entre-deux], an intermediary, but it's at the level of this intermediary that everything gets done, with the result that we can understand nothing of formal essences, understand nothing of formed things, if we do not bring this hidden region of vague essences to light.

Simondon says something strangely similar. There's a long tradition which consists in thinking of technology in terms of form-matter, and at this very moment, we think of the technical operation as an operation of in-formation [information], that is to say the action of a form as in-forming a matter. We could almost say that the technological model for this operation is: mold-clay. The mold is like a form which is imprinted upon a matter; and in scholarly terms it's the schema, the hylomorphic model, in which *hylé* means matter and *morphé* means form. It's the form-matter schema.

And he says that it's obvious that in this technological operation; this schema, he's not the first one to criticize it. What's new in Simondon is the way he criticizes it. The way he criticizes it is very interesting for us, because it consists in saying that in fact, here as well, when we privilege the form-matter schema, or the hylomorphic model, it's as if we separated two half-schemas in which we no longer understand at all how these two half-schemas could be well adapted to one another. The essential passes between the two. Here as well, if we leave the middle hidden, we can no longer understand anything. What is this middle? It's quite simple. It's what's between the mold, between the mold which will impose the form, and the clay matter.

What's vexing [*embêtant*] in this schema is the operation of the mold; it consists in inducing in the clay, or in determining the clay to take on an equilibrium state, and you remove the mold when this equilibrium state is reached, as a result of which you run no risk of knowing what has happened. What has happened? What happened on the side of matter when it tended toward its equilibrium state? This is not a problem of form and matter any longer, it's a problem of energy. It's a problem of movement-matter: the pressure [tension] of matter toward a determined equilibrium state.

And the form-matter schema does not take account of it since the form-matter schema in a way presupposes a prepared matter; and on the side of form it's not going any better since, on the side of form, what would be interesting is to be inside the mold, but not even the artisan is inside the mold. If one was inside the mold, or if one imagined the mold as interiority present to itself, what happens? It's no longer an operation of molding. It's an operation, however brief it may be, and molding is a very brief operation, in which the clay matter arrives at its desired equilibrium state quite rapidly, and if one is inside the mold, and if one imagines oneself in molecular microscopic conditions, no matter how long it takes, what in fact happens? It's no longer an operation of molding, as Simondon says so well, it's an operation of modulation. What's the difference between molding and modulating?[8]

Simondon shows very well that [from] all technological operations, one extracts the mode of molding, it's convenient. At the most summary level it's easiest to understand an operation of molding. But in fact, technological operations are always combinations between the simple

model of molding, [and] a more complex but no less effective model presupposed by molding, which is the model of modulation. What is modulation? Modulating is not difficult, it's molding in a continuous and variable manner. A modulator is a mold which constantly changes the measuring grid that it imposes [atteinte]. With the result that there is a continuous variation of matter across equilibrium states, and modulating is molding in a variable and continuous manner, but we could just as well say that molding is modulating in a constant and finite manner, determined in time. In electronics, there are only modulations and modulators.

Simondon insists on this kind of dimension, which is not at all a synthesis, it's not at all a matter of saying that this intermediary is a synthesis. Husserl's vague essence is obviously not a synthesis of formal essences and sensible formed things. Similarly, the domain that Simondon opens up between form and matter is not an intermediary that would retain an aspect of the form and an aspect of the matter, it's not at all a synthesis. This is really terra incognita, hidden by what it's between. Vague essence is always hidden, and this is why Husserl, in discovering vague essences, can call himself a phenomenologist: he creates a phenomenology of matter or corporeality; he places himself within the conditions of discovering what is hidden, as much from our conceptual thought operating via formal essences as from our sensory perception apprehending formed things. This is therefore a specifically phenomenological domain. Phenomenology is itinerance, it's in the process of following vague essence. This is why he would never have had to write anything but these four pages; but in the end, it's stupid to say that, because we could say that about everyone. Understand that if he had needed to write only four of them, it's these here that he had to write, it's here that he was most fully a phenomenologist. The phenomenologist is the wanderer, the blacksmith.

[For] Simondon it's the same thing: it's not at all a matter of saying that it's a synthesis of form and matter. In the energetic conditions of a system, in the succession of equilibrium states, he discovers, in fact, not really equilibrium, since these are so-called meta-stable forms, [but that] these are equilibria which are not defined by stability. In this whole series of modulation defined as continuous variation of a matter, what will the characteristics be by which he will define this, I'm mixing together Husserl's terms and Simondon -- this energetic materiality or this vague, that is to say vagabond, corporeality? And there you are, Simondon tells us that it's defined in two ways, on the one hand the existence and distribution of singularities, and secondly by the distribution and production of affect qualities: more or less hard (for wood, Simondon's example), more or less elastic, more or less porous, and the singularities are the wood fibres. Simondon leaps directly to artisanal examples, clearly he loves wood, from wood to electronics. This is his own example. Why doesn't he speak of metallurgy? Well, that's his affair.

Up to the point where we are, we've made enormous progress. We have defined a kind of *nomos* matter, or better yet a vagabond materiality. We could say that it's quite different from all the stories of matter-form. Moreover, the hylomorphic model, the matter-form model, is the moment for drawing conclusions: when corporeality is submitted to the matter-form model, at the same time the technological operation is submitted to the labor [travail] model. It's obvious that the matter-form model is not in the least imposed by the technological operation, it's imposed by the social conception of labor. Therefore it's at the same time that matter is submitted to this very specific model of labor. On the other hand, the technological operation of free action is directly

wed to movement-matter. We have seen that there were two technological models: labor model, free action model. Therefore this will give us a sort of confirmation.

We're coming to our problem. We receive confirmation from Husserl and Simondon. Movement-matter or materiality or corporeality or vague essence -- now we have a profusion of words -- it's matter detached or liberated from the matter-form model, and at the same time, the technological operation is detached from the labor model, and it's matter endowed with singularities, bearer of traits of expression, subject to operations of deformation. What is labor, other than all that? We saw it. I refer you to what we tried to see about how the labor model was brought out in a totally different fashion: it is brought out by a double operation, [first] that by which matter is prepared, that is, homogenized, made uniform, at that very moment it's a legal matter, in contrast to a nomad matter. And this is not an opposition, the two are mixed all the time, but it's a legal matter, and not matter as nomad.

And on the other hand -- but it's entirely complementary, by a calculus of the time and space of labor -- and it's the great idea of an abstract quantity of labor which is constitutive of labor. Historically, in 19th century political economy, the model of abstract labor, the labor model in political economy is brought out at the same time as the model which in physics will be called the work [travail] of a force, that is the operation by which a force displaces its point of application.

Therefore we get a definition of movement-matter. This movement-matter is vague, in its essence. I can't say that it would be thus according to the laws of fixed essence, so whatever the objection someone might make, I'm already prepared to respond, so everything will be fine. By virtue of its vague essence, this movement-matter is essentially metallic. The true matter flow is metal, and the other matters will be grasped as in motion, not by comparison, but only by communication with metal. In what sense could that be said? I'm not proposing the equality movement-matter = metal, I'm saying on the contrary that it's fundamentally anexact, that it's a vague identity. But why say it?

I am rapidly stating things that don't exceed [dépassent] sensory apprehension. What is so bizarre about metal? It's not eaten, metal. This means that the very peculiar situation of metal, from the point of view of sensory intuition. I'm not invoking science at all, but we could ask ourselves what metal is from the point of view of chemistry, [what is] a metallic body, or what are mineral salts? Ultimately, they're everywhere. I claim that ultimately, metal is co-extensive with matter. Not everything is metal, but there is metal everywhere, that's the metallic synthesis. There's no assemblage that doesn't include a metal bit [bout]. Metal is the fundamental procedure by which every assemblage is consolidated. The man-horse unit is fastened together with the stirrup. You say to me, but what happened before metal? Stone? There's no co-extensivity with stone.

What does that mean, co-extensivity of metal and matter? It doesn't mean matter = metal; it means that in a certain manner, metal is the conductor [conducteur] of all matter. When there was no metal, matter had no conductor. What does it mean to say that metal conducts matter, what's so special about metal? If you take another matter, vegetable or animal, or inanimate, we understand that the hylomorphic scheme, the form-matter model works in a certain way. You

have a matter that you constantly subject, technologically, to various operations. And in a sense, everyone knows that this is not true concretely but abstractly, we can proceed a bit as if each operation was bounded [comprise] by two thresholds, each operation is determinable between two thresholds: an infra-threshold which defines the matter prepared for this operation, and a supra-threshold which is defined by the form that you're going to communicate to this prepared matter. It's well understood that the form which you reach as a result [issue] of an operation can itself serve as matter for a different form. For example, you begin by giving a matter to wood, first operation, and then it's this already formed [informé] wood with which you're going to make a piece of furniture. There is a succession of operations, but each operation is as if bounded by determinable thresholds, and in a given order. There's a given order and it's very important.

This seems to me most simple in metallurgy, and above all in ancient metallurgy, one could say that operations always straddle thresholds, even more that they communicate beneath the threshold. But what pleases me is that Simondon, in the only paragraph he dedicates to metallurgy, says it very well: although metallurgy may make use of molds, in fact [metallurgy] never stops modulating. Then of course it doesn't always set the mold: an epée is made without a mold, but a sabre is molded steel, but even when there's a mold, the operation of metallurgy is modulatory. It's true everywhere, but metallurgy makes what is ordinarily hidden in other matters rise to sensory intuition. In other words, metallurgy is consciousness or metal is the consciousness of matter itself, that's why it's the conductor of all matter. It's not the metallurgist who is conscious, it's the metal that brings matter to consciousness.

That's annoying, it's too Hegelian. Here's what Simondon says in his five lines: "Metallurgy is not allowed entirely to think by means of the hylomorphic scheme, for the primary matter, rarely in a pure native state, must pass through a series of intermediary states before receiving the actual form" -- in other words, there is no determinate time – "After it has received a definite contour, it is again submitted to a series of transformations which add qualities to it." In other words, the singularity operation, quality related to the metallic body, never stops straddling thresholds. "The taking of form is not accomplished in a single, visible instant, but in several successive operations."[9]

It could not be better said, already in the case of the clay it wasn't accomplished in a single instant, only nothing was compelling us to know it. Metal is what compels us to think matter, and it's what compels us to think matter as continuous variation. That is to say, as continuous development of the form and continuous variation of the matter itself. While other material elements can always be thought in terms of succession of different forms and employment of varied matters. But a continuous variation of matter and a continuous development of form are what metallurgy makes apparent, and what metallurgy makes conscious, and necessarily makes think as a state of all matter. That's how metal conducts matter. Simondon: "We cannot strictly distinguish the taking of form from the quantitative transformation. The forging and the quenching of steel are respectively prior to and posterior to what could be termed the taking of form proper. Forging and quenching are nevertheless constitutions of objects."[10]

In other words it's as if, beyond the thresholds which distinguish operations, the operations communicated in a kind of continuous process of variation [mise en variation] of matter itself. No fixed order in the alloys. There's a scholarly book on metallurgic variability: at the dawn of

history, [in] the Sumerian empire, there are a dozen varieties of copper [cuivre] inventoried with different names according to their places of origin and degrees of refining.[11] This forms almost a kind of line, literally a continuous melody of copper, and the artisan will say: that's what I need. But regardless of the breaks [coupures] operated by the artisan, there is no fixed order for alloys, variety of alloys, continuous variability of alloys, and in the end, why does Simondon speak so little of metallurgy? What will really interest him is the point where operations of modulation, of continuous variation are going to become not only obvious, but are going to become the *nomos* itself, the normal state of matter, namely electronics. Yeah [Ouais].

There's something very disturbing in metal. If you agree with me that there is no fixed order in alloys, obviously it's not a matter of modern steel foundries; it's a matter of ancient metallurgy. If you agree with me about this series of operations which follow from one another, with the result that what was hidden in other matters becomes obvious; what's the reason for that? Metal is not consumable. Matter, as flow, is revealed there where it is pure productivity, where the technological operation is therefore a fabrication of objects, tools, arms, and there's obviously a link between this productivity-matter, this matter which can only be grasped as pure productivity, from that moment on in order to serve in the fabrication of objects, and this state of variation of matter which arises for itself. Because in short, not only is there no fixed order, but there's always the possibility of beginning again. [Though] certainly not infinite, all the same there are phenomena of wear, of rust, but you can always remake the ingot. Metal is matter susceptible to being put into ingot form.

But the ingot form is extraordinary, it didn't appear yesterday. Archaeology attests to the fact that, from prehistory, metal was transported [transitait], that between the ingot and itinerance there's a fundamental relation, metal was transported in ingot form. Consider that the metallurgical centers of the Near East had absolutely no tin, they lacked copper. Since prehistory there have been commercial circuits by which copper comes from Spain. Sumer is a metallurgical civilization which had no metal, an extremely advanced state of metallurgy without metal, which comes in ingot form.

We could distinguish very quickly the forms of consumption or the forms of use; it doesn't interest us. But outside of that, there is the stock form. The stock form is linked to food reserves, it's linked to plants. The first large stocks are the imperial stocks, the imperial granaries: stocks of rice in the Chinese empire. Stocking has always been considered a fundamental act of the ancient state. The stock form implies the existence of a surplus which is not consumed and which, from then on, takes the stock form. We will see the importance of this stock form in history. There is another well-known form, the commodity form. I would almost say that the true origin of the commodity form would perhaps be the herds. There would be all sorts of myths which would establish the link of stock and vegetable, and these would then be the first commodities, that would be the herd. And it's inevitable because, in a way, the commodity form is a form which must be in motion, which is artificially in motion only insofar as it is naturally in motion.

But the ingot form is neither stock nor commodity, it can be sold, but it's only secondarily a commodity; the ingot form is a very particular form which, in history, will decide the monetary value of metal. Then, of course, it reacted upon the commodity. It reacted in two senses: you can

make the ingot into a commodity, but the ingot form is the monetary determination, which is not at all the same thing as market determination; the fact that the two enter into a relation is another question, but only metal refers to the ingot form. It's not even a stock of metal, the ingot is something else, I would say that the ingot is the continuous variation of matter, it's a block.

Metal is co-extensive with all matter in this sense, that it states [énonce] for itself a status which was that of all matter, but which could only be grasped in metal. It's the conductor of all matter, because metal puts matter into the double state of continuous development of form and continuous variation of matter. In order to connect up with what Richard said just now, I no longer even need to say why the blacksmith is a musician, it's not simply because the forge makes noise, it's because music and metallurgy find themselves obsessed by the same problem: namely that metallurgy puts matter into a state of continuous variation just as music is obsessed with putting sound into a state of continuous variation and instituting in the sonorous world a continuous development of form and a continuous variation of matter. From this moment on, it's normal that the blacksmith and the musician should strictly be twins. Afterwards it becomes quite secondary, if music is traversed by this kind of ideal line of continuous variation, if matter is traversed by this metallic line of continuous variation, how you want the blacksmith and the musician not to be twins. It matters very little to us that, for example, in the West… [*Interruption of the recording, end of text*]

Notes

[1] On the relationship between music and metal, see *A Thousand Plateaus,* pp. 412-415; as for crystal, see above all pp. 348-350. On Nietzsche, see *Le Gai savoir, fragments inédits (1881-1882),* trans. Pierre Klossowski, in *Œuvres philosophiques complètes*, vol. 5 (Paris: Gallimard, 1982), fragment 11 [7], 299; in *The Joyful Science/Idylls from Messina/Unpublished Fragments, From the Period of The Joyful Science (Spring 1881–Summer 1882),* in Volume 6 of *The Complete Works of Friedrich Nietzsche*, vol. 6, ed. Alan D. Schrift, Duncan Large, and Adrian Del Caro, trans. Adrian Del Caro (Stanford: Stanford University Press, 2023), 307. [Thanks to Alan Schrift for his assistance with this reference. – *Trans.*]

[2] On Klee, see *A Thousand Plateaus,* pp. 346-348.

[3] On Varèse, see *A Thousand Plateaus,* p. 343, and p. 551, note 52.

[4] Odile Vivier, *Varèse* (Paris: Seuil, 1973).

[5] Deleuze and Guattari address this "proposition" in *A Thousand Plateaus* in plateau 12, specifically "Proposition VIII. Metallurgy in itself constitutes a flow necessarily confluent with nomadism", p. 404; see especially pp. 406-411, but this whole section as well.

[6] In *A Thousand Plateaus,* p. 555, note 32, Deleuze and Guattari indicate: "The principal texts of Husserl are *Ideas*, trans. W. R. Gibson (New York: Humanities Press, 1976), part 1, sec. 74, and Edmund Husserl's *Origin of Geometry: An Introduction*, trans. John P. Leavey, Jr., ed. David B. Allison (Stoney Brook, N.Y.: N. Hayes, 1978) (with Derrida's very important commentary, pp. 118-132)."

[7] For Gilbert Simondon, I *A Thousand Plateaus,* Deleuze and Guattari cite *L'individu et sa genese physico-biologique* (Paris: PUF, 1964), p. 522, note 11, but the complete version would only be published in 2005 with its initial title, *L'Individuation à la lumière des notions de forme et d'information* (Grenoble: Millon, 2005). See *Individuation in Light of Notions of Form and Information*, trans. Taylor Adkins (Minneapolis: University of Minnesota Press, 2020).

[8] On molding and modulation, see the Painting seminar, 12 May 1981.

[9] *L'Individu*… p. 59, text cited in *A Thousand Plateaus*, p. 562, note 93.

[10] *L'Individu…* pp. 54-55.

[11] Henri Limet, *Le travail du métal au pays de Sumer au temps de la IIIe dynastie d'Ur* (Paris : Belles Lettres, 1960).