Transductive Architecture:
What an Organology Produces – The Case of Le Corbusier

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Bernard Stiegler proposes an organology. As the evolving epiphylogenetic interplay of organic and non-organic life, this world- or cosmic-concept follows on from Gilbert Simondon's thought of the transductive relation, which Stiegler states is 'a relation which constitutes its terms, the terms not existing outside the relation.'[1] This is the decisive move of late twentieth-century thought: a new ontology not of form/matter, nature/artifice, subject/object (or any of the other metaphysical binary pairs) but an ecological and ethological thought of the a-parallel evolution of heterogeneous elements, within an essentially hyper-relational realm which in the case of Stiegler is opened by Derrida's différance. Différance itself is a transductive concept, as Stiegler notes.[2] This ontology of essential difference is at the core of all post-humanisms worthy of the name, including those of Derrida, Foucault, Klossowski, Blanchot, Deleuze, Guattari and those others who take Nietzsche seriously by not getting distracted with either a positivist or a Heideggerian interpretation of *Wille zur Macht*.

This essay will explore some of the implications of this ontology of difference for architecture. Although this philosophical ontology – outlined in the twentieth century and taken up by Stiegler in the twenty-first – is relatively new, this is an ontology of how the world has always been. For us, architecture is part of that world, and therefore Stiegler's organology tells us something significant about what architecture is. More than that, I show that such an outlook on architecture has existed in the past. Where such an outlook occurs – that is,

where an architect has a differential or transductive ontology of architecture – they will speak of architecture differently to other ontologies, and also do architecture differently. I will use the example of the early written and built work of Le Corbusier to explain this in concrete terms.

Ontology, therefore, matters for architecture. What we think it is influences how we study it, how we write (about) it and how we do it. Those having a particular ontology of architecture will see certain things related to the scope and nature of that ontology. They will be capable of studying certain things that their ontology finds in works of architecture. Some types of architectural work will be exemplary for that ontology. A different ontology will in turn give different possibilities for study, for seeing, and for exemplifying. An ontology of architecture can be foregrounded and explicitly laid out in thematised writing; or it can be a background ontology remaining implicit and unstated – a set of presuppositions not thematised as such. True artists, those who carve a new way, are perhaps those who are able to intuit and express a new ontology implicitly, before it becomes explicit in philosophy. A particular background ontology of architecture will produce, when deployed by an architect, works of architecture of a certain character, works that would have a different underlying character if the background ontology was different.

An ontology is also an epistemology. It is a way of knowing things (epistemology) interlinked with an understood way of being of those things (ontology). Since, here, what is being discussed

is an organology or an ecological idea of ontology, and therefore an interweaving between ways of thinking and the ways in which things exist (a différance), the difference between an ontology and an epistemology is not foundational; is it an after-effect. The logic of the after-effect, which Stiegler generally names prosthetic ('prosthetics' from the outset) or technics ('technology' from the outset), determines everything here. It makes an opening, it gives (Derrida's logic of the gift) the long circuit of an affirmative individuation that is the mark of an architecture allowing for social (and individual) re-form, or that indeed is social/individual re-formation, becoming, or transduction, in contrast to a coercive architecture which short-circuits such possibilities.[3]

To put this in Stiegler's terms: an organology, or a general ecology, or a general economy (he uses all these words to name the same thing and so inform that naming) is always thinking about or using a transductive mixture of (psychosomatic) individuals, social or collective individuals, and technical individuals.[4] This three-fold dynamic mixture is transductive in Simondon's sense given above, namely that they are all mutually co-dependent and cannot exist outside the relation which makes them; the three individuations are side-effects of the relations, so that the terms of the relation do not pre-exist those relations.[5] Stiegler is here indebted to Félix Guattari's *Three Ecologies* of 'the environment, social relations and human subjectivity', but he tends not to use such traditional terms to name these elements, because those names are often used within a more traditional non-transductive ontology.[6] That is, they are defined as self-sufficient things, each with its own essence, which only subsequently come to find themselves (somehow) in relation to each other. Such an arrangement misses the co-evolution, or a-parallel evolution, that occurs in transduction. If we apply this terminology to architecture, what is clear is that architecture has always been seen as a mixture of or a response to or a working with society, the human individual and technology. There is a transcendence implied here:

the pre-existing fields of society, individual and technology transcend architecture. What transductive thought says is that architecture, instead, becomes not a technological response to societies' requirements and individual needs, but rather is the mutual interplay between all these, such that they in turn only come into being from out of such a transductive architecture. This is therefore instead an immanent architecture.[7]

Le Corbusier: a traditional ontology of forms

What follows is an exemplary case of the transformation of an architectural ontology into a transductive organology. The case is that of Le Corbusier. In the overview of his career 1910–1965, and in *Vers une architecture*, Le Corbusier shows us how his ontology of architecture changed during his early career.[8] The initial ontology is a mimetic formalism. The second ontology acknowledges the game as a potential internal différance or transduction of architecture. By internal, I mean internal to the composition of the work, internal to the process of composition that Le Corbusier went through to create the work. The third and final ontological transformation is to the participatory interplay of a people-to-come and place-to-come as the external transduction of architecture – that is, a fully-fledged organology or technics, in Stiegler's terms.[9] By external transduction I mean here the interplay with users, inhabitants, visitors and the wider culture that occurs once the building is complete, once the composition (conventionally thought) has finished. Let us look at each of these three ontologies in turn.

The first stage is represented by what I judge to be a poorly-designed project, namely a set of artists' studios from 1910 based on the formal massing of Hagia Sophia, which as we know from *Vers une architecture* and elsewhere was a key architectural reference for Le Corbusier.[10] Hagia Sophia was, he says, a 'cluster of ideas'.[11] How, Le Corbusier asks himself, to respond to the success of this building?

The response in 1910 is so poor as to bring one up short: why would Le Corbusier publish

such a cart-horse of a project? After all, the *Oeuvre complète* ignores his earliest projects at La Chaux-de-Fonds altogether, accomplished though they are. But the issue is nothing to do with quality. The reason for including the studios is that he wishes to show us his struggle for an ontology (an organology) of architecture, not just by way of words (*Vers une architecture* and suchlike) but also by way of examples. The project shows how a particular ontology of architecture affects – and effects – architecture when designed by an architect who has, or thinks, that ontology. The design exemplifies a common background ontology of architecture, often unacknowledged but also the subject of explicit study and approbation. This ontology of architecture proceeds by way of the imitation of past, more or less canonical buildings, and does so in a particular manner by carrying across formal characteristics of the earlier architecture into the current piece to be designed. The elements and shapes that appear in the earlier work are seen and appreciated, and are then appropriated into the new work.

The background ontology implied by this movement of forms (large scale or small scale) from the earlier exemplar to the architecture that is being designed is a static, non-différancial ontology of objects. This object-orientated architectural ontology, and the strategies of design that it implies and allows, is perhaps the most common. The taking of individual elements, parts of a language of architecture, complete languages, plan forms, decorative elements, and, as Le Corbusier does here, overall massing, and their reuse in later buildings is universal, and to some extent unavoidable. Whole architectural movements and ideologies are based on this arrangement; we need only think of, on the one hand, the International Style (the moment it was axiomatically established was the moment Le Corbusier abandoned anything like it, even to the extent of revising his past work), or, on the other, the various theories and schools of traditional, regional or vernacular architecture. A variation on this transposition of forms into the

objects of architecture occurs where things other than previous works of architecture provide the shapes that are appropriated by the architect. Examples include the transposition of forms from nature (think of the work of Bruce Goff and other organicists, or the way in which Filippo Juvarra imitated the form of a deer's antlers for the plan of Stupinigi hunting lodge), from engineering and science fiction (Piano and Rogers), and from philosophy and the history of ideas (the formal transposition of 'the fold' from the title of Deleuze's book on Leibnitz and the baroque to the shape of facades or plans; or, slightly less explicitly, the transposition of ideas of deconstruction into deconstructionist architecture).

All of these formal transpositions imply and presuppose a static, object-orientated ontology, whether that ontology is acknowledged as such, or whether it remains background, implicit and unthematised.

The ontology develops: the 'internal' interplay of the parts

Le Corbusier shows us his particularly bad example of the results of such an ontology because he wishes to point us towards the next stage in the development of his architectural thought and design strategies. This stage is also discussed in *Vers une architecture* and consists in the 1915 idea of the Dom-ino house, together with the examples of mass concrete housing which he does the same year.[12] These examples imply and exemplify a broader and richer ontology of architecture. Firstly, there is a clearly expressed idea: the Dom-ino house. Neither a purely pragmatic proposal, nor, pace Eisenman, a purely theoretical self-referential sign, this diagram has something like the status of a directing concept that comes to be realised in particular and developing solutions as Le Corbusier addresses the problematic question of the modern house.[13] Secondly, the ontology incorporates the quality of a game. The Dom-ino house refers to the game of dominos, popular at that time; the

six columns are analogues of the six dots of the domino piece. Le Corbusier then begins to play, in his designs, with these pieces: the 'group of mass-production houses in mass concrete' has a plan which clearly replicates a set of dominos laid out in a game, as does another similar scheme.[14]

This is the second stage in Le Corbusier's development of an ontology of architecture. The idea of play, or interplay between parts, is more sophisticated than the static ontology of the mimesis of forms, as is the incorporation of an idea within the working-through of the problem. In this instance, however, play, as an idea in itself, is limited in influence to what I have called above the internal transduction of architecture. It is primarily a compositional device. It does not affect the ontology of the work of architecture 'itself' (the external transduction), rather it is limited to the building's production within the creative process. As a result, the Dom-ino projects which Le Corbusier illustrates from 1915 are somewhat crude, both in their exterior appearance and in the interiors. The more creative and ultimately revolutionary work from 1920 onwards awaits a more radical change in his understanding of the nature of architecture.

Le Corbusier: an organology of architecture
This third stage takes the movement of play and incorporates it into the external transduction of architecture, so that, in the manner of the house as 'a machine for living' which literally is (post-) human, and architecture as, literally, 'a poetic emotion', the entire conception of what architecture is changes.[15] Le Corbusier's ontology of architecture becomes an organology. This stage culminates, in the built work, with Villa Savoye, and in the written work with his description of various ancient buildings, including the Acropolis, in the 'Architecture' section of *Vers une architecture*. In these we are firstly led to see something in architecture which before that had not been described. Then the same new ontology – an organology, in Stiegler's terms – leads to a work of architecture revolutionary in intent and realisation.

In the 'Architecture II – The Illusion of Plans' section of *Vers une architecture*, Le Corbusier begins with an analysis of the Green Mosque in Broussa; he describes not the building as an object, but the building as experienced, as the interplay or intense relationship between people and place.[16] This relationship is one of an original prosthesis or technics; 'people' and 'place' only emerge as after-effects of their transductive relation. One enters a little doorway of 'normal human height' from the street; the question of scale in the small vestibule is related immediately to the scale of the street just past and the larger scale of the mosque proper to come. Scale is not the variation in size on a plan, nor is it a question of mathematical proportions between spaces; it is part of and realised in the transductive interplay of the 'work'. The dimensions of the large main space are likewise there to make an impression, to impress; it is an impressive space not in itself, but because of what happens in the event of its being experienced, and this event is what architecture is. As always, the eyes 'take its measure'. Not that the architecture operates only through the eyes; this same transductive movement can operate outside the visible; all these relations could be fully understood by a blind person, aware as they are of the size of spaces and their sequential interrelation in space. Le Corbusier emphasises the eyes in order to bring us to the experience of the place, rather than an objective analysis. He goes on to describe the repetition 'in a minor key' of the central space in a darker and raised space beyond: two smaller side spaces, and, 'turning around', two tiny dark niches at either side of the door through which we have entered. He says: 'you are captured, you have lost the sense of the common scale'.[17] What this means is that we (those who engage with this building) have been caught in the transductive relation of its architecture, we have become part of its architecture, and the result is that all questions of scale are related to us, not to 'the common scale' of measurement.[18] (This is the root meaning of Le Corbusier's Modulor, a system of proportion directly

related to the human body.) He does not describe the exact proportion of the spaces, nor their dimensions, and his sketches are deliberately crude and vague not because he was in a hurry or because he was not capable of exquisite and precise drawings but because he wished to convey what was essential: the relational organology of architecture – a message that would only have been confused had he been precise. Finally: 'you are enthralled by a sensorial rhythm (light and volume) and by an able use of scale and measure, into a world of its own which tells you what it set out to tell you'.[19] The building does what its architects intended because they have set a transductive machine in operation of which the building is only a part; the remainder is you, and the associated collective, or rather you and the collective become as they are by virtue of this transductive relation.

Le Corbusier next does a similar analysis of the Casa del Noce in Pompeii. Finally, the Acropolis and the Parthenon are given an equally precise and transductive explication. Of the Acropolis we have already been told that 'the whole composition is massive, elastic, living, terrible, sharp and keen and dominating'.[20] The description here, and of the Parthenon, swerves dramatically between one of the internal compositional machine (massive, elastic, living…) and the external participatory transduction (living, terrible, dominating…); there is a peculiar mixture of poetic and literal uses, sometimes in the same word when it refers to both relations at once. This poetic 'confusion' expresses that for Le Corbusier great architecture always interplays the internal machine of composition with the external transduction of people and place; the composition is not only that which occurs during the period of design, but is also that which comes to occur as the architecture, when the engagement with the 'human' happens as an event. The term 'composition' now refers both to the internal machine of design, and to that which has been designed. Further, the composition is a symphony which includes the audience as a transductive movement.

The arrangement of the axes on the Acropolis, and the way in which the ensemble of the buildings (including the Parthenon), the landscape, the trees, the sea, the horizon, the sky make up an 'enclosure which the eye readily embraces', likewise receives an interpretation that relies upon an understanding of architecture as something which occurs immanently as us.[21] And the Parthenon, in an extended photo-essay, is described in the following terms:

> Here is something to arouse emotions. We are in the inescapable realm of the mechanical. There are no symbols attached to these forms: they provide definite sensations; there is no need of a key in order to understand them. Brutality, intensity, the utmost sweetness, delicacy and great strength.[22]

Again, there is a slippage in the text between the two meanings of composition: to compose, and what is composed, the internal compositional machine and the external transduction of the resulting architectural composition, which includes in its operation the person-to-come who engages with it. Thus 'the mechanical' refers both to the formal precision of the stones and the mouldings, and to the providing of definite sensations within the transductive relation. This is an architecture of brutality, intensity, sweetness, delicacy and strength, not metaphorically (thus in transcendent tone, as metaphor always is, said of the objective form within a static ontology) but immanently, spoken within Le Corbusier's organology of architecture.[23]

No doubt, Le Corbusier is picking up on certain strands of then-contemporary (or nineteenth-century) art historical, architectural and urban design thought in his explications. As is well known, his analysis of the Acropolis is indebted to Auguste Choisy (who provides the plan).[24] The description of the way in which urban spaces are actively inhabited clearly owes something to the analyses in Camillo Sitte's *The Art of City Planning*, even if Le Corbusier criticised Sitte's methods.[25] A more detailed discussion could develop the

connection with broader late nineteenth-century currents in art history, such as the sculptor Adolf von Hildebrand's ideas about the difference between a visual ('*Gesichtsvorstellungen*') and kinaesthetic ('B*ewegungsvorstellungen*') appreciation of a work.[26] Or indeed Alois Riegl's notion of *Kunstwollen* which, in the words of Christopher Wood, uses terms such as 'coordination, participation, attention, surface and depth, internal and external unity, the tactile and optical gaze' and thus seems to 'reconnect the beholder of the painting or the building with an initial perceptual event and ultimately with an entire worldview.'[27] However, what Le Corbusier achieves in his poetic use of language is the beginnings, as I argue, of a distinctive ontology of relation which is transductive in the sense that relations, instead of being between fixed entities as implied by his predecessors, become primary. The supposed fixed entities of the inhabitant or visitor (Stiegler's psychosomatic individuation), society (collective individuation) and architecture seen as object or building (Stiegler's technics, in this instance) lose their position as a point of departure for the analysis, and the relations between 'them' (and they only occur 'afterward', as a transductive 'result' of those relations) become foundational. We will see now how this new ontology feeds back onto the creation of a work of architecture.

The Villa Savoye and the tertiary retention of architecture

Having set out his organology in *Vers une architecture*, and having used it to analyse the buildings that moved him during his earlier travels around the orient, Le Corbusier then shows in the Villa Savoye the implications of such a technics for design and for the being (or, we should say, becoming) of architecture.

The internal, compositional machine of the Villa Savoye is directed by the transductive idea of the five points of architecture. As Stanford Anderson shows in his article 'Thinking in Architecture', the Dom-ino house constituted a 'non-conservative

model', to use the terminology of Imre Lakatos.[28] That is, it was not a static model, but rather one that developed transductively as an idea in interchange (that is, in active interplay) with its various concrete manifestations both drawn and built in the period 1915–1927, leading to the statement of the five points of architecture (raised gardens, piloti, free plan, strip window, free facade). The interplay between the transductive idea/non-conservative model and the possibilities for composition had a long gestation, and then occurred again as the specific design of the villa progressed rapidly through its various stages. This is the opposite of a merely conceptual architecture, where the concept precedes the design and becomes represented in it. It is instead to maintain the idea as an active problem that gets worked over and worked though at the same time as it gets realised in the work of architecture. No longer conceived of as an object, not designed in the mind of the architect as an object, not intended to be an object; on the contrary, conceived as *Vers une architecture* demands, as a participatory event, designed in the mind of the architect as a people-work, and intended to be architecture as poetic emotion (as well as machine for living), the villa subsists as a set of transductive relationships rather than exists as the building which no doubt can still (for those beholden to a static ontology) be abstracted and reduced out of this mobile transductive ensemble.

We can therefore constructively apply exactly the same type of analysis to the villa as Le Corbusier had earlier done to the Acropolis, the Green Mosque and the Casa del Noce. Such an analysis was encouraged by the architect by means of the photographs he published, the film he made and the further transductive idea of the *promenade architecturale*. The photographs in part undermine the idea of the organic totality of the work in order to make a silent protest against the reduction to the International Style, and in order to re-emphasise instead the overarching rule that it is the encounter with the building, making up architecture, which is

primary here. The film tracks the movement of the participant around the villa, as if we were them, and acts as a virtual (as Tim Benton says) sign of the interplay of us and the building.[29] The idea of the promenade architecturale, realised so obviously in the villa, makes no sense outside the thought of architecture as an organology.

As with the Casa del Noce, no historical references are needed; no reference need be made to the function of the spaces in order to appreciate the work. The removal of any decorative references, the removal of any obvious mimesis of past styles, takes on a positive meaning: it is not simply a question of avoiding something, but of allowing what is primary – the concrete transductive assemblage of the work – to occur. The villa takes on a universal aspect, because this assemblage is not clogged up by additional references.

However, what is perhaps most remarkable in the villa is a phenomenon that only becomes apparent if we, in turn, apply a transductive ontology as we seek to analyse the work. This will make a radical difference to its interpretation.

Villa Savoye as a reworking of the Hôtel de Beauvais

Colin Rowe, in *Collage City*, undertakes an analysis of this building.[30] It is a fundamental weakness of Rowe's work – one that, due to his influential position, has had a decisive effect over the last half century on the progress of architectural theory – that his ontology is a purely static one, dealing solely with that limited aspect of architecture which Le Corbusier named construction and which consists of the physical building as an object. Such an analysis usually proceeds in a limited formal manner: reduced to the physical object, the analysis of architecture becomes, taking Kant at his word, the question of the form of the design.[31] Architecture is reduced to buildings, to the hylomorphic complex of material and shape, where form usually becomes the topic of the academic's text, again in good Kantian manner. (That we sometimes

see a counter-movement towards the question of the material quality of architecture does not get us any further than Rowe unless the ontology also changes.) Rowe uses a formal analysis of the Parisian Hôtel de Beauvais in order to cast light upon Le Corbusier's intentions when designing the Villa Savoye. Whereas, he says, the Hôtel de Beauvais is a series of masses clustered around a courtyard, the Villa Savoye inverts this relationship so as to form a coherent single form.[32] [Fig. 1]

The banality of this analysis is striking, but not untypical of what you get when the organology of architecture is reduced to an ontology of objects. As Le Corbusier's investigations in *Vers une architecture* show, he was fascinated by the way external spaces such as the courtyard of Le Pautre's Hôtel de Beauvais define something that feels like an interior. The analyses of the Casa del Noce, of the Acropolis, and of the forum at Pompeii – all spaces either of a similar enclosed intensity to the hôtel court, or accorded such an intensity by the analysis – show that he had no intention to merely invert that arrangement; on the contrary, he was fascinated by it, and went to great lengths in the design of the villa to incorporate such spaces on the first floor garden terraces, despite the fact that the building is a suburban one, sitting as an 'island' building within its site. A function of the density of the Poissy site is taken by Rowe as an indicator of the compositional strategy of the building; such an argument does not have much traction.

What is however intriguing about this comparison with the Hôtel de Beauvais is that, seen from the point of view of an organology of architecture – the operation of both the internal machine and the external transductive relations – rather than from the point of view of an analysis of form, far more interesting and pertinent connections can be drawn. How might we carry out such a non-formal analysis of Hôtel de Beauvais? What does that mean? Are we not always condemned to look at the building, the object? Is that not what objective study means? Precisely not. Simply because we wish to make

something our object of study, that does not mean to say that we are necessarily studying an object. Even as architects, critics, theorists or historians of architecture, we have the choice to make a different sort of study, one that is governed by another ontology, that is, an organology more appropriate to the nature of architecture in general and this building in particular. When we do this, the object of our study will change its character, and become something else. We need to be looking at something entirely different from that which a formal analysis of Hôtel de Beauvais and Villa Savoye would suppose.

If we instead carry out an analysis which describes the architecture as a transductive relation, in the manner which Le Corbusier employs in *Vers une architecture*, then in a few simple words we can outline the experience of Hôtel de Beauvais: you arrive from the street and pass under the porte cochère; in front of you, the view is framed by the arch leading into the light-filled courtyard; the roof of the porte cochère acts as a shelter from the sky which mediates your movement from the street into the building; you are dropped off and go into a grand vestibule where the dramatic staircase leads you up to the piano nobile; there, you see a longitudinal gallery; you can relate through the windows of this gallery on one side back to your point of entry; and, on the other, across to a raised and hidden garden at the same level, a garden which you did not know existed when you first arrived (a moment of pleasant surprise); this in turn sits over the ground-floor stables, your carriage and horses being garaged there by proceeding after having dropped you off.

This participatory account has analogies with a formal analysis of the building as an object, but it incorporates all that such a formal analysis could achieve, plus much more. It enables us to speak about scale as a function of the body; it enables us to speak about light as something that affects; it enables us to state spatial relations between things such that time – in fact, with Stiegler, technics as time – is taken into account, and with it issues such as the surprise that can be engendered when a new

vista is opened up or a secret raised garden, unexpected in its location, is revealed.[33] Most importantly, it enables us to abstract from the particular situation being described, but in a manner that maintains the hyper-relational and mobile qualities of architecture, staying true to the transductive ontology Le Corbusier has outlined.

Without a doubt, Le Corbusier knew this hôtel intimately, as a transductive relation. My thesis here is that, in a Nietzschean revaluation (or 'transvaluation', *Umwertung*) of all values, he takes this relation and transposes it, almost event by event, to Poissy.[34] It is not a question of the architect striking a formal contrast between two objects. We are constantly misled if we think that what Le Corbusier was about was the masterful play of forms in light, if this phrase is interpreted merely formally. At the Villa Savoye, the external transductive machine plays like this, in a few simple words: you arrive from the street and pass under the porte cochère created by the raising of the building on piloti; in front of you, the view is framed by two of the same cylinders, revealing the light-filled countryside beyond; the roof of the notional porte cochère acts as a shelter from the sky which mediates your movement from the street into the building; you are dropped off and go into a grand vestibule where the dramatic ramp leads you up to the main level of the house; there, you find a longitudinal gallery; you can relate through the windows of this gallery on the one side back to the garden beside your point of entry; and, on the other, to a raised garden at the same level, a garden which you did not know existed when you first arrived (a moment of pleasant surprise); this in turn sits over the ground-floor garage, your car being garaged there by proceeding neatly forwards after having dropped you off.

We see that the playing of the transductive machine at the Villa Savoye virtually repeats the playing of the same machine in the Hôtel de Beauvais. It is as if these machines have become, and always have the potential to become, abstract machines or diagrams which can then be taken

Fig. 1: Antoine Le Pautre, Hôtel de Beauvais, Paris, 1660. Photo: author.

Fig. 2: The entry sequence of the Hôtel Jacquemart-André, Paris, Henri Parent, 1869–75. Photos: author.

Fig. 3: Villa Savoye entry sequence, Poissy, Le Corbusier, 1929–31. Photos: author.

up elsewhere. Within a longer essay, these themes could be transduced across to a discussion of Deleuze's interpretation of Foucault in his book of that name, where the topic of the abstract machine and diagram is shown to have its origin in architecture in the situation of Jeremy Bentham's panopticon.[35]

Informed by an organology of architecture – an ontology which Le Corbusier championed – the transductive investigator of something like Villa Savoye will uncover not only a richer account of architecture than is accessible to a formal analysis, but will also reveal connections between past works which the formal analysis will miss. Why are these connections available, and what is the particular way in which Le Corbusier uses them? If we speak in Stiegler's terms, what is happening here is an appreciation of the tertiary retention of the technics of architecture. Within the co-evolution, or co-individuation, of buildings and people – which is one of the becomings of architecture – the prosthetics of the environment retains the work of the past as an active archive which it is the joy of the architect (and others) to take up again and again.[36] There is something like a sedimentation of that evolution. Past transductive (différantial) activities of composition do not so much solidify into buildings (or objects) as form a societal tertiary retention that is not exactly a memory but the possibility of a memory happening for the first time – a memory of a past that never was, because the transductive 'they' of the past (both the buildings and the people) were something entirely different. Le Corbusier had to take these tertiary retentions up not as solid remnants or memories or records of memories (this would be to misunderstand Stiegler's tertiary retentions in a non-transductive manner) but as new possibilities for what we might call, taking a term from Yuk Hui, tertiary protentions.[37] There is an inherent futurity (of which Derrida often speaks) to architecture such that it not only 'retains', but also allows the projection of a creative future. Such tertiary protentions lie not only in the short-circuits of algorithmic pre-choice

(as Hui points to negatively), but also in the long circuit of the right to – or the gift of – taking them up first in a new individuation of composition (what the architect does, the internal transduction) and then in an indefinite further external transduction of the architecture's 'reception' (invoking here Stiegler's interest in Wolfgang Iser's reception theory of literature) and co-individuation.[38]

Villa Savoye as a reworking of the Hôtel Jacquemart-André

The connection with the Hôtel de Beauvais is not the only tertiary protention we can point to in this case. We can carry out an even more precise participation in relation to another hôtel, this time what is now the Museum Jacquemart-André on the Boulevard Haussmann. Rather than repeating the abstract machine twice, I will write it in such a way that it applies to both that hôtel and the Villa Savoye:

> approach the building by driving perpendicular to the axis of the main rooms, likewise perpendicular to the street from which you have come; drive under the piano nobile; the drive curves to a semi-circle and you disembark having rotated through precisely ninety degrees; your vehicle continues another ninety degrees around the remainder of the semi-circle and parks beneath the piano nobile by turning inwards towards the centre of the plan; you, meanwhile, enter the building at the mid-axis parallel to your original approach but in reverse direction; and you find to one side a most dramatic vertical circulation arrangement – a remarkable sculptural spiral staircase winding up to the main floor and lit from above.

This movement is illustrated in figures 2 and 3 for each building. When one looks at the development of the planning of Villa Savoye, what is interesting is the speed with which Le Corbusier put together the initial outline of the plan. Although within the compositional transductive activity it is obvious that the five points of architecture and the promenade

play a key role as idea, or diagram, there is much more going on. Does the design fall rapidly from the sky into the designer's head? In this case, once one understands the ontology within which Le Corbusier worked – an ontology he had himself rediscovered and championed – it appears that he was operating within a field where the lessons learnt from the tertiary retentions of architecture could be re-envisioned within a long-circuited protention. With, but also beyond, the decorative ingenuity, who can fail to respond to the drama of the Hôtel de Beauvais? (In the early twentieth century, it was in any event in a poor state, and much of the decoration now visible is the result of a careful restoration and replacement of ornamental detail. This makes no difference to the transductive quality of the building, as outlined above.) Who can fail to respond to the drama of the entry sequence at the Museum Jacquemart-André, with its semi-circular nymphaeum-type space (itself of course invoking past architectures, such as Vignola's Villa Giulia, or Palladio's Villa Barbaro, or Carlo Maderno's Villa Aldobrandini in Frascati) and culminating in the most extraordinary of spiral staircases? My argument is that Le Corbusier does respond to these buildings, not in an objective manner (as Rowe would have it, by way of a contrast of forms), but by way of an organology – a relational ontology.

I noted above that Le Corbusier, earlier on in his architectural development, rejected the imitation of past architectural forms. The formal transposition, at whatever scale, from existing works into current designs, is something he tries out and then decisively rejects for the entirety of the rest of his career. However, the more general idea of a taking up of past architecture is by no means rejected. Instead, it gets reworked, re-assigned within a différantial organology, as a tertiary retention transposed into a tertiary protention. The existing works are, as Le Corbusier does in *Vers une architecture*, interpreted as having the character of the external transduction of architecture; he implies that this

is in accord with the original ontology that those architects would have understood, at least implicitly – an organology or technics of the (therefore post-) human and the (therefore post-objective) building. This transduction of architecture then gets further transduced within the compositional internal machine of the new work of architecture – the Villa Savoye - along with multiple other devices such as the idea of the five points, the idea of the promenade, and the interplay between the developing design and the site which it reveals and creates.[39] An alternative way of putting this – and to use Deleuzian terminology – would be that there is a becoming-Jacquemart-André of the Villa Savoye, and (since both villas only subsist as a transductive relation including our psychosomatic individuation, our 'haecceity' to again quote Deleuze and Guattari) a becoming-Villa Savoye of the Hôtel Jacquemart-André.[40]

My analysis of the relation between the Villa Savoye and the Hôtel Jacquemart-André derives from visiting both buildings. I had the intense feeling, on entering the latter, that I had done something like that before, that I had been there before; almost a feeling of déjà-vu.[41] That is, a memory of a past that never was. It expressed in me the experience at Poissy. Am I here therefore merely replacing an objective analysis of architectural forms with a subjective one? Or a phenomenological one? Precisely not. The 'objects' of study for an organology of architecture are no less 'objective' in their character than those of a static ontology, and differ from a phenomenological analysis (just as Stiegler's philosophy goes beyond Husserl in the same way that his mentor Derrida's had already done in the early 1960s) in that a transductive account does not begin from a thinking subject but rather from the mutual three-way implication of psychosomatic individuation, collective individuation, and technical individuation.[42] But there is also evidence in the developmental sketches for the villa indicating such a becoming-Hôtel-Jacquemart-André. In his paper on the promenade

architecturale, Tim Benton points out that at Villa Savoye

> Le Corbusier toyed with the idea of introducing an elevated ramp which would bring cars into the house at first floor level from the South East. The ramp would then have dived down through the middle of the house to turn off to the North East. This astonishing proposition, complete with a porte-cochère, would clearly have been impractical.[43]

That Le Corbusier was attempting to bring cars in at first floor level on a ramp, not only turning through 180 degrees but also sloping up and then down is indeed an astonishing proposition, which Benton attempts to explain by analogy between the final pedestrian ramp and vehicular circulation, and by formal analogy with Le Corbusier's urban theory. Transductive criticism will not be persuaded by such formal analogies, since our argument is that by this time, Le Corbusier had set aside that ontology. Transductive architectural analysis instead notes that there exists a non-formal, non-phenomenological, non-analogical interplay between the villa and the Hôtel Jacquemart-André that Le Corbusier was expressing, since in the latter the vehicular approach is precisely a rotation of 180 degrees up to first floor piano nobile level and then back down again. It could perhaps only be by such attempted expression of a becoming-Hôtel Jacquemart-André that Le Corbusier would make such an 'astonishing proposition'.[44]

Such an expressive architecture is, we could say with another theorist (Demitri Porphyrios, writing of Aalto in *Sources of Modern Eclecticism*), a 'heteroclite symbiosis'. However, Porphirios's beautiful and evocative term needs to be re-understood, since for him it operated within a static ontology rather than a transductive one.[45] The heteroclite heterogeneity I refer to operates on a different level, namely that of the external transduction; the symbiosis refers not (as it does in Porphyrios's work) to a symbiosis of forms, but to the symbiosis inherent in this

différantial relation, working also within the internal machine of architecture. (We could, of course, do a similar organological analysis of Aalto's early and middle periods, taking all the 'objective' data Porphyrios provides us with and re-understanding it transductively. In that case, the transductive relation occurs also with Finland 'itself', which did not precede Aalto's work and came into being as a country in a co-individuation with the architecture.) Once we realise (that is, both comprehend and effect) the difference, it becomes clear why a no-doubt perspicacious theoretician of Aalto's architecture such as Porphyrios, when it comes to his own internal compositional machine, seems to stay so stubbornly with an architecture of the mimesis of past classical objects and forms. This is only a particular example of the broader phenomenon that the analytical tools commonly used by the discipline of architecture, from Rowe to Eisenman, based on drawing, graphic analysis, geometry and form, perpetuate the problem of architecture being reduced to buildings and composition.[46]

Villa Savoye is an exemplary work. Its significance lies not only in its abstract appearance, nor indeed in the skill, novelty and shear panache of its architectural promenade, nor in its filmic quality, nor (with Tschumi) in its ability to be overcome by a decayed sensuality that would proclaim an other architecture; nor in its explicit references to an architecture stretched out between earth and sky embodied by the basement and the solarium linked by the enlightening movement of the spiral stair.[47] It articulates, of course, all of these things and many more. But above all it proclaims an other ontology of architecture, an organology of composition and existence, a rich and multiple inherently relational transduction, one which we can essay in all of Le Corbusier's later work and indeed in any architecture worthy of that name.

Notes

1. Bernard Stiegler, 'Deconstruction and Technology: Fidelity at the Limits of Deconstruction and the Prosthesis of Faith', trans. Richard Beardsworth, in *Jacques Derrida and the Humanities: A Critical Reader*, ed. Tom Cohen (Cambridge: Cambridge University Press, 2001), 250. Simondon proposes the idea of the transductive in, among other places, *On the Mode of Existence of Technical Objects* dating from 1958. Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Ninian Mellamphy (London, Ontario: University of Western Ontario Press, 1980).

2. Stiegler, 'Deconstruction and Technology', 250.

3. For the question of the short-circuit and the long circuit in Stiegler, see his 'Programs of the Improbable, Short Circuits of the Unheard-of', trans. Robert Hughes, *Diacritics* 42, no.1 (2014): 70–108.

4. See, among other places: Bernard Stiegler, 'What Is Called Caring? Beyond the Anthropocene', in *Techné: Research in Philosophy and Technology* 21, no. 2–3 (2017): 386–404, pages 390 and 391; *Nanjing Lectures 2016–2019*, ed. and trans. David Ross (London: Open Humanities Press, 2020), pages 45, 47 and 173. I am grateful to the editors for bringing my attention to these quotations.

5. For a more detailed exposition of transductive relations and the linkage with information science, systems theory, cybernetics and quantum theory, please see my article in *Footprint* 28: Tim Gough, 'Systems and Relations All the Way Down, All the Way Across', *Footprint* 28 (2021): 63–80.

6. Félix Guattari, *The Three Ecologies*, trans. Ian Pindar and Paul Sutton (London: The Athlone Press, 2000), 28.

7. This question of immanence (as opposed to transcendence) is the central question for Deleuze. See, at the beginning of his career, *Nietzsche and Philosophy* (where Kant is said to fail [p. 91] and Nietzsche to succeed in the project of an immanent philosophy) and at the end his *Pure Immanence: Essays on A Life*. Gilles Deleuze, *Nietzsche and Philosophy*, trans. Hugh Tomlinson (New York: Columbia University Press, 2006); *Pure Immanence: Essays on A Life*, trans. Anne Boyman (New York: Zone Books, 2001).

8. These two publications are: Willy Boesiger and Hans Girsberger, eds., *Le Corbusier 1910–1965* (London: Thames and Hudson, 1967) and Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells (New York: Dover, 1986 [1923]).

9. The distinction between these two modalities of architecture – the aspect internal, as it were, to the architect as they compose the building, and the external aspect that occurs once the building has been created and is in use – is one that Félix Guattari also points to in his short essay 'Architectural Enunciation', where he names them as 'polyphonic, on the order of the *percept*' (internal to composition) and 'ethico-aesthetic, of the order of the *affect*' (what happens when architecture takes on being with its inhabitants). Félix Guattari, 'Architectural Enunciation', in *Schizoanalytic Cartographies*, trans. Andrew Goffey (London: Bloomsbury, 2013), 233.

10. Boesiger and Girsberger, *Le Corbusier 1910–1965*, 23. The illustration to refer to is the artist's studio on that page. This illustration is also found on page 22 of Volume One of the *Oeuvre Complète*. *Le Corbusier et Pierre Jeanneret Oeuvre Complète de 1910–1929*, ed. Willy Boesiger and Oscar Stonorov (Zurich: Girsberger, 1937), 22.

11. Le Corbusier, *Towards a New Architecture*, 183.

12. Ibid., 229–36.

13. Peter Eisenman, 'Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign', *Log* 30 (Winter 2014): 139–15.

14. Le Corbusier, *Towards a New Architecture*, 230–31 and 236. The illustration of this scheme is on pages 230–31.

15. The phrase 'Une maison est une machine à habiter' (Le Corbusier, *Vers une architecture* (Paris: les éditions G. Crès et Cie, 1924), 73) is poorly translated as 'A house is a machine for living in' by Etchells (Le Corbusier, *Towards a New Architecture*, 95). The 'in' betrays immanence, and sneaks in a transcendence of the pre-existing house to the living which

subsequently occurs. 'Architecture only exists when there is a poetic emotion. [L'architecture, c'est quand il y a émotion poétique]'. Le Corbusier, *Towards a New Architecture*, 215.

16. Ibid., 181–83.

17. Ibid., *Towards a New Architecture*, 182–83.

18. For a discussion of the mereological question of the part and the whole in relation to architecture, see my essay in *Footprint* 20 on analytical philosophy. Tim Gough, 'G.E. Moore's *Principia Ethica* and the Complex of Architecture', *Footprint* 20 (2017): 11–22.

19. Le Corbusier, *Towards a New Architecture*, 183.

20. Ibid., 43.

21. Ibid., 179.

22. Ibid., 195

23. Metaphor is always a transcendent game. This is because it posits an original, 'correct' meaning from which the metaphor is derived. This had already be deconstructed by Derrida in his essay *Qual Quelle*. That this deconstruction remained unacknowledged in Paul Ricoeur's later and somewhat anachronistic *The Rule of Metaphor* is symptomatic of the failings of a hermeneutic, phenomenological and, in Ricoeur's case, theological interpretation. See Jacques Derrida, 'Qual Quelle: Valery's Sources', in *Margins of Philosophy*, trans. Alan Bass (Brighton: Harvester Press, 1982), 273–306; Paul Ricoeur, *The Rule of Metaphor: The Creation of Meaning in Language*, trans. Robert Czerny with Kathleen McLaughlin and John Costello (London: Routledge, 1977).

24. See Richard E. Etlin's classic study, 'Le Corbusier, Choisy, and French Hellenism: The Search for a New Architecture', *The Art Bulletin* 69, no. 2 (June 1987): 264–78.

25. Camillo Sitte, *The Art of Building Cities: City Building According to Its Artistic Fundamentals*, trans. Charles T. Stewart (Eastford, CT: Martino Fine Books, 2013). The relation between Le Corbusier and Sitte is discussed in H.A. Brooks, 'Jeanneret and Sitte: Le Corbusier's earliest ideas on urban design', in *In Search of Modern Architecture*, ed. Helen Searing (Cambridge, MA: MIT Press, 1982).

26. Adolf von Hildebrand, 'The Problem of Form in the Fine Arts', collected in *Empathy, Form and Space: Problems in German Aesthetics 1873–1893*, trans. Harry Francis Mallgrave and Eleftherios Ikonomou (Santa Monica: The Getty Center for the History of Art and the Humanities, 1994), 229.

27. Quoted from the introduction to *The Vienna School Reader*, ed. Christopher S. Wood (New York: Zone Books, 2003), 9.

28. Stanford Anderson, 'Thinking in Architecture', in *Ptah 08 Yearbook Architecture: Building, Designing, Thinking,* ed. Esa Laaksonen (Helsinki: Alvar Aalto Academy, 2009), 72–86. Lakatos's idea of a non-conservative model for scientific investigation is outlined in Imre Lakatos, 'Falsification and the Methodology of Scientific Research Programmes' in *The Methodology of Scientific Research Programmes: Philosophical Papers Volume I*, ed. John Worrall and Gregory Currie (Cambridge: Cambridge University Press, 1978), 8–101.

29. Tim Benton, 'Le Corbusier y la promenade architecturale' (with English original), *Revista Arquitectura* 100, no. 264–265 (1987): 38–47. The reference to the virtual is on page 42: 'The promenade, in an important sense, is a virtual rather than actual one.'

30. Colin Rowe and Fred Koetter, *Collage City* (London: The MIT press, 1983), 78. Famously, he also analyses the building in *The Mathematics of the Idea Villa* from 1947. This, too, operates strictly within a limited objective ontology of architecture. Colin Rowe, 'The Mathematics of the Ideal Villa', collected in *The Mathematics of the Ideal Villa and other Essays* (Cambridge, MA: MIT Press, 1976), 1–28.

31. 'In painting, in sculpture, indeed in all the visual arts, including architecture and horticulture insofar as they are fine arts, design is what is essential; in design the basis for any involvement of taste is not what gratifies us in sensation, but merely what we like because of its form.' Immanuel Kant, *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis: Hackett, 1987), 71.

32. Rowe and Koetter, *Collage City*, 78.

33. For the theme of technics *as* time, see Stiegler's three volumes of *Technics and Time*, but in particular

Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, trans. Richard Beardsworth and George Collins (Stanford: Stanford University Press, 1998), 83.

34. Friedrich Nietzsche, 'The Anti-Christ', in *The Anti-Christ, Ecce Homo, Twilight of the Idols and Other Writings*, trans. Judith Norman (Cambridge: Cambridge University Press, 2005), 66. For another take on the question of 'trans-', see my essay in *Footprint* 21: Tim Gough, 'Trans-Architecture', *Footprint* 21 (2017): 51–65.

35. Gilles Deleuze, *Foucault*, trans. Seán Hand (Minneapolis: University of Minnesota Press, 1988), 31. I discuss this question of the relation between Foucault's diagram, Bentham, architecture and Deleuze and Guattari's abstract machine in: Tim Gough, 'Diagrammatic Architecture', *le Journal Spéciale'Z* no. 4, Ecole Speciale D'Architecture (2012): 8–22.

36. On the archive in Derrida and Stiegler, see Yuk Hui's 'Archives of the Future: Remarks on the Concept of Tertiary Protention', in *Inscription*, ed. Karl-Magnus Johansson (Göteborg: Riksarkivet Landsarkivet i Göteborg, 2018), 129–51.

37. Ibid., 147.

38. Bernard Stiegler in interview with Irit Rogoff, 'Transindividuation', *E-Flux Journal #14*, 2010, 4. For an extended discussion of Iser's reception theory in relation to architecture, see my essay in *Architectural Theory Review*: Tim Gough, 'Reception Theory of Architecture: Its Pre-History and Afterlife', *Architectural Theory Review* 18, no. 3 (Spring 2014): 279–92.

39. A longer analysis would look more closely into this question of the co-creation of the site and the building, starting of course from Heidegger's point in 'Building Dwelling Thinking' that the river banks only become apparent because of the bridge, or in 'The Original of the Work of Art' the stony valley only appears with the creation of the Greek Temple. Martin Heidegger, 'Building Dwelling Thinking' and 'The Original of the Work of Art' in *Poetry, Language, Thought*, ed. and trans. Albert Hofstadter (New York: Harper & Row, 1971). For a more recent discussion on this topic, see

Andrea Kahn, 'Defining Urban Sites' in *Site Matters: Design Concepts, Histories, and Strategies*, ed. Carol J. Burns and Andrea Kahn (London: Routledge, 2005), 281–96.

40. For the theme of haecceity, see in particular Gilles Deleuze and Félix Guattari*, A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), the section in plateau 10 ('1730: Becoming-Intense, Becoming-Animal, Becoming-Imperceptible') entitled 'Memories of a Haecceity' (pp. 260–65). More space would enable me to look more closely at how the recounting of the transductive haecceity of the villa/hôtel relates, precisely, to the question of memories.

41. This same intense feeling happens occasionally for me with one other architect, aside from Le Corbusier. That is Herzog and de Meuron, perhaps not co-incidentally from the eastern part of Switzerland. One only has to experience, in the same weekend, the east facade of Ronchamp and the east façade of Schaulager to understand that these Basel architects have learnt a transductive lesson from the La Chaux-de-Fonds master.

42. Deleuze and Guattari's critique of phenomenology in *What is Philosophy?* can be invoked here: 'Beginning with Descartes, and then with Kant and Husserl, the cogito makes it possible to treat the plane of immanence as a field of consciousness. Immanence is supposed to be immanent to a pure consciousness, to a thinking subject.' Gilles Deleuze and Félix Guattari, *What is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994), 46. For a discussion on this, see Leonard Lawlor, 'The End of Phenomenology: Expressionism in Deleuze and Merleau-Ponty', *Continental Philosophy Review* 31 (1998): 15–34.

43. Benton, 'Le Corbusier y la promenade architecturale', 45.

44. In correspondence with Tim Benton, he pointed out to me that the attribution of these sketches to the Villa Savoye has been called into question by Josep Quetglas in his *Les Heures Claires: Proyecto y Arquitectura en la Villa Savoye de Le Corbusier y Pierre*

Jeanneret (Barcelona: Massilia, 2008). Professor Benton also kindly directed me to Jan Birksted's article 'The Politics of Copying: Le Corbusier's "Immaculate Conceptions"', *Oxford Art Journal* 30, no.2 (2007): 305–26, which is an interesting instance of a formal comparison between Le Corbusier's work and his forebears, similar in ontology to that of Colin Rowe.

45. Demitri Porphyrios, *Sources of Modern Eclecticism* (London: St Martin's Press, 1982).

46. To quote one of the reviewers of this essay, to whom I am grateful for putting the matter so clearly. I look more closely at some aspects of Peter Eisenman's formalism in: Tim Gough, 'The Voids of Eisenman's Fin D'Ou T Hou S', *Kritische Berichte* 3 (2018).

47. The Tschumi reference is to his *Advertisements for Architecture* (1975), where photos of the decayed Villa Savoye in the 1960s are juxtaposed with slogans such as 'sensuality has been known to overcome even the most rational of buildings.' Although why it was thought of as rational is unclear. Reprinted in 'Architecture and Transgression' in Bernard Tschumi, *Architecture and Disjunction* (Cambridge, MA: MIT Press, 1996): 63–78.

Biography

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