

S1 COSMOGONY

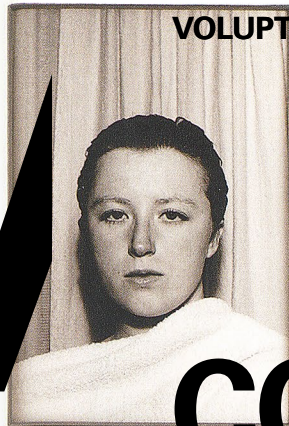
E1 CHAOS
E2 ORDER
E3 CONSTANTS
E4 VARIABLES
E5
E6
E7
E8



2018-2022



VOLUPTAS



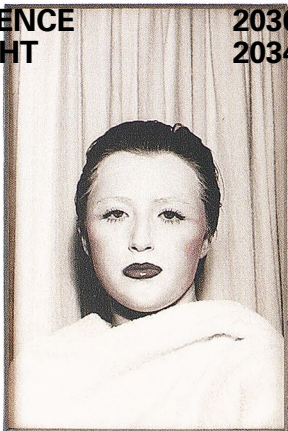
S1E3/E4



CONSTANTS

S2 ONTOGENY
S3 ORBIT
S4 DECADENCE
S5 TWILIGHT

2022-2026
2026-2030
2030-2034
2034-2038

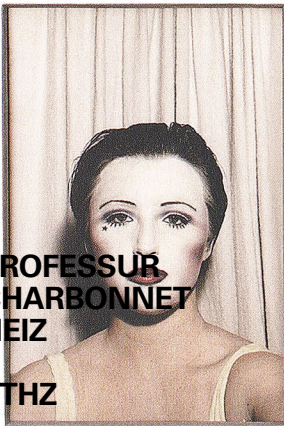


S1
SMO

VARIABLES

PROFESSUR
CHARBONNET
HEIZ

ETHZ



E3/E4
CONSTANTS
VARIABLES

ETHZ



VOLUPTAS

**PROFESSUR
CHARBONNET
HEIZ**

ETHZ

VOLUPTAS	7
PROLOGUE	21
CONSTANTS VARIABLES	129
AGENTS	247
GLOSSARY	327
EPILOGUE	359

COVER: CINDY SHERMAN, UNTITLED #479 (1975)

ETHZ D-ARCH FS2019/SS2020 VOLUPTAS PROFESSUR CHARBONNET/HEIZ
OFFICE: HIT H 41.3, WOLFGANG-PAULI-STR. 27, CH-8093 ZÜRICH STUDIO: PAVILION HIP
CHARBONNET-HEIZ@ARCH.ETHZ.CH +41 44 633 49 41 DISCLAIMER: THIS READER IS FOR
NON-PROFIT EDUCATIONAL PURPOSES ONLY. IT IS USED AS AN INSTRUCTIONAL TOOL
IN THE DESIGN STUDIO OF THE CHAIR. TEAM: DOMINIK ARNI, FRANÇOIS CHARBONNET,
MARINE DE DARDEL, PEDRO GUEDES, STEFFEN HÄGELE, PATRICK HEIZ, MARINA MONTRESOR,
FRANCISCO MOURA VEIGA WWW.CHARBONNET-HEIZ.ARCH.ETHZ.CH



SIR LAWRENCE ALMA-TADEMA, EXPECTATIONS (1885)

Voluptas is the euphoric daughter of its time – the intoxicating offspring of measure and spirit. Amending the millenary Vitruvian ordinances of *firmitas*, *utilitas* and *venustas*, Voluptas initiates a transversal investigation on contemporary issues and sets combinatorial dynamics as the channel of proliferating singularities. Its looping trajectory toward a saturation of problem settings aims at the empirical emanation of an alternative view of the urban condition. Enforcing *desire* as its prevalent agent, Voluptas is the elegiac display of residual energy.

It can be quite a thing, Bernard.
To build an entire world.
And then watch it end.

JONATHAN NOLAN & LISA JOY, WESTWORLD (2016)

ROBERT LONGO, UNTITLED "NEPTUNE AND TRITON" (2006)

- S1** **COSMOGONY**
A GENESIS
2018–2022
- S2** **ONTOGENY**
A GROWTH
2022–2026
- S3** **ORBIT**
AN EQUILIBRIUM
2026–2030
- S4** **DECADENCE**
AN ATROPHY
2030–2034
- S5** **TWILIGHT**
AN APOCALYPSE
2034–2038

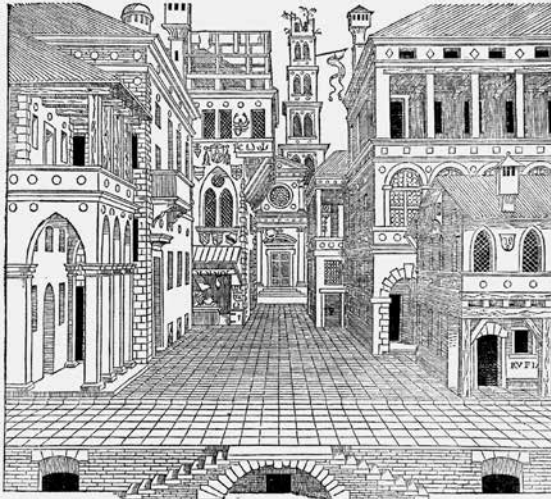


ABRAHAM BOSSE, FRONTISPIECE OF THOMAS HOBBS' LEVIATHAN (1651)

In the chapter XVI of his *Leviathan—Of Persons, Authors and Things Personated* (1651), Thomas Hobbes defines the person as he “whose words and actions are considered, either as his own or as representing the words and actions of another man [...]” accordingly delineating two subcategories: that of the natural person—when the words are his own—and that of the artificial person—when these are representing the words and actions of another; he further states: “Of persons artificial, some have their words and actions ‘owned’ by those whom they represent. And then the person is the ‘actor’, and he that owns his words and actions is the ‘author’, in which case the actor acts by authority—but is not the author [...]. So that by authority is always understood a right of doing any act, and ‘done by authority’, done by commission or license from him whose right it is.”

The distinction between authorship and actorship expediently polarizes the paramount questions of the content and of the form. The point is not to apply a literary notion to some emulative acceptance of its content, but rather to hypothetically submit a conceptual intendment to its potential adequation in the field of architecture; and as such, Hobbes’ axiomatic statement informs us on the condition of the architect, whose authority is fundamentally a licensed and commissioned one.

As a tributary of given programmatic, economic and legal prerequisites and impelled through exogeneous necessities, architecture resolutely assigns its agent to performing a given act in the name and interest of (x): the architect is a political actor.



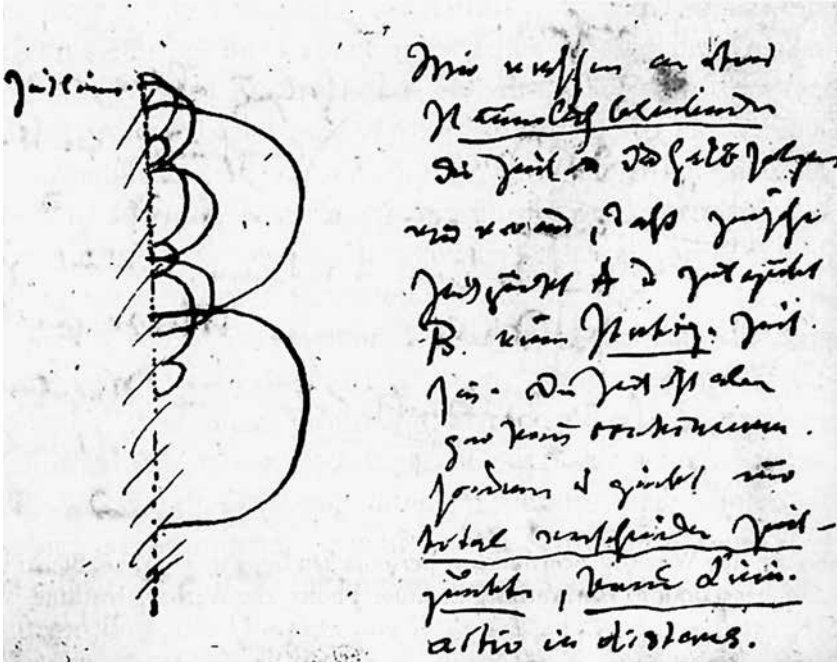
SEBASTIANO SERLIO, TRAGIC & COMIC SCENERIES (1545)

In the second book of Serlio's *Regole Generali di Architettura* (1545), the tragic scenery shows a series of court buildings, war memorials, civil monuments settled along the rigid axis of a central perspective and punctuated by a memorial threshold opening onto an unobstructed vanishing point; rigorously subordinated to the spinal street, the laminary lineup is ordered such as ingresses are staged perpendicular to the street avoiding frontal views of the representative entablatures. Corroborating the prevalence of the public over the private, a pair of outward orientated stairs lead to the set.

The comic stage setting on the other hand displays a turbulent sequence of doorways, storefronts and arcades disjointedly eroding the central political void; no convergence point here, but the richly ornamented porch of a religious shrine as the absolving sign to a collection of artifacts striving for attention. Converging steps to the stage achieve to portrair the manifest surrender of the public realm to the sphere of the intimate.

As a result of the transversal capitalist conformity, of its economical horizon and its inferent individualism, the city has long capitulated under the assaults of private interests; the ascendancy of the *oikos* over the *polis*, respectively of the *product* over the *process*, has disrated the urban content to a long accumulative array of equivocal signs.

Bowing under the conceited laughs of licentious opportunism and its compulsion for visibility, the contemporary city has deserted the tragedy: comic scenery is now its only stage.

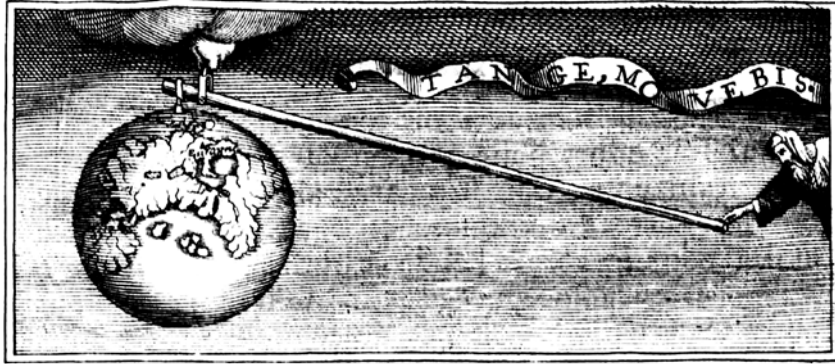
FRIEDRICH NIETZSCHE, DYNAMISCHES SCHEMA DER ZEIT (1873)

A byproduct of the pervasive theatricality of the metropole is its relentless need for the new, therein not only complying with the essence of its outcome, the product—which is to be consumed and therefore ever renewed—but also with the quickly evolving rules of comic features; whereas Aristophanes’ rhetorics hardly trigger any hilarity anymore, we are still moved by Antigone’s tragic audacity.

By indulging in an often irrelevant alterity, metropolitan actors seem to have made any meaningful difference hardly legible: however legitimate discordances may be, they are bound to the prerequisite of repetition as the dominant marker of singularities.

Derived from the late latin *repertorium*—storehouse—a repertory is the entire assortment of things available in a field or of a kind; inasmuch as the manifold identities of a repertoire account for its protean expertise—its range so to speak—yet its most essential attribute lies in its availability: a repertory is a potential to be constantly re-activated.

In its search for a dynamic consideration of time, withstanding the contemplative view of collective memory and its sententious unfolding of events, manner advocates for a deflective handling of history, of its canons as much as of its failures, and generates an exact figures—rigorously inexact, that is “inexact by essence and not by accident”—Gilles Deleuze & Félix Guattari in: *Mille Plateaux* (1980). History is a beat.



ARCHIMEDES, LEVERAGE, IN: VARIGNON, PROJET D'UNE NOUVELLE MÉCANIQUE (1687)

“Give me a place to stand and I will move the Earth”: in a time of relentless information where an undiscerning allegiance of the scientific proficiency to accumulative datas and a so called ‘economy of attention’ dictate the legitimacy of a vast majority of decisions, Archimedes’ remark quoted by Pappus of Alexandria (*in: Collection or Synagoge, Book VIII, c. AD 340*) suggests an alternative stand; echoing the metaphorical telescopic device of Marcel Proust’s *A la recherche du temps perdu*, the admonition invites to deliberately distantiate the observer from its subject to stimulate greater leverage: now set on the fringe of its field of expertise, contemplating the invigorating complexity of phenomena, the observer records signs of transversal mutations.

As the blessed child of clashing progenitors – economy, environment, society, program, vanity – the condition of architecture not only stifles its product to a paradoxical figure, that of a radical consensus but also confines its agent to an imperative ductility to critically address conflicting demands; yet, the improbable fragmentation of competences and the persistent bias prevalence of *homo faber* over *homo sapiens* have disrated any non-utilitarian determinations to trivial scrutiny.

Driven by exogenous and contradictory requirements and at the converging point of manifold ruling interests, the architect’s expertise is protean by necessity rather than by inclination; aware of the trans-generational nature of the urban environment and accordingly resisting to the most immediate fervours of its time, the architect is the last generalist.



TWILIGHT OF THE IDOLS FRIEDRICH NIETZSCHE	23	DELIRIOUS NEW YORK REM KOOLHAAS	43
ANTI-ŒDIPUS GILLES DELEUZE FÉLIX GUATTARI	31	ESSAYS CRITICAL AND CLINICAL GILLES DELEUZE	47
THE ELECTRONIC REVOLUTION WILLIAM S. BURROUGHS	37		



PIPILOTTI RIST, EVER IS OVER ALL (2005)

TWILIGHT OF THE IDOLS, OR, HOW TO PHILOSOPHIZE WITH THE HAMMER

23

FRIEDRICH NIETZSCHE

1889

Foreword

It's no small trick to preserve your cheerfulness in the midst of a gloomy matter which is loaded with inordinate responsibility. Yet what could be more necessary than cheerfulness? Nothing goes right unless exuberance plays a part in it. Overabundance of strength is the only proof of strength. *A revaluation of all values*, this question mark so black, so monstrous that it casts a shadow on the one who poses it—such a fateful task forces one to run out into the sun at every moment, to shake off a heavy seriousness that has become all too heavy. Every means is right for this, every “case” is a lucky break. Above all, *war*. War has always been the great cleverness of all spirits who have become too inward, too deep; even wounds can have the power to heal. A saying whose source I withhold from scholarly curiosity has long been my motto:

increscunt animi, virescit vulnere virtus.

Another way to recover, which under certain circumstances I like even better, is *sounding out idols*... There are more idols than realities in the world: that's my “evil eye”

on this world, and my “evil ear” too... To pose questions here with a *hammer* for once, and maybe to hear in reply that well-known hollow tone which tells of bloated innards – how delightfull for one who has ears even behind his ears – for me the old psychologist and pied piper, in whose presence precisely what would like to stay quiet *has to speak up*...

This book too – the title gives it away – is above all a recovery, a sunny spot, a sidestep into a psychologist’s idleness. Maybe a new war as well? And are new idols sounded out?... This little book is a *great declaration of war*, and as for sounding out idols, this time they are not just idols of the age, but *eternal* idols that are touched here with the hammer as with a tuning fork – there aren’t any older idols at all, none more assured, none more inflated... And none more hollow... That doesn’t stop them from being the ones that are *believed* in the most – and, especially in the most prominent case, they aren’t called idols at all...

Turin, September 30, 1888, on the day when the first book of the *Revaluation of All Values* was finished. [...]

“Reason” in Philosophy

[...] 6

You will be thankful to me if I condense such an essential and new insight into four theses: I thus make it easier to understand, and I dare you to contradict it.

First proposition The grounds on which “this” world has been called apparent are instead grounds for its reality – another kind of reality is absolutely indemonstrable.

Second proposition The distinguishing marks which have been given to the “true being” of things are the distinguishing marks of nonbeing, of *nothingness* – the “true world” has been constructed by contradicting the actual world: this “true world” is in fact an apparent world, insofar as it is just a *moral-optical* illusion.

Third proposition It makes no sense whatsoever to tell fictional stories about “another” world than this one, as long as the instinct to slander, trivialize, and look down upon life is not powerful within us: in that case, we *revenge* ourselves on life with the phantasmagoria of “another,” “better” life.

Fourth proposition Dividing the world into a “true” and an “apparent” world, whether in the style of Christianity or in the style of Kant (a *sneaky* Christian to the end), is merely a move inspired by *décadence* – a symptom of *declining* life... The fact that the artist prizes appearance over reality is no objection to this proposition. For “appearance” here means reality *once again*, but in the form of a selection, an emphasis, a correction... Tragic artists are *not* pessimists – in fact, they say *yes* to everything questionable and terrible itself, they are *Dionysian*... [...]

The Four Great Errors

[...] 4

Error of imaginary causes.—I'll begin with dreams: a particular sensation, for instance, a sensation due to a distant cannon shot, has a cause imputed to it afterwards (often a whole little novel in which precisely the dreamer is the protagonist). In the meantime, the sensation persists in a kind of resonance: it waits, as it were, until the drive to find causes allows it to come into the foreground—not as an accident anymore, but as “meaning”. The cannon shot shows up in a *causal* way, and time seems to flow backwards. What comes later, the motivation, is experienced first, often with a hundred details that flash by like lightning; the shot *follows*... What has happened? The representations *generated* by a certain state of affairs were misunderstood as the cause of this state of affairs.—In fact, we do just the same thing when we're awake. Most of our general feelings—every sort of inhibition, pressure, tension, explosion in the play and counter play of the organs, and in particular the state of the *nervus sympathicus* (sympathetic nervous system)—arouse our drive to find causes: we want to have a *reason* for feeling that we're in *such and such* a state—a bad state or a good state. It's never enough for us just to determine the mere fact *that* we find ourselves in such and such a state: we admit this fact—become *conscious* of it—only if we've given it some kind of motivation.—Memory, which comes into play in such cases without our knowing it, calls up earlier states of the same kind, and the causal interpretations that are rooted in them—but *not* their causation. Of course, memory also calls up the belief that the representations, the accompanying occurrences in consciousness, were the causes. In this way there arises a *habituation* to a particular interpretation of causes that actually inhibits and even excludes an *investigation* of the cause.

5

A psychological explanation of this error.—Tracing something unfamiliar back to something familiar alleviates us, calms us, pacifies us, and in addition provides a feeling of power. The unfamiliar brings with it danger, unrest, and care—our first instinct is to *do away* with these painful conditions. First principle: some explanation is better than none. Since at bottom all we want is to free ourselves from oppressive representations, we aren't exactly strict about the means of freeing ourselves from them: the first representation that serves to explain the unfamiliar as familiar is so beneficial that we “take it to be true”. Proof of *pleasure* (“strength”) as criterion of truth.—Thus, the drive to find causes is conditioned and aroused by the feeling of fear. Whenever possible, the “why?” should not so much provide the cause for its own sake, but instead provide a *type of cause*—a relaxing, liberating, alleviating cause. The fact that something already *familiar*, something we have experienced, something inscribed in memory is posited as the cause, is the first consequence of this requirement. The new, the unexperienced, the alien, is excluded as a cause.—So we not only look for some type of explanation as the cause, but we *single out* and *favor* a certain type of explanation, the type that eliminates the feeling of the alien, new, and unexperienced, as fast and as often as possible—the most *customary* explanations.—Consequence: one kind of cause-positing becomes more and more prevalent, concentrates itself into a system, and finally comes to the fore as *dominant*, that is, as simply *excluding* any *other* causes and explanations.—The banker thinks right away about “business”, the Christian about “sin”, the girl about her love. [...]

What the Germans Are Missing

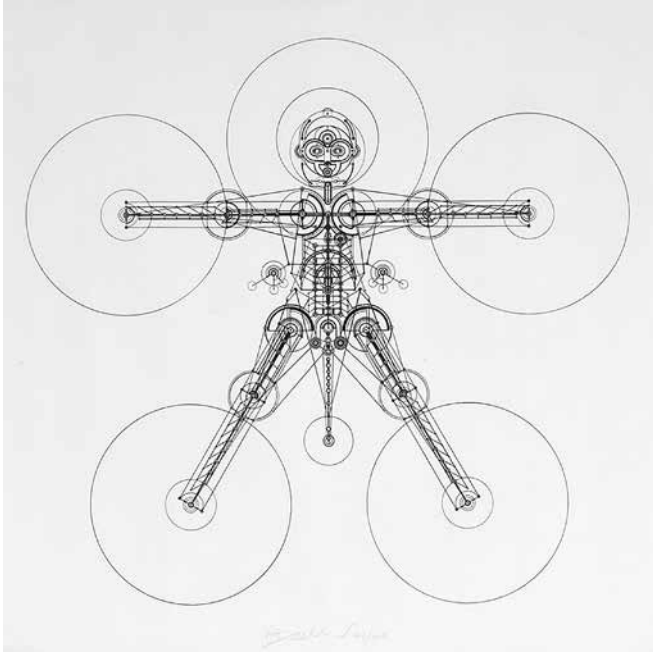
[...] 6

– In order not to be untrue to my type, which is a *yes-saying* type and deals in contradictions and criticism only indirectly, only unwillingly, I will set forth right away the three tasks for which educators are required. One must learn to *see*, one must learn to *think*, one must learn to *speak* and *write*. The goal of all three tasks is a noble culture. – To learn to *see* – to accustom the eye to composure, to patience, to letting things come to it; to put off judgment, to learn to walk around all sides of the individual case and comprehend it from all sides. That is the *first* preliminary schooling in spirituality: *not* to react to a stimulus right away, but to keep in check the instinct to restrict and exclude. Learning to *see*, as I understand it, is almost what is unphilosophically termed will-power: what is essential here is precisely *not* to “will”, to be *able* to put off a decision. All unspirituality, all commonness is based on the inability to resist a stimulus – one *has* to react, one follows every impulse. In many cases, such a compulsion is already sickliness, decline, a symptom of exhaustion – almost everything that unphilosophical coarseness calls vice is simply this physiological inability *not* to react. – A useful application of having learned to *see*: one will have become, as a *learner* in general, slow, suspicious, and resistant. It will be with a hostile composure that one will let strange *new* things of every sort make their initial approach – one will draw one’s hand back from them. Leaving all one’s doors open, submissively flopping belly-down before every little fact, a constant readiness to jump in and interfere, to *plunge into* other people and other things, in short, the celebrated “objectivity” of modern times is bad taste, is *ignoble* par excellence. – [...]

Raids of an Untimely Man

[...] 8

Towards a psychology of the artist – For there to be art, for there to be any aesthetic activity and observation, one physiological prerequisite is indispensable: *intoxication*. Intoxication must already have heightened the sensitivity of the whole machine: otherwise, no art will be forthcoming. All kinds of intoxication, as different as their causes may be, have this power: above all, the intoxication of sexual excitement, that oldest and most primordial form of intoxication. Likewise, the intoxication that follows all great cravings, all strong emotions; the intoxication of the festival, of the competition, of daredevilry, of victory, of every extreme commotion; the intoxication of cruelty; the intoxication of destruction; intoxication due to certain meteorological influences, such as the intoxication of spring; or under the influence of narcotics; finally, the intoxication of the will, the intoxication of an overloaded and swollen will. – What is essential in intoxication is the feeling of increased strength and fullness. This feeling leads us to donate to things, to *make* them take from us, to force ourselves on them – this process is called *idealizing*. Let’s get rid of a prejudice at this point: idealizing does *not* consist, as is commonly thought, in taking away or subtracting what is small and incidental. Instead, what is decisive is an immense drive to *bring out* the principal traits, so that the others disappear in the process. [...]



FRANÇOIS DALLEGRETT, COSMIC OPERA SUIT (1966)

ANTI-ŒDIPUS

31

GILLES DELEUZE FÉLIX GUATTARI

1972

Desiring Machines

To a certain degree, the traditional logic of desire is all wrong from the very outset: from the very first step that the Platonic logic of desire forces us to take, making us choose between production and acquisition. From the moment that we place desire on the side of acquisition, we make desire an idealistic (dialectical, nihilistic) conception, which causes us to look upon it as primarily a lack: a lack of an object, a lack of the real object. It is true that the other side, the “production” side, has not been entirely ignored. Kant, for instance, must be credited with effecting a critical revolution as regards the theory of desire, by attributing to it “the faculty of being, through its representations, the cause of the reality of the objects of these representations.” But it is not by chance that Kant chooses superstitious beliefs, hallucinations, and fantasies as illustrations of this definition of desire: as Kant would have it, we are well aware that the real object can be produced only by an external causality and external mechanisms; nonetheless this knowledge does not prevent us from believing in the intrinsic power of desire to create its own object—if only in an unreal, hallucinatory, or delirious form—or from representing this causality as stemming from within desire itself. The reality of the object, insofar as it is produced by desire, is thus a psychic reality. Hence it can be said that Kant’s critical revolution changes

nothing essential: this way of conceiving of productivity does not question the validity of the classical conception of desire as a lack; rather, it uses this conception as a support and a buttress, and merely examines its implications more carefully. In point of fact, if desire is the lack of the real object, its very nature as a real entity depends upon an “essence of lack” that produces the fantasized object. Desire thus conceived of as production, though merely the production of fantasies, has been explained perfectly by psychoanalysis. On the very lowest level of interpretation, this means that the real object that desire lacks is related to an extrinsic natural or social production, whereas desire intrinsically produces an imaginary object that functions as a double of reality, as though there were a “dreamed-of object behind every real object,” or a mental production behind all real productions. This conception does not necessarily compel psychoanalysis to engage in a study of gadgets and markets, in the form of an utterly dreary and dull psychoanalysis of the object: psychoanalytic studies of packages of noodles, cars, or “thingumajigs.” But even when the fantasy is interpreted in depth, not simply as an object, but as a specific machine that brings desire itself front and center, this machine is merely theatrical, and the complementarity of what it sets apart still remains: it is now need that is defined in terms of a relative lack and determined by its own object, whereas desire is regarded as what produces the fantasy and produces itself by detaching itself from the object, though at the same time it intensifies the lack by making it absolute: an “incurable insufficiency of being,” an “inability-to-be that is life itself.” Hence the presentation of desire as something supported by needs, while these needs, and their relationship to the object as something that is lacking or missing, continue to be the basis of the productivity of desire (theory of an

underlying support). In a word, when the theoretician reduces desiring-production to a production of fantasy, he is content to exploit to the fullest the idealist principle that defines desire as a lack, rather than a process of production, of “industrial” production. Clement Rosset puts it very well: every time the emphasis is put on a lack that desire supposedly suffers from as a way of defining its object, “the world acquires as its double some other sort of world, in accordance with the following line of argument: there is an object that desire feels the lack of; hence the world does not contain each and every object that exists; there is at least one object missing, the one that desire feels the lack of; hence there exists some other place that contains the key to desire (missing in this world).”

If desire produces, its product is real. If desire is productive, it can be productive only in the real world and can produce only reality. Desire is the set of passive syntheses that engineer partial objects, flows, and bodies, and that function as units of production. The real is the end product, the result of the passive syntheses of desire as autoproduction of the unconscious. Desire does not lack anything; it does not lack its object. It is, rather, the subject that is missing in desire, or desire that lacks a fixed subject; there is no fixed subject unless there is repression. Desire and its object are one and the same thing: the machine, as a machine of a machine. Desire is a machine, and the object of desire is another machine connected to it. Hence the product is something removed or deducted from the process of producing: between the act of producing and the product, something becomes detached, thus giving the vagabond, nomad subject a residuum. The objective being of desire is the Real in and of itself. There is no particular form of existence that can be labeled “psychic reality.” As Marx notes, what exists in fact is not lack, but passion, as a “natural and

sensuous object.” Desire is not bolstered by needs, but rather the contrary; needs are derived from desire: they are counter products within the real that desire produces. Lack is a countereffect of desire; it is deposited, distributed, vacuolized within a real that is natural and social. Desire always remains in close touch with the conditions of objective existence; it embraces them and follows them, shifts when they shift, and does not outlive them. For that reason, it so often becomes the desire to die, whereas need is a measure of the withdrawal of a subject that has lost its desire at the same time that it loses the passive syntheses of these conditions. This is precisely the significance of need as a search in a void: hunting about, trying to capture or become a parasite of passive syntheses in whatever vague world they may happen to exist in. It is no use saying: We are not green plants; we have long since been unable to synthesize chlorophyll, so it’s necessary to eat... Desire then becomes this abject fear of lacking something. But it should be noted that this is not a phrase uttered by the poor or the dispossessed. On the contrary, such people know that they are close to grass, almost akin to it, and that desire “needs” very few things—not those leftovers that chance to come their way, but the very things that are continually taken from them—and that what is missing is not things a subject feels the lack of somewhere deep down inside himself, but rather the objectivity of man, the objective being of man, for whom to desire is to produce, to produce within the realm of the real. The real is not impossible; on the contrary, within the real everything is possible, everything becomes possible. Desire does not express a molar lack within the subject; rather, the molar organization deprives desire of its objective being. Revolutionaries, artists, and seers are content to be objective, merely objective: they know that desire clasps life in its powerfully productive embrace and reproduces it

in a way that is all the more intense because it has few needs. And never mind those who believe that this is very easy to say, or that it is the sort of idea to be found in books. “From the little reading I had done I had observed that the men who were most in life, who were molding life, who were life itself, ate little, slept little, owned little or nothing. They had no illusions about duty, or the perpetuation of their kith and kin, or the preservation of the State... The phantasmal world is the world which has never been fully conquered over. It is the world of the past, never of the future. To move forward clinging to the past is like dragging a ball and chain.” The true visionary is a Spinoza in the garb of a Neapolitan revolutionary. We know very well where lack—and its subjective correlative—come from. Lack (*manque*) is created, planned, and organized in and through social production. It is counter produced as a result of the pressure of antiproduction; the latter falls back on (*se rabat sur*) the forces of production and appropriates them. It is never primary; production is never organized on the basis of a pre-existing need or lack (*manque*). It is lack that infiltrates itself, creates empty spaces or vacuoles, and propagates itself in accordance with the organization of an already existing organization of production. The deliberate creation of lack as a function of market economy is the art of a dominant class. This involves deliberately organizing wants and needs (*manque*) amid an abundance of production; making all of desire teeter and fall victim to the great fear of not having one’s needs satisfied; and making the object dependent upon a real production that is supposedly exterior to desire (the demands of rationality), while at the same time the production of desire is categorized as fantasy and nothing but fantasy.



EGYPTIAN HIEROGLYPHICS (3000 BC)

THE ELECTRONIC REVOLUTION

37

WILLIAM S. BURROUGHS

1970

[...] The *is of identity*. You are an animal. You are a body. Now whatever you may be you are not an *animal*, you are not a *body*, because these are verbal labels. The *is* of identity always carries the assignment of permanent condition. To stay that way. All name calling presupposes the *is* of identity. This concept is unnecessary in a hieroglyphic language like ancient Egyptian and in fact frequently omitted. No need to say that the sun *is* in the sky, sun in sky suffices. The verb *to be* can easily be omitted from any languages and the followers of Count Korzybski have done this, eliminating the verb *to be* in English. However, it is difficult to tidy up the English language by arbitrary exclusion of concepts which remain in force so long as the unchanged language is spoken.

The *definite article the*. *The* contains the implication of one and only: *the* God, *the* universe, *the* way, *the* right, *the* wrong; if there is another, then *that* universe, *that* way is no longer *the* universe, *the* way. The definite article *the* will be deleted and the indefinite article *a* will take its place.

The whole concept of *either/or*. Right or wrong, physical or mental, true or false, the whole concept of *or* will be deleted from the language and replaced by juxtaposition, by *and*. This is done to some extent in any pictorial language where two concepts stand literally side by side. These falsifications inherent in the English and other western alphabetical languages given the reactive mind commands their overwhelming force in these languages.

Consider the *is* of identity. When I say to be me, to be you, to be myself, to be others—whatever I may be called upon to be or to say that I am—I am not the verbal label *myself*. The word *be* in the English language contains, as a virus contains, its precoded message of damage, the categorical imperative of permanent condition. To be a body, to be an animal. If you see the relation of a pilot to his ship, you see crippling forces of the reactive mind command to be a body. Tell the pilot to be the plane, then who will pilot the plane?

The *is* of identity, assigning a rigid and permanent status was greatly reinforced by the customs and passport control that came in after World War I. Whatever you may be, you are not the verbal labels in your passport any more than you are the word *self*. So you must be prepared to prove at all times that you are what you are not. Much of the falsification inherent in the categorical definite *the*: *the* now, *the* past, *the* time, *the* space, *the* energy, *the* matter, *the* universe. The definite article *the* contains the implications of no other. *The* universe locks you in *the* and denies the possibility of any other. If other universes are possible, then the universe is no longer *the*; it becomes *a*. The definite article *the* is deleted and replaced by *a*. Many of the RM commands are in point of fact contradictory commands and a contradictory command gains its force from the Aristotelian concept of *either/or*. To do everything, to do nothing, to have everything, to have nothing, to do it all, to do not any, to stay up, to stay down, to stay in, to stay out, to stay present, to stay absent. These are in point of fact *either/or* propositions. To do nothing *or* everything, to have it all, *or* not any, to stay present *or* to stay absent. *Either/or* is more difficult to formulate in a written language where both alternatives are pictorially represented and can be deleted entirely from the spoken

language. The whole reactive mind can be in fact reduced to three little words—to be *the*. That is to be what you are not, verbal formulations.

I have frequently spoken of word and image as viruses or as acting as viruses and this is not an allegorical comparison. It will be seen that the falsifications of syllabic western languages are in point of fact actual virus mechanisms. The *is* of identity, the purpose of a virus is to *survive*. To survive at any expense to the host invaded. To be an animal, to be a body. To be an animal body that the virus can invade. To be animals, to be bodies. To be more animal bodies, so that the virus can move from one body to another. To stay present as an animal body, to stay absent as antibody or resistance to the body invasion.

The categorical *the* is also a virus mechanism, locking you in *the* virus universe. *Either/or* is another virus formula. It is always you *or* the virus. *Either/or*. This is in point of fact the conflict formula which is seen to be an archetypal virus mechanism. The proposed language will delete these virus mechanisms and make them impossible of formulation in the language. This language will be a tonal language like Chinese, it will also have a hieroglyphic script as pictorial as possible without being too cumbersome or difficult to write. The language will give one option of silence. When not talking, the user of this language can take in the silent images of the written, pictorial and symbol languages.

I have described here a number of weapons and tactics in the war game. Weapons that change consciousness could call the war game in question. All games are hostile. Basically there is only one game from here to eternity. Mr. Hubbard says that scientology is a game where everybody wins. There are no games where everybody wins. That's what games are all about, winning and

losing... The Versailles Treaty... Hitler the occupation Jig... War criminals hang at Nuremberg... It is a rule of this game that there can be no final victory since this means the end of the war game. Yet every player must believe in final victory and strive for it with all his power. Face by the nightmare of the final defeat, he has no alternative. So, all technologies with escalating efficiency produce more and more total weapons until we have the atom bomb which could end the game by destroying all players. Now mock up a miracle. The so stupid players decide to save the game. They sit down around a big table and draw up a plan for the immediate deactivation and eventual destruction of all atomic weapons. Why stop there? Conventional bombs are unnecessarily destructive if nobody has them, hein? Let's turn back the war clock to 1917:

Keep the home fires burning
Through the hearts are yearning
There's a long, long trail winding...
Back to the American Civil War...

"He has loosed the fatal lightning of this terrible swift sword".
His fatal lightning didn't cost as much in those days. Save a lot on the defense budget this way on, back to flintlocks, matchlocks, swords, armors, lances, bows and arrows, spears, stone axes and clubs. Why stop there? Why not grow teeth and claws, poison fangs, stingers, spines, quills, beaks and suckers and stink glands and fight in out in the muck hein?

That is what this revolution is about. End of game. New games? There are no new games from here to eternity.
End of the war game.



CHRIS MARKER, *LA JETÉE* (1962)

DELIRIOUS NEW YORK 43

REM KOOLHAAS

1978

Europeans: Biuer!
Dali and Le Corbusier conquer New York

[...] Method

“I believe that the moment is at hand when by a paranoid and active advance of the mind, it will be possible to systematize confusion and thus help to discredit completely the world of reality”:³ in the late twenties Salvador Dali injects his Paranoid Critical Method into the bloodstream of Surrealism.

“It was in 1929 that Salvador Dali turned his attention to the internal mechanism of paranoid phenomena, envisaging the possibility of an experimental method based on the power that dominates the systematic associations peculiar to paranoia; subsequently this method was to become the frenzied critical synthesis that bears the name of ‘paranoid critical activity.’”

The motto of the Paranoid-Critical Method (PCM) IS “*The Conquest of the Irrational.*”

Instead of the passive and deliberately uncritical surrender to the subconscious of the early Surrealist automatism in Writing, painting, sculpture, Dali proposes a second-phase Surrealism: the conscious exploitation of the unconscious through the PCM.

The PCM is defined by Dali mostly in tantalizing formulas: “the spontaneous method of irrational knowledge based on the critical and systematic objectifications of delirious associations and interpretations...”⁴

It is easiest to explain the PCM by describing its exact opposite.

In the sixties two American behaviorists—Ayllon and Azrin—invent a “reinforcement therapy” which they call *Token Economy*. Through the generous distribution of colored plastic tokens, inmates of a particular insane asylum are encouraged to behave like normal people whenever possible.

The two experimenters “posted a list of desired behaviors on the wall and then gave bonus points (tokens) to those patients who made their beds, swept their rooms, worked in the kitchen, etc. These tokens were redeemable for canteen items or for amenities such as a color TV, staying up later at night or a private room. These incentives proved very effective in motivating the patients to look after themselves and take care of the ward.”⁵

The hope that underlies such therapy is that, sooner or later, such systematic simulation of normality will turn into real normality, that the sick mind will insinuate itself successfully into some form of sanity like a hermit crab into an empty shell.

1 Salvador Dalí, “New York Salutes Me!”, *Spain*, May 23, 1941 2 Le Corbusier, as quoted in *New York Herald Tribune*, October 22, 1935 3 Salvador Dalí, *La femme visible* (Paris: Editions Surréalistes, 1930) 4 Salvador Dalí, “The Conquest of the irrational”, appendix of *Conversations with Dalí* (New York: Dutton, 1969), p.115 5 This “theory” was actually put into practice, as described in Robert Sommer, *The End of Imprisonment* (New York: Oxford University Press, 1976), p. 127

CHRIS MARKER, *LA JÉTÉE* (1962)

ESSAYS CRITICAL AND CLINICAL

47

GILLES DELEUZE

1997

Bartleby; or, the Formula

The Confidence-Man (much as one says the *Medicine-Man*) is sprinkled with Melville's reflections on the novel. The first of these reflections consists in claiming the rights of a superior irrationalism. Why should the novelist believe he is obligated to explain the behaviors of his characters, and to supply them with reasons, whereas life for its part never explains anything and leaves in its creatures so many indeterminate, obscure, indiscernible zones that defy any attempt at clarification? It is life that justifies; it has no need of being justified. The English novel, and even more so the French novel, feels the need to rationalize, even if only in the final pages, and psychology is no doubt the last form of rationalism; the Western reader awaits the final word. In this regard, psychoanalysis has revived the claims of reason. [...] The founding act of the American novel, like that of the Russian novel, was to take the novel far from the order of reasons, and to give birth to characters who exist in nothingness, survive only in the void, defy logic and psychology and keep their mystery until the end. Even their soul, says Melville, is "an immense and terrifying void", and Ahab's body is an "empty shell". If they have a formula, it is certainly not explanatory. *I prefer not to* remains just as much a cabalistic formula as that of the Underground Man, who cannot keep two and two from making four, but who will not *resign* himself to it either (*he prefers that two and two not make four*). What counts for a great novelist—Melville,

Dostoyevsky, Kafka, or Musil—is that things remain enigmatic yet nonarbitrary: in short, a new logic, definitely a logic, but one that grasps the innermost depths of life and death without leading us back to reason. The novelist has the eye of a prophet, not the gaze of a psychologist. For Melville, the three great categories of characters belong to this new logic, just as much as this logic belongs to them. Once it has reached that sought-after zone, the hyperborean zone, far from the temperate regions, the novel, like life, needs no justification. And in truth, there is no such thing as reason; it exists only in bits and pieces. In *Billy Budd*, Melville defines monomaniacs as the Masters of reason, which is why they are so difficult to surprise; but this is because theirs is a delirium of action, because they make use of reason, make it serve their own sovereign ends, which in truth are highly unreasonable. Hypochondriacs are the Outcasts of reason, without us being able to know if they have excluded themselves from it in order to obtain something reason cannot give them—the indiscernible, the unnameable with which they will be able to merge. In the end, even prophets are only the Castaways of reason: if Vere, Ishmael, or the attorney clings so tightly to the debris of reason, whose integrity they try so hard to restore, it is because they have *seen* so much, and because what they have seen has marked them forever.

But a second remark by Melville introduces an essential distinction between the characters in a novel, Melville says that we must above all avoid confusing true Originals with characters that are simply remarkable or singular, particular. This is because the particulars, who tend to be quite populous in a novel, have characteristics that determine their form, properties that make up their image; they are influenced by their milieu and by each other, so that their actions and reactions are governed by general laws, though in each case they retain a particular

value. Similarly, the sentences they utter are their own, but they are nonetheless governed by the general laws of language. By contrast, we do not even know if an original exists in an absolute sense, apart from the primordial God, and it is really something extraordinary when we encounter one. Melville admits that it is difficult to imagine how a novel might include several of them. Each original is a powerful, solitary Figure that exceeds any explicable form: it projects flamboyant traits of expression that mark the stubbornness of a thought without image, a question without response, an extreme and nonrational logic. Figures of life and knowledge, they know something inexpressible, live something unfathomable. They have nothing general about them, and are not particular—they escape knowledge, defy psychology. Even the words they utter surpass the general laws of language (presuppositions) as well as the simple particularities of speech, since they are like the vestiges or projections of a unique, original language. (*langue*), and bring all of language (*langage*) to the limit of silence and music. There is nothing particular or general about Bartleby: he is an Original.

Originals are beings of Primary Nature, but they are inseparable from the world or from secondary nature, where they exert their effect: they reveal its emptiness, the imperfection of its laws, the mediocrity of particular creatures... the world as masquerade (this is what Musil, for his part, will call “parallel action”). The role of prophets, who are not originals, is to be the only ones who can recognize the wake that originals leave in the world, and the unspeakable confusion and trouble they cause in it. The original, says Melville, is not subject to the influence of his milieu; on the contrary, he throws a livid white light on his surroundings, much like the light that “accompanies the beginning of things in Genesis”.





ABSOLUTE



SILVIO ORLANDO

JAVIER CAMARA

SCOTT SHEPHERD



ABUNDANCE

ACCELERATION



ACCIDENT

AFTER MATH

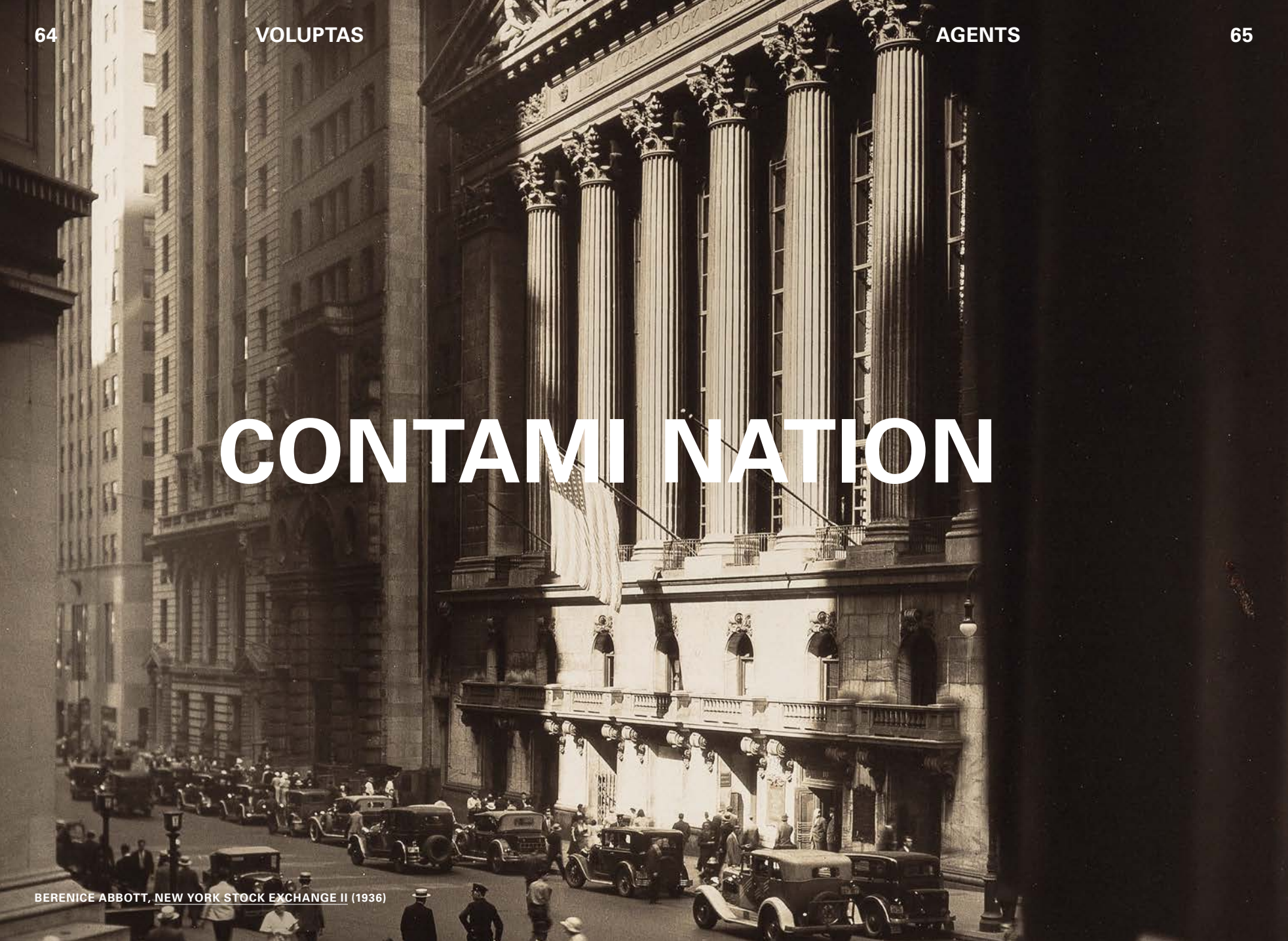


CHA OS

A photograph of a film set on a rooftop. Several professional video cameras are mounted on tripods, and crew members are visible, some operating the cameras. The scene is hazy, suggesting a foggy or overcast day. A chain-link fence runs across the middle ground. In the foreground, there is a bright orange traffic cone and some equipment on the ground.

CONTAMINATION

BERENICE ABBOTT, NEW YORK STOCK EXCHANGE II (1936)





CO PY



CORRUPTION



DE CAY

NID-26 B/W



DECONSTRUCTION

DERIV ATIVES



DIFFERENCE

chair (châr), n. [OF. *chaize* (F. *chaire*), < L. *cathedra* (see *catechra*)] A seat with a back, and often arms, usually for one person; a seat of office or authority, or the office itself; the person occupying the seat or office, esp. the chairman of a meeting; a sedan-chair; a *chaioet*, a metal block or clutch to support and secure a rail in a railroad.

DOMINATION



EXPEN DABLE



EXTI MACY



HA BIT

HARM ONY





LEIS URE



LIMIT





LUNACY

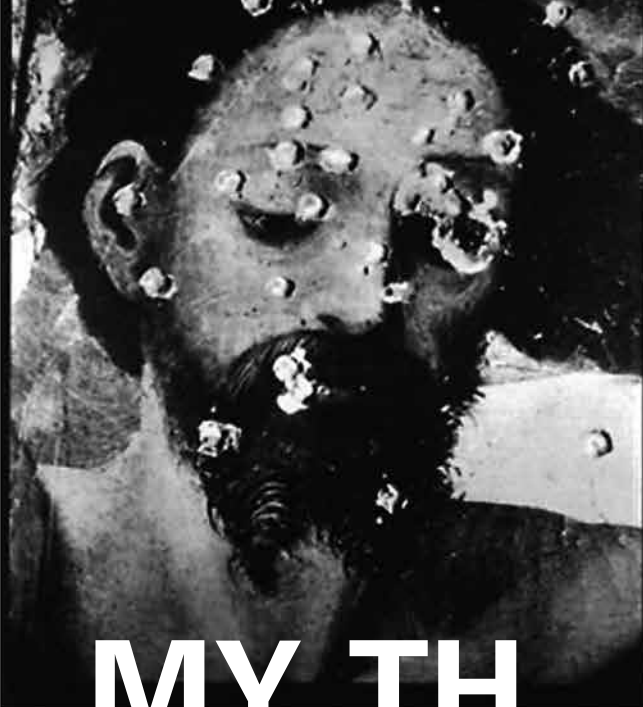
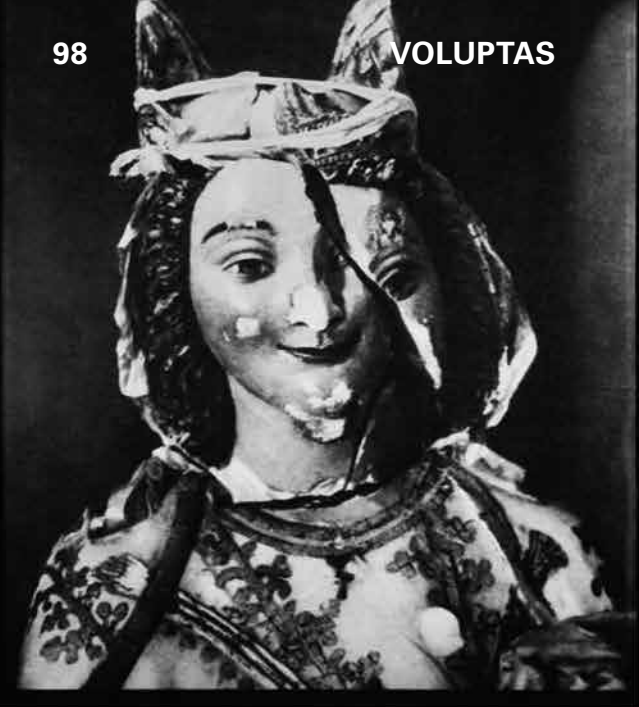
MADOLON VRIESENDORP & REM KOOLHAAS, THE CITY OF CAPTIVE GLOBE (1972)



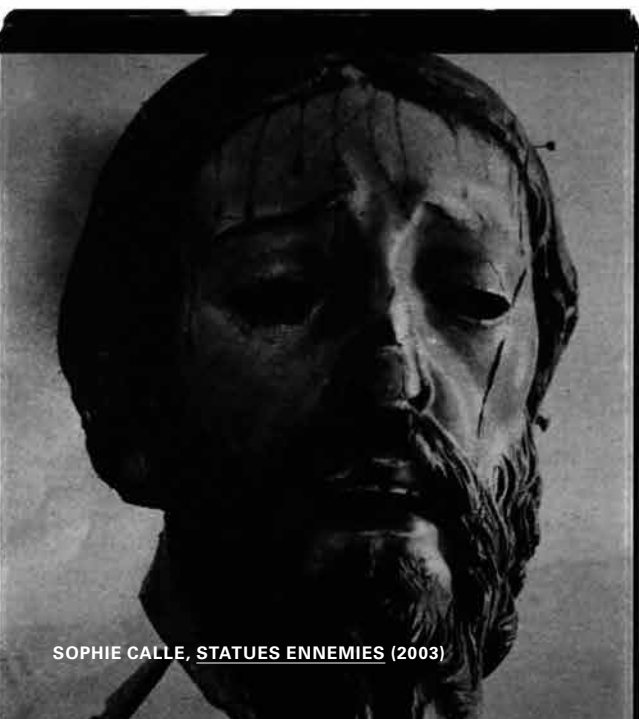
MEMORY



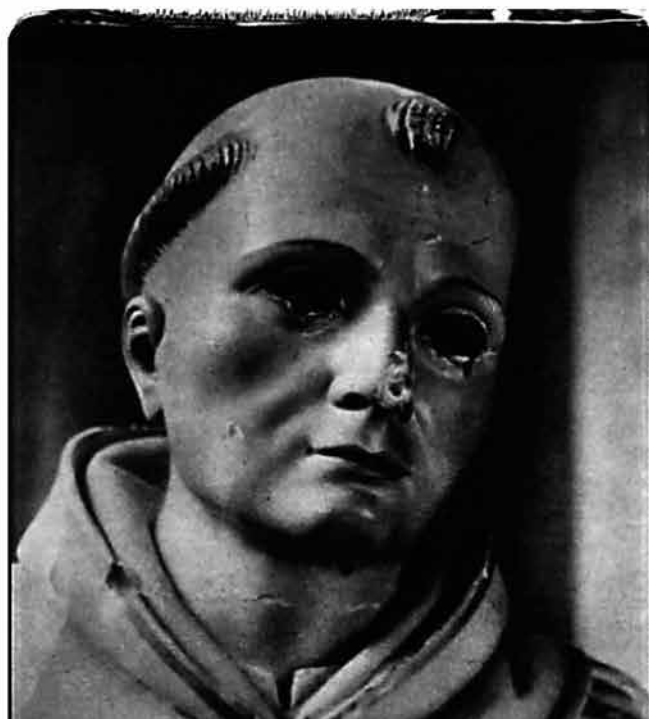
MONITORING



MY TH



SOPHIE CALLE, STATUES ENNEMIES (2003)



NECESSITY



THOMAS ROWLANDSON, LLOYD'S SUBSCRIPTION ROOM (1809)



NOISE

LEE KRASNER, NIGHT CREATURES (1965)

Lee Krasner 65

A large, dark-colored inflatable sculpture of a reclining figure with a white face and limbs, floating in the ocean. The figure is being towed by a boat in the distance, with a rope visible. The water is a deep blue-green color. The text "NO MAD" is overlaid in the center of the image.

NO MAD

OR DER

A photograph of a family of four in 1950s-style clothing. A man in a white shirt and tie, a woman in a pink top and white skirt, and a young girl in a yellow patterned dress are embracing each other. They are standing in front of a dark classic car. The background shows a large white house and trees. The word "PARODY" is overlaid in large white letters.

PARODY

RELATIVITY





REPETITION

REVOLUTION



SCAR CITY



SEDENTARY

SPEED



MARK TANSEY, ACTION PAINTING II (1984)

SUBORDINATION



THEFT





VIRUS

CONSTANTS/ VARIABLES

129

ON MUSIC SAINT AUGUSTINE	133	CONJURING THE UNIVERSE PETER ATKINS	221
THE WAVES VIRGINIA WOOLF	173		
A THOUSAND PLATEAUS GILLES DELEUZE FÉLIX GUATTARI	189		

CONSTANTS/VARIABLES



ANDREAS GURSKY, BAHRAIN I (2005)

Devoid of any axiomatic premises, architectural constants are chimerical essences. All historical attempts have fundamentally failed at providing with an unequivocal and permanent contingency. Forever erratic under the evasive tenure of difference and repetition, we are left with variables and doomed to articulate adequacies and performances as transient conditions: architecture is a swamp of solid conjectures.

Constants/Variables investigate fixed designations as hypothetical regimes of ordinances and aims at deliberately precipitating provisional hyper-contexts of the urban environment. As a set of unyielding speculative injunctions, it is the condensing cradle of licensed conformities.

Constant [kon-*stuh*nt]

A theoretical or experimental quantity, condition, or factor that does not vary in specified circumstances.

Variable [vair-*ee-uh-buhl*]

A quantity or function that may assume any given value or set of values.

DICTIONARY.COM (2019)

ON MUSIC

SAINT AUGUSTINE

1491

Book Six

Chapter 6

16 *M.* Let's get back to the problem proposed, and tell me, of the three kinds of numbers, one in the memory, the other in sensing, and another in sound, which of these seems to you the most excellent.

D. I put sound after these other two, both in the soul and in some sense living. But of these last two I am uncertain which I consider superior. But, perhaps, since we said those in action are to be preferred to those in the memory only because the ones are active and the others are caused by them, so for the same reason it is proper to prefer also those in the soul while we are listening to those in the memory caused by them. That's the way it seemed to me before.

M. I don't think your reply absurd. But since it has been argued those numbers in sensing are also operations of the soul, how do you distinguish them from those we see to be in act even when the soul in silence and not remembering performs something harmonious through intervals of time? Or do the ones belong to the soul moving itself with respect to its body, while those others inhering belong to the soul moving itself with respect to the body's passions?

D. I accept this distinction.

M. Well, do you think it acceptable those relative to the body be judged superior to those relative to the body's passions?

D. Those existing in silence seem to me to be freer than those exerted not only on the body but also on the body's passions.

M. It seems we have distinguished five kinds of numbers and ordered them in some sort of scale of merits. And if you will, we shall impose names proper to them, to avoid in the rest of our discourse using more words than things.

D. Very willingly.

M. Then let the first be named judicial, the second advancing (*progressores*), the third reacting (*occursores*), the fourth memorial, the fifth sounding.

D. I understand and I am glad to use these names.

Chapter 7

17 *M.* Come now, tell me, which of these seems to you undying, or do you think they all fall in their time and die?

D. I think the judicial alone are undying. For the others, I see, either pass away when they are made or are stricken out of the memory by forgetfulness.

M. You are just as certain, then, of the immortality of the first as you are of the destruction of the others? Or is it proper to inquire more diligently whether they are undying?

D. Let's look into the matter thoroughly.

M. Say, then, when I pronounce a verse sometimes longer, sometimes shorter, provided I comply with the law of times putting feet in a one-two ratio, I don't offend the judgment of your senses with any kind of hitch or fraud, do I?

D. Not at all.

M. Well, but that sound, given out in shorter and, you might say, faster syllables, it can't occupy more time than it sounds, can it?

D. How can it?

M. Then, if those judicial numbers are time-bound in just the interval the sounding numbers were disposed in, can they hope to judge those other sounds based on the same iambic law, but slower?

D. In no way.

M. Then it appears those judicial numbers are not confined to a span of time.

D. It certainly appears so.

18 *M.* You are right in agreeing. But if they are confined to no interval, then no matter how slowly I should emit iambic sounds in regular intervals, they could still be used for judging. But now, if I should say a syllable of such a stretch as three steps in walking (to make it small), and another syllable double that, and if I should order the succeeding iambs at such a pace, then the law of one to two would nevertheless be preserved. And yet we couldn't apply that natural judgment to confirming these measurements, could we?

D. I can't deny you seem right, for my opinion of the matter is very simple.

M. Then the judicial numbers are also confined to certain limits of time-spans they cannot exceed in their judgments. And whatever exceeds these intervals, they find no way to judge. And if they should be confined in this way, I do not see how they are immortal.

D. And I don't see what I can say to that. Although now I shall be less forward in presuming on their immortality, yet I do not understand how they are in this way proved mortal. For it is possible whatever intervals they can judge they can always judge, since I cannot say they are destroyed as the others by forgetfulness, or their length of time is so long as a sound's movement, or of such a stretch as reacting

numbers, or as the numbers we have called advancing, impelled in time and prolonged in length. For each of these pass away with the time of its operation. But the judicial remain certainly in the nature of man, whether also in the soul I do not know, to pass judgment on things given even if varied within certain lengths, by approving harmonies in them and rejecting discords.

19 *M.* At least you concede some men are more quickly offended by discordant numbers, some more slowly, and most judge them defective only by the comparison with sound ones on hearing them agree and disagree.

D. I agree to that.

M. Well, what do you think this difference arises from, if not from nature or practice or both?

D. That's true.

M. Then, I want to know if someone at some time could pass judgment on and approve longer intervals than another could.

D. I believe that's possible.

M. Well, anyone who can't, if he should practice properly and should not be really dull, could, couldn't he?

D. Certainly he could.

M. But he couldn't go so far as to judge even longer intervals, comprehending in that judicial sense intervals in the ratio of one to two hours or days or months or years (for they'd at least be hindered by sleep) and approving them as iambs of motion.

D. They can't.

M. Why can't they do so? Unless it's because to each living thing in its proper kind and in its proportion with the universe is given a sense of places and times, so that even as its body is so much in proportion to the body of the universe whose part it is, and its age so much in propor-

tion to the age of the universe whose part it is, so its sensing complies with the action it pursues in proportion to the movement of the universe whose part it is? So this world, often called in Sacred Scriptures by the name of heaven and earth, is great by containing all things whose parts being all diminished in proportion it remains just as large, or increased in proportion it still remains just as large. For nothing is large of itself in space and time-stretches, but with respect to something shorter; and again nothing is small of itself, but with respect to something larger. And so, if there is attributed to human nature for the actions of carnal life a sense such that it cannot pass judgment on greater stretches of times than the intervals pertaining to the use of such a life demand, then, since this nature of man is mortal, so I think also this sense is mortal. For it is not for nothing custom is called a sort of second and fitted-on nature. But we see new senses in the judging of this kind of corporeal things, built up by custom, by another custom disappear.

Chapter 8

20 But whatever kind of thing these judicial numbers may be, they are certainly superior to any other in this, that we doubt and with difficulty find out if they are mortal. But of the other four kinds there is no question they are mortal. And although they do not embrace some members of these four classes because they have been extended beyond their laws, yet they appropriate the kinds themselves for their very consideration. For even the advancing numbers, when they seek a certain harmonious operation in the body, are modified by the secret will of the judicial numbers. For whatever restrains and keeps us

from walking with unequal steps, or from beating out in unequal intervals, or from eating or drinking with uneven motions of the jaw, and from scratching with unequal motions of the nails, or to be brief, from unequal movements in any application of ourselves to doing something with our bodily members, and tacitly demands a certain equality, that very thing is something judicial, I don't know what, introducing God the builder of the animal, properly believed to be the author of all fittingness and agreement.

21 And these reacting numbers, brought forth certainly not according to their own will, but in virtue of the body's passions, in so far as the memory can keep their intervals, just so far they given over to the judgment of the judicial are numbers and are judged. For the number consisting in time-intervals can in no way be judged by us unless we are aided in the judging by memory. For any syllable, no matter how short, since it begins and stops, has its beginning at one time and its ending at another. Then it is stretched over some little interval of time and stretches from its beginning through its middle to an end. So reason finds spatial as well as temporal intervals have an infinite division and so no syllable's end is heard with its beginning. And so, even in hearing the shortest syllable, unless memory helped us have in the soul that motion made when the beginning sounded, at the very moment when no longer the beginning but the end of the syllable is sounding, then we cannot say we have heard anything. And from this it often comes about, being occupied with another thought, we do not in conversation seem to have heard even ourselves. This is not because the soul does not at that time put in motion those reacting numbers, since certainly the sound reaches the ears, and the soul cannot be idle at its body's passion and since it cannot move differ-

ently than if that passion of the body should occur, but because the impetus of the motion is immediately blotted out by the attention (*intentio*) on something else, an impetus which, if it remained, would remain in the memory so we would also know and feel what we had heard. But if a rather slow mind follows not too easily what reason discovers in the case of a short syllable, in the case of two syllables there's certainly no doubt no soul can hear both at the same time. For the second does not sound unless the first stops. For how can what cannot sound together be heard together? Then, as the diffusion of rays shining out into the open from tiny pupils of the eye, and belonging therefore to our body, in such a way that, although the things we see are placed at a distance, they are yet quickened by the soul, so, just as we are helped by their effusion in comprehending place-spans, the memory too, because it is somehow the light of time-spans, so far comprehends these time-spans as in its own way it too can be projected. But when a sound beats a longer time on the ears, in no way articulated and again another, double it, or equal it, is added on from some stopping place or another, then that motion of the mind, created by its attention on the past and finished sound in its transition, is repressed by its attention on the continuously succeeding sound, and so it does not remain in the memory. And so mustn't these judicial numbers be thought of as extended in a certain interval of time? For they can't judge the numbers situated in the time-spans unless the memory should come to their assistance, with the exception of the advancing numbers whose very advance they regulate. But there intervene the time-spans where we forget or remember what they judge. And so we cannot judge round or square or any other solid definite things in those bodily forms which are properly objects of the eyes, unless we turn them around to the eyes. But when one part

is seen, if for that reason it should blot out what is seen in another, then the attention of the person judging would be in vain, because it, too, is accomplished in a certain time-span. And it is up to memory to see to this diversity.

22 But it is much more evident we judge memorial numbers by judicial when the memory itself presents them. For, if reacting numbers are judged in so far as they are presented by it, much more are those found to live in the memory itself which are brought back by memory itself as if they had been stored up by other applications of our attention. For what else do we do when we recall to memory except examine somehow what we've stored up? But a motion of the mind, not destroyed, runs back into our cogitation on the occasion of similar ones, and it is this that is called remembering. And so, either in thought alone or also in the movement of our members, we enact numbers we have already enacted sometime or other. But for that reason we know they haven't just come, but come back into our cogitation, because whenever they were being committed to memory, they were repeated with difficulty, and we needed prior practice in order to follow through. And with this difficulty overcome, when the numbers offer themselves without trouble and at will, conformably to the times and in their proper order, so easily, indeed, those inhering more forcibly come forth as if of their own will even while we are thinking of something else, we then feel they are not new. There is also another thing, I think, giving us to feel the present motion of the mind has already existed at some time: that is, to recognize when we compare by an interior light of some sort the recent, and certainly more lively, movements of the action we are in the midst of when we remember, with the now more composed memorial numbers. And such knowledge is recognition

and remembering. Then the memorial numbers are also judged by these judicial numbers, never alone, but along with active or reacting numbers or with both, bringing them from their hiding-places to the light, and recalling these numbers, lost before and now brought to life again. So, since the reacting numbers are judged in so far as the memory presents them to those judging, in turn the memorial numbers can be judged as the reacting numbers exhibit them. So this is the difference: for the reacting numbers to be judged, the memory presents what might be called recent traces of their flight, but when we hear and judge the memorial numbers, the same traces relive with the passage of the reacting numbers. Now, why do we need to say anything further about the sounding numbers, since, if they are heard, they are judged in the reacting numbers? But if they sound where they can't be heard, who doubts they can't be judged by us? And just as in sounds with the ears as instruments, so in dancing and other visible motions, we judge, by means of these same judicial numbers with the help of the memory, whatever pertains to temporal numbers.

Chapter 9

23 Since things are so, let us try if we can and transcend those judicial numbers and see if there are any superior to them. Although in the case of these judicial numbers we now see a minimum of time-spans, yet they are only applied for judging those things in a time-span, and not even all such, but only those articulated memory-wise. Do you object to this?

D. The force and power of these judicial numbers moves me to the utmost. For it seems to me it is to them the func-

tions of all the senses are referred. And so, I don't know whether among numbers anything more excellent than these can be found.

M. There is nothing lost in our looking more carefully. For, either we shall find in the human soul superior ones, or, if it should be clear there are none in it higher, we shall confirm these to be the highest in it. For it is one thing not to be, and another not to be capable of being found either by us or any man. But I think when that verse *Deus creator omnium* we quoted is sung, we hear it through reacting numbers, recognize it through memorial numbers, pronounce it through advancing numbers, are delighted through judicial numbers, and appraise it by still others, and in accordance with these more hidden numbers we bring another judgment on this delight, a kind of judgment on the judicial numbers. Do you think it's the same thing to be delighted by sense and to appraise by reason?

D. I admit they are different. But I am disturbed first by the name. Why aren't those called judicial numbers where reason rather than where delight resides? Second, I fear this appraisal of reason is only a more diligent judgment of judicial numbers concerning themselves. Not one kind of number in delight and another in reason, but one and the same kind of number judges at one time those produced in the body when memory presents them as we just proved, and at the other times of themselves, in a purer manner and more remote from the body.

24 *M.* Don't worry about names; the thing is in the meaning (*potestas*). Names are imposed by convention, not by nature. But you are thinking them the same and not wishing to accept them as two kinds of number—the same soul's doing both, I guess, wrings that out of you. But you must notice in advancing numbers the same soul moves

the body or moves to the body, and in reacting numbers the same soul goes to meet its passions, and in memorial numbers it fluctuates in motions, you might say, until they somehow subside. And so we see the motions and affections of one nature, that is, the soul, in these kinds which are necessarily enumerated and distinguished. And, therefore, if, as it is one thing to be moved to those things the body is passive to, and this is done in sensing; another, to move oneself to the body, and this is done in operating; another, to hold in the soul what is gotten from these motions, and that is to remember; so it is one thing to accept or reject these motions either when they are first produced or when revived by the memory, and this is done in the delight at the fitness or in the distaste at the absurdity of such movements or affections; and another thing to appraise whether they delight rightly or not, and this is done by reasoning—if all this is true, then we must admit these last are of two kinds just as the first are of three kinds. And, if we have been right in our judgment, the very sense of delight could not have been favorable to equal intervals and rejected perturbed ones, unless it itself were imbued with numbers; then, too, the reason laid upon this delight cannot at all judge of the numbers it has under it, without more powerful numbers. And, if these things are true, it appears five kinds of numbers have been found in the soul, and, when you add to these those corporeal numbers we have called sounding, you will see six kinds of numbers in rank and order. And now, if you will, let those that tried to take first place be called sensuous, and those found to be more excellent receive the name of judicial numbers, since that is more honorable. And again I think the name of sounding numbers ought to be changed, since, if they should be called corporeal, they will also evidently signify those involved in dancing and in any other visible

motion. Do you approve, then, of what's been said?

D. I do. For it seems to me both true and evident. And I am willing to accept your corrections in vocabulary.

Chapter 10

25 *M.* Well, now examine the force and power of reason in so far as we can examine it in its works. For reason itself, to mention the most extraordinary thing it attains in its operation, first has considered what is good mensuration, and seen it to be in a free movement, and directed it to the end of its own beauty. Then it saw there was something in the movements of bodies varying in the brevity and length of time, in so far as it was greater or less in time, and something else varying in the beat of spatial intervals in certain degrees of swiftness and slowness. After this division, it articulated into different numbers whatever was in a time-stretch by means of moderate intervals convenient to the human senses, and followed through their kinds and order to the measurements of verses. Lastly, it turned its attention to what the soul it's the head of would do in the measuring, operating, sensing, and retaining of these things. And it separated all these numbers of the soul from bodies. And it saw itself could not notice, distinguish or rightly enumerate all these things without certain numbers of its own, and it set them above the others as of an inferior order, by means of a kind of judicial appraisal.

26 And now of its own delight, that looks so closely into the balancings of times and shows its decisions in measuring these numbers, it asks this question: 'What is it we love in sensible harmony?' Nothing but a sort of equality and equally measured intervals, isn't it so? Does

the pyrrhic foot or spondaic or anapestic or dactylic or proceleusmatic or dispondaic delight us for any other reason than its comparing the one of its parts to the other by an equal division of itself? And what beauty does the iamb, trochee, or tribrach have if not the division of their greater part into two such as their lesser? And, too, do the six-time feet sound more smooth and gay except through their division according to either law: that is, either into two equal parts with three times each, or into one part single and the other double; that is, so the greater part is twice the less and is in this way divided equally by it, since the four times are measured off and cut in two by the two times? What about the five and seven-time feet? How is it they seem more adapted to prose than to verse, if not because their smaller part does not divide their larger in two? And yet, whence are they themselves admitted in the order of their own kind to the numberliness of times, if not because the smaller part also in the five-time foot has two such sub-parts as the greater has three, and in seven-time feet the smaller three such as the greater four? So in all feet, no measuring net marks off any least part others as many as possible are not equal to.

27 Consider in the case of feet joined together, whether this conjoining be continued on as far as one wishes as in rhythms, or whether it be restrained by some definite end as in meters, or whether it be divided into two members symmetrical to one another by some law as in verses—by what now other than equality is one foot in accord with another? And how is it the molossus' and ionic's middle syllable, a long one, can be divided, not by division, but by the will of the person reciting and beating time, into two equal moments, so even the whole foot is in harmony with each three-time part when it is added to

others divided in the same way? Isn't it only because the law of equality dominates, that is, because it's equal to its sides, each of two times, and it itself is of two times? Why can't the same thing be done in the case of the amphibrach when it is added to other four-time feet, if it isn't because an equality of this sort isn't found there, the middle syllable being double and the sides single? Why in rests isn't our sense offended by a deficiency, if not because what is due that same law of equality, although not in sound, is yet made up in spread of time? Why, too, is a short syllable taken for a long one when followed by a rest—and not by convention, but by natural consideration directing the ears—if not because by the same law of equality we are prevented, in a longer time-span, from forcing the sound into a shorter time? And so the nature of hearing and passing over in silence allows the lengthening of a syllable beyond two times: so what is also filled with rest can be filled with sound. But for a syllable to occupy less than two times, with a span left and rests at will, is a sort of deception of equality, because there can be no equality in less than two. And finally in the case of that equality of members, the circuits the Greeks call *períodoi* are varied by and verses are formed by, how is a return made somehow to the same equality unless the members joined together as unequals be found to have a force of equality so that in the circuit the shorter member harmonize in beat with the greater by equal feet, and in the verse by a more subtle consideration of numbers?

28 And so reason wonders and asks the sensuous delight of the soul which reserves to itself the judicial role whether, when an equality in the number of time-spans pleases it, any two short syllables one hears are really equal, or could it be one of them is pronounced longer, not to the

long syllable's measure, but a little under, yet enough to exceed its like. You can't deny this is possible, can you, when the soul's delight does not sense these differences, but delights in unequals as equals? And what is worse than this error and inequality? And so we are advised to turn away from the enjoyment of things imitating equality. For we cannot perceive whether they perfectly fill out their time, although we can perhaps perceive they do not perfectly do so. And yet in so far as they imitate we cannot deny they are beautiful in their kind and order.

Chapter 11

29 Let's not, then, be envious of things inferior to ourselves, and let us, our Lord and God helping, order ourselves between those below us and those above us, so we are not troubled by lower, and take delight only in higher things. For delight is a kind of weight in the soul. Therefore, delight orders the soul. "For where your treasure is, there will your heart be also." Where delight, there the treasure; where the heart, there happiness or misery. But what are the higher things, if not those where the highest unchangeable undisturbed and eternal equality resides? Where there is no time, because there is no change, and from where times are made and ordered and changed, imitating eternity as they do when the turn of the heavens comes back to the same state, and the heavenly bodies to the same place, and in days and months and years and centuries and other revolutions of the stars obey the laws of equality, unity, and order. So terrestrial things are subject to celestial, and their time circuits join together in harmonious succession for a poem of the universe.

30 And so many of these things seem to us disordered and perturbed, because we have been sewn into their order according to our merits, not knowing what beautiful thing Divine Providence purposes for us. For, if someone should be put as a statue in an angle of the most spacious and beautiful building, he could not perceive the beauty of the building he himself is a part of. Nor can the soldier in the front line of battle get the order of the whole army. And in a poem, if syllables should live and perceive only so long as they sound, the harmony and beauty of the connected work would in no way please them. For they could not see or approve the whole, since it would be fashioned and perfected by the very passing away of these singulars. So God has ordered the man who sins as vicious, but not viciously. For he has been made vicious by will, thus losing the whole he who obeyed God's precepts possessed, and has been ordered in part so who did not will to fulfill the law has been fulfilled by the law. But whatever is fulfilled by the law is also fulfilled justly; and whatever justly is not fulfilled viciously, because God's precepts possessed, and has been ordered in part so he far as he is man is something good. But whatever is unchaste in so far as it is unchaste is a bad work. But man for the most part is born of unchastity, that is to say, from man's bad work, God's good work.

31 And so, to return to the subject all this was said for, these numbers are pre-eminent by virtue of the beauty of ratio. And if we were absolutely separated from them, then whenever we should be disposed to the body, the advancing numbers would not alter the sensuous numbers. But by moving bodies they produce the sensible beauties of times. And so reacting numbers are also made opposed to sounding numbers. And the same soul receiving all its

own motions multiplies, you might say, in itself, and makes them subject to recall. And this force it has is called memory, a great help in the everyday business of this life.

32 Then whatever this memory contains from the motions of the mind brought to bear on the passions of the body are called *phantasiai* in Greek. And I don't find in Latin anything I should rather call them. And the life of opinion consists in having them instead of things known and things perceived, and such a life is at the very entrance of error. But when these motions react with each other, and boil up, you might say, with various and conflicting winds of purpose, they generate one motion from another; not indeed those impressed from the senses and gotten from the reactions to the body's passions, but like images of images, to which we give the name phantasms. For my father I have often seen I know, in one way, and my grandfather I have never seen, another way. The first of these is a phantasia, the other phantasm. The first I find in my memory, the last in that motion of my mind born of those the memory has. But it is difficult both to find out and to explain how they are born. Yet, I think, if I had never seen human bodies, I could nowise imagine them by thinking with a visible form. But what I make from what I've seen, I make by memory. Yet it's one thing to find a phantasia in the memory and another to make a phantasm out of the memory. And a power of the soul can do all these things. But it is the greatest error to hold even true phantasms for things known, although in both kinds there is that we say, not absurdly, we know, that is, we have sensed such and such things, or imagined them. After all, I am not afraid to say I had a father and a grandfather. But I should be mad to say it is they themselves my mind holds in the phantasia or phantasm. But some follow their phantasms so head-

long the only ground for all false opinions is to hold phantasias or phantasms for things known, known by the senses. And so let us resist them as much as we can, nor so fit our mind to them that, while our thinking is on them, we believe we see them with the understanding.

33 And this is why, if numbers of this kind, coming to be in a soul given over to temporal things, have a beauty of their own, yet, even though they continually effect it by passing away, this beauty is grudged by a Divine Providence born of our punishable mortality merited by God's most just law, where yet He has not so forsaken us we may not turn back and be fetched again from the delight of the carnal senses, under the spread of His merciful hands. For such a delight strongly fixes in the memory what it brings from the slippery senses. And this habit of the soul made with flesh, through carnal affection, in the Holy Scriptures is called the flesh. And it is struggling with such a mind in that apostolic sentence: "In mind I serve the law of God, but in flesh the law of sin." But when the mind is raised to spiritual things and remains fixed there, the push of this habit is broken, too, and, being little by little repressed, is destroyed. For it was greater when we followed along with it; not altogether nothing, but certainly less when we check it. And so with a determined retreat from every wanton movement where lies the fault of the soul's essence, and with a restored delight in reason's numbers, our whole life is turned to God, giving numbers of health to the body, not taking pleasure from it; which happens when the exterior man is corrupt, even when there is a change for the better.

Chapter 12

34 But the memory not only takes in the carnal motions of the mind, and we have already spoken of these numbers, but also the spiritual motions I shall now speak of briefly. For in so far as they are simpler, they demand fewer words, and the greatest possible serenity of mind. That equality we could not find sure and fixed in sensible numbers, but yet we knew shadowed and fleeting, the mind could never indeed desire unless it were known somewhere. But this could be nowhere in the spans of places and times; for those swell up and these pass away. Where, then, do you think, tell me, if possible. For you don't think it's in the forms of bodies, and you'll never dare say they are equal by pure experiment; nor in intervals of times where we do not know whether they are insensibly longer or shorter than they should be. I want to know where you think that equality is on seeing which we desire certain bodies or motions of bodies to be equal, and on more careful consideration we dare not trust them.

D. There, I think, where it is more excellent than bodies, but whether it is in the soul itself or above the soul I do not know.

35 *M.* If, then, we look for that rhythmical or metrical art we use for making verses, do you think it possesses the numbers verses are made by?

D. I can't suppose anything else.

M. Whatever these numbers are, do they seem to you to pass away with the verses or to remain?

D. To remain, certainly.

M. Therefore, it must be agreed some things that pass away are made from some numbers that remain?

D. Reason forces me to agree.

M. Well, you don't think this art is other than some affection of the artisan's minds, do you?

D. So I believe.

M. Do you believe this affection also to be in one unskilled in this art?

D. Nowise.

M. And in the one having forgotten it?

D. Not even in the one himself unskilled even though he has been skilled at some time or other.

M. Well, if anyone reminds him by questioning, do you think those numbers return to him from the persons questioning, or he moves himself to something within his own mind whence returns to him what he had lost?

D. I think he does it within himself.

M. You don't think, by questioning, he could also be forcibly reminded which syllable is short or which is long if he has forgotten completely, do you? Since by an old agreement and custom of man, to some syllables a lesser, to others a greater stretch is given. For indeed if it were by nature or by discipline fixed and stable, then the learned men of our time would not have lengthened some syllables the ancients shortened, nor shortened some they lengthened.

D. I believe this can be so, since however much is forgotten can again be brought to memory by a remindful questioning.

M. I can't believe you think anyone by questioning could get you to remember what you ate a year ago.

D. I confess I couldn't, and I don't think now I could be reminded about syllables whose spans were completely forgotten.

M. Why so, except because, in the noun *Italia*, the first syllable by the will of certain men is shortened, and now by the will of others lengthened? But that one and two should not be three and that two should not be the double

of one, none of the dead or living or of those to be can bring it about.

D. Evidently not.

M. What, then, if we asked very clearly all the other things pertaining to numbers the way we have with one and two, and if one were questioned, unskilled, not by forgetting, but because he had never learned? Don't you think then he could likewise know this art except for the syllables?

D. How doubt it?

M. How, then, do you think he would move himself so these numbers may be impressed on his mind, and make that affection called art? Or will the questioner give them to him?

D. I think he does it within himself this way that he understands the things asked to be true and replies.

36 *M.* Come, tell me now whether these numbers under discussion seem to you to be changeable?

D. Nowise.

M. Then you don't deny they're eternal.

D. I admit it.

M. Well, is there no lingering fear some inequality won't spoil them?

D. Nothing at all is surer for me than their equality.

M. From where, then, must we believe what is eternal and unchangeable to be given the soul if not from the eternal and unchangeable God?

D. I don't see what else to believe.

M. Well, then, isn't it evident he, who under another's questioning moves himself within to God to know the unchangeable truth, cannot be reminded by any outside warning to see that truth, unless his memory hold his own same movement?

D. It's evident.

Chapter 13

37 *M.* I wonder, then, how he falls away from the contemplation of these things to need another's recalling it to his memory. Or must the mind even when intent on it be thought to require such a return?

D. I think so.

M. Let us see, if you will, what this could be could so incite to turn away from the contemplation of the highest and unchangeable equality. For I only see three kinds. For the mind is either intent upon something equal when it is turned away or something higher or lower.

D. There is need only to discuss two of them, for I see nothing superior to eternal equality.

M. Then, do you see anything could be equal to it and yet other?

D. I don't.

M. It only remains, then, to inquire what the lower is. But don't you think first of the soul avowing that equality to be certainly unchangeable, but knowing it itself changes from its intuiting at one time this equality and at another time something else and so following the variety of time, not found in eternal and unchangeable things, works this and that?

D. I agree.

M. Then this affection or motion of the soul by which it understands eternal things and counts temporal things below them even within itself and knows these higher things are rather to be desired than those lower, don't you think that's prudence?

D. I certainly do.

38 *M.* Well, then, don't you think it worth pondering, at once there's not in the soul the inhering in eternal things,

there's yet in it the knowing they should be inhered in?
D. I want us very much to ponder this, and I want to know how it comes about.

M. You will easily see, if you notice the things we direct the mind to most, and have the greatest care for. For I think they're those we very much love, isn't that so?

D. No others.

M. Say, then, we can only love beautiful things, can't we? For, although some people seem to love ugly things, those the Greeks commonly call *saprophiloi*, it is yet a matter of how much less beautiful they are than those things pleasing most people. For, clearly, no one loves those things whose foulness his sense is offended by.

D. It's as you say.

M. These beautiful things, then, please by number, where we have shown equality is sought. For this is found not only in that beauty belonging to the ears or in the motion of bodies, but also in the very visible forms where beauty is more usually said to be. Don't you think it's only equality when equal numbers reply to equal numbers in twos, but in ones, when they have a mean place so equal intervals are kept for them on each side?

D. I certainly do.

M. What is it in light itself holding the origin of all colors (for color also delights us in the forms of bodies), what is it in light and colors we seek if not what suits the eye? For we turn away from too great a flare, and we are unwilling to face things too dark, just as also in sounds we shrink from things too loud, and do not like whispering things. And this is not in the time-intervals, but in the sound itself, the light, you might say, of such numbers, whose contrary is silence, as darkness to colors. When, then, we seek things suitable for the way of our nature and reject things unsuitable we yet know are suitable to other living things,

aren't we here, too, rejoicing in some law of equality when we recognize equals allotted in more subtle ways? This can be seen in smells and tastes and in the sense of touch – and for this a long time to follow out more clearly but very easy to explore. For there's not one of these sensibles doesn't please us from equality or likeness. But where equality and likeness, there numberliness (*numerositas*). In fact, nothing is so equal or like as one and one, isn't that so?

D. I agree completely.

39 M. Well, didn't we persuade ourselves a while ago the soul effects these things in bodies, and doesn't suffer from bodies?

D. We did.

M. Then the love of acting on the stream of its bodily passions turns the soul away from the contemplation of eternal things, diverting its attention with the care of sensible pleasure; it does this with reacting numbers. But the love of operating on bodies also turns it away, and makes it restless; this it does with advancing numbers. The phantasias and phantasms turn it away; these it does with memorial numbers. Finally, the love of the vainest knowledge of such things turns it away; this it does with sensible numbers where lie rules of an art, as if glad in their imitation. And from these is born curiosity by its very care an enemy of peace, and in its vanity impotent over truth.

40 But the general love of action turning away from the true arises from pride by which vice the soul has preferred imitating God to serving God. And so it is rightly written in Holy Scripture: "The beginning of man's pride is to fall from God," and "The beginning of all sin is pride." What pride is could not have been better shown than where it is said: "What does earth and ashes take pride

in, since in its own life it gives up its inmost things?" For since the soul is nothing through itself – for it would not otherwise be changeable and suffer a flight from essence – since then through itself it is nothing, but whatever it is is from God, staying in its order, it is quickened in mind and conscience by the presence of God Himself. And so it has this good inmost. And so to puff with pride is to go forth to the outermost and, we might say, to become empty, that is to be less and less. But to go forth into the outermost what is that but giving up the inmost things, that is, putting yourself away from God, not in the span of places, but in affect of mind?

41 But that appetite of the soul is to have under it other souls; not of beasts as conceded by divine law, but rational ones, that is, your neighbors, fellows and companions under the same law. But the proud soul desires to operate on them, and as much as every soul is better than everybody, just so much does the action on them seem more excellent than on bodies. But God alone can operate on rational souls, not through a body, but through Himself. But such is the state of sin that souls are allowed to act upon souls moving them by signifying by one or the other body, or by natural signs as look or nod, or by conventional signs as words. For they act with signs by commanding or persuading, and if there is any other way besides command and persuasion, souls act with or upon souls. But by rights it has come about those souls wishing to be over others command their own parts and bodies with difficulty and pain, in part being foolish in themselves, in part, oppressed by mortal members. And so with these numbers and motions souls set upon souls by, with the desire of honor and praise they are turned away from the sight of that pure and entire truth. For God alone

honors the soul making it blessed in secret when it lives justly and piously before Him.

42 The motions the soul thrusts upon those cleaving to it and servant to it, then, are like the advancing ones, for it acts as if on its own body. But those motions it thrusts out, wishing to attach some to itself or to enslave, are counted as reacting motions. For it acts as if in the senses forcing a thing moving up outside to become one with it, and a thing not able to do so to be kept out. And the memory takes in both these motions, and makes them memorial, likewise boiling up in tumultuous fashion with the phantasias and phantasms of these acts. Nor are there lacking the corresponding judicial numbers seeing what moves suitably and unsuitably in these acts, not wrongly to be called sensible, for it is by sensible signs souls act toward souls. What wonder if the soul wound up in so many and great concerns is turned away from the contemplation of the truth? And it sees it in so far as it breathes free of them. But, because it has not yet turned them out, it cannot remain there. And so it is the soul has not at once the knowledge of where it ought to be and the power to be there. Do you agree?

D. Nothing, I daresay, to the contrary.

Chapter 14

43 *M.* What's left, then? Since we have considered as far as possible the stain and oppression of the soul, isn't it to see what action is divinely commanded it for its return, after purgation and forgiveness, to peace, and for its entry into the joy of its Master?

D. Yes.

M. And what more do you think there's for me to say when Holy Scripture, in so many volumes endowed with such authority and holiness, exhorts us only to love our God and Lord with all our heart, with all our soul, and with all our mind, and to love our neighbor as ourself? If, then, we refer all those motions and numbers of human action to this end, we shall certainly be cleansed. Isn't it so?

D. It certainly is, but how short this is to hear, and how hard and arduous to do.

44 *M.* What, then, is easy? To love colors and voices and sweets and roses and soft bodies? Is it then easy for the soul to love these things where it only desires equality and likeness, yet, considering a little more carefully, knows hardly the last shadow and trace of them? And is it difficult for the soul to love God thinking upon whom, as thoughts till then upon mean and sickly things allow, it finds these nothing unequal, nothing unlike, nothing divided in places, nothing changed in time? Or is there rather delight in throwing up a vast extent of building and passing the time in works of this kind where if the numbers please—there's nothing else—what can there be called equal and like, the discipline's reason would not laugh to scorn? And if this is so, why then does it sink from the truest height of equality to these things, and build up earthly machines in its own ruins? Was this not promised by Him who knows not to deceive? “For my yoke,” He says, “is light.” The love of this world is more wearisome. For, what the soul seeks in it, constancy and eternity, it does not find, since the lowest beauty is finished out with the passage of things, and what there imitates constancy is thrown through the soul by the highest God. For the form (*species*) changeable only in time is prior to that changeable both in time and place. And just as souls have been told by the

Lord what to love, so they are told through the Apostle John what not to love. “Do not love this world,” he says; “because all things in the world are concupiscence of the flesh, concupiscence of the eyes, and secular ambition.”

45 But what manner of man do you think this is, referring all those numbers from the body and over against the body’s passions and held from them by memory, not to carnal pleasure, but only to the body’s health? A man referring all those numbers operating on souls bound to him or those numbers put out to bind them, and therefore sticking within the memory, not to his own proud excelling, but to the usefulness of those souls themselves? A man also using those numbers in either kind as directing, in the role of moderators and examiners of things passing in the senses, not for an idle or harmful curiosity but for a necessary approval or disapproval? Doesn’t such a man work all these numbers and yet not get caught in them? For he only chooses the body’s health not to be hindered, and refers all those actions to the good of that neighbor he has been bidden to love as himself in the natural tie of common right. *D.* You talk of a great and very manlike man.

46 *M.* It’s not those numbers below reason and beautiful in their kind do soil the soul, then, but the love of lower beauty. And whenever the soul finds to love in it not only equality, concerning which we have said enough for this work, but also order, it has lost its own order. Nor yet does it depart from the order of things even at this point, and so it is whenever and however a thing is, it is highly ordered. For it is one thing to keep order and another to be kept by order. That soul keeps order that, with its whole self, loves Him above itself, that is, God and fellow souls as itself. In virtue of this love it orders lower things and

suffers no disorder from them. And what degrades it is not evil, for the body also is a creature of God and is adorned in its own beauty, although of the lowest kind, but in view of the soul’s dignity is lightly esteemed, just as the value of gold is degraded by a mixture with the finest silver. And so whatever numbers result from our criminal mortality, we shall not except them from the making of Divine Providence, since they are beautiful in their own kind, but let us not love them to become happy in their enjoyment. For we shall keep free of them since they are temporal, by using them well, as with a board in a flood by not throwing them aside as burdensome and not grasping them as stable. But the love of our neighbor commanded us is our most certain ascent to inhere in God and not so much to be kept by His ordering as to keep our own order firm and sure.

47 Or perhaps the soul does not love order as even those sensible numbers attest? But how, then, is the first foot a pyrrhic, the second an iamb, the third a trochee, and so on? But in this law you will have rather told the following of reason, not of sense. Well, isn’t this so of sensible numbers that when say eight long syllables take up as much time as sixteen short ones, yet the shorts look rather to be mixed with the longs? And when reason judges of sense and for it proceleusmatic feet are declared equal to the spondaic, it finds here only the power of ordering, because long syllables are only long in comparison with short syllables, and again short syllables are only short in comparison with long. And so the iambic verse, no matter how long it’s pronounced, if it does not lose the rule of one and two, does not lose its name. But that verse consisting of pyrrhic feet with the gradual lengthening of its enunciation becomes suddenly spondaic, if you consult not grammar with music. But if it is dactylic or anapestic, since

longs are perceived by comparison with shorts mixed in, no matter how long its enunciation, it keeps its name. Why are additions of half feet not to be kept with the same law, in the beginning as at the end; nor all used, although fitting the same beat? Why the sometime placing of two shorts rather than one long at the end? Aren't they measured off by sense itself? Nor in these is there found an equality-number, suffering no change, but only a bond of order. It would take too long to go over all the other things like this having to do with the numbers of times. But even the senses reject visible forms, either leaning the wrong way or upside down, and like things, where it's not the inequality—for the equality of the parts remains—but the perverseness that's condemned. And finally in all our senses and works when we familiarize many unusual and therefore displeasing things by gradual steps to our taste, we first accept them with a kind of toleration and then gladly, haven't we kept our pleasure with order, and don't we turn from them unless the first are harmoniously bound with the middle, and the middle with the last?

48 And so, let us put our joy neither in carnal pleasure, nor in the honors and praises of men, nor in the exploring of things touching the body from without, having God within where all we love is sure and unchangeable. And in this way it comes to be, when temporal things are present, yet are we not involved in them, and those things outside the body can be absent without sense of pain, and the body itself taken away with little or no sense of pain and brought back transformed by the death of its nature. For the soul's attention in the direction of the body contracts endless business, and the love of some special work to the neglect of universal law, a work yet inseparable from the universe of God's rule. And so who loves not the law is subject to the law.

Chapter 15

49 For if, for the most part, thinking intently on things incorporeal and being always what they are, we meanwhile effect temporal numbers in some bodily movement, easy and useful, by walking or singing, then they pass straight through us unnoticed, although they would not be were we not acting. And then, if, when we are occupied in our empty phantasms, likewise these, too, pass by as we act without feeling, how much more and more constantly “when this corruptible has put on incorruption, and this mortal has put on immortality,” that is, to speak plainly, when God has vivified our mortal bodies, as the Apostle says, “for the spirit remaining in us.” How much more, then, intent on one God and manifest truth, face to face, as it's said, shall we feel with no inquietness and rejoice in the numbers we move bodies by. Unless perhaps one is to believe the soul, although it can rejoice in things good through it, cannot rejoice in the things its good from.

50 But this action the soul, its God and Master willing, extracts itself from the love of an inferior beauty by fighting and downing its own habit that wars against it; on that point of victory within itself over the powers of this alloy from whose envious desire to entangle it, it soars to God—its support and station—isn't such an action for you called the virtue temperance?

D. I see and understand.

M. Well, when it advances along this way, now divining eternal joys nor quite grasping them, no loss of temporal things nor any death can deter it from saying to weaker fellows, can it: “It is good I be dissolved and be with Christ; but for your sakes it is necessary to remain in the flesh”?

D. So I think.

M. And this disposition where it fears neither adversity nor death, that can only be called fortitude, can't it?

D. I see that.

M. Now, this ordering itself, according to which it serves only one God, desires to be co-equal to only the purest souls and to have dominion only over animal and corporeal nature, what virtue do you think that is?

D. Who doesn't know that's justice?

M. Right.

Chapter 16

51 But now I want to know, when we decided a while ago among ourselves prudence to be the virtue the soul knows its proper station by, its ascent to it being through temperance, that is, conversion of love to God called charity, and aversion from this world attended by fortitude and justice, I want to know whether you think when it will have come to the fruit of its delight and zeal by perfect sanctification, by that perfect vivification, too, of its body, and, the swarm of phantasms wiped from its memory, will have begun to live with God Himself for God alone, when will have been fulfilled that divinely promised us in these words: "Beloved, now we are sons of God, and it has not yet appeared what we shall be. We know when He will have appeared we shall be like Him, since we shall see Him as He is,"—I want to know then whether you think these virtues we've recalled will then be there too.

D. I don't see, when those things the fight's about have passed by, how either prudence can be there, only choosing what to follow in opposition, or temperance, only turning love from things opposed, or fortitude, only bearing up under things opposed, or justice, only desiring to be equal

to the most blessed souls and to master its lower nature in opposition, that is, not yet in possession of that it desires.

52 *M.* Your reply is not absurd so far. And I don't deny it has seemed this way to certain learned men. But I, on consulting the books whose authority none surpasses, found this said, "Taste and see, since the Lord is sweet." The Apostle Peter also puts it this way: "If yet you have tasted, since the Lord is sweet." I think this is what is effected in those virtues purging the soul by conversion. For the love of temporal things could only be dislodged by some sweetness of eternal things. But when it has come to what is sung, "But the sons of men will hope under the cover of your wings; they will be drunk of the abundance of your house, and you will give them to drink in a torrent of pleasure; for in you is the fountain of life," it does not say the Lord will be sweet to taste, but you see what a flood and flow is said of the eternal fountain; even a drunkenness follows on it. And by this name is wonderfully signified, it seems to me, that forgetfulness of secular vanities and phantasms. Then the rest follows, and it says, "In your light we shall see light. Stretch forth your mercy to those knowing you." "In light" is to be taken as in Christ, who is the Wisdom of God, and is often called light. When therefore it is said "We see," and "knowing you," it can't be denied there'll be prudence there. Or do you think the true good of the soul can be known where there's no prudence?

D. I now understand.

53 *M.* Well, can there be those right in heart without justice?

D. I know justice is very often signified by this name.

M. Then isn't it that the same prophet later says when he sings, "And your justice to those who are of right heart'?"

D. Evidently.

M. Come, then, recall if you will we have already sufficiently expounded the soul lapses by pride into certain actions of its own power, and neglecting universal law has fallen into doing certain things private to itself, and this is called turning away from God.

D. I remember, certainly.

M. When, therefore, it acts, so this never again delights it, doesn't it seem to you to fix its love in God and to live most temperately and chastely and securely away from all filth?

D. It seems to be.

M. See, then, too, how the prophet goes on saying, "Let not the foot of pride come upon me." For, saying "foot" he signifies the distraction or fall, and in freedom from this the soul inheres in God and lives eternally.

D. I agree and follow.

54 M. Then fortitude remains. But as temperance against the lapse in the free will, so fortitude avails against the force anyone can be broken by if less strong in the face of attackers or if wretchedly lying down. And this force is usually well signified in the Scriptures by the name of hand. Then who besides sinners try to apply this force? Well, in so far as the soul is barricaded through this very thing and secured by God's support so nothing befalls it from anywhere, it sustains an enduring and you might say impassible power called fortitude; and I think this is said when it is added, "Nor let the hand of sinners disturb me."

55 But whether this or something else is to be understood by these words, will you deny the soul fixed in that perfection and blessedness sees the truth, remains unspotted, suffers no harm, is subject to the one God, and rises above other natures?

D. I don't see how it can otherwise be absolutely perfect and blessed.

M. Then, either this contemplation, sanctification, impassibility, and ordering of it are those four virtues perfected and consummated, or, not to split hairs over names when the things fit, instead of these virtues the soul in labor uses, some such powers are to be hoped for it in eternal life.

Chapter 17

56 We have only recalled what belongs most to this present discussion, that all this is done by God's Providence He has created and rules all things through, so even the sinful and miserable soul may be moved by numbers and set numbers moving even to the lowest corruption of the flesh. And these numbers can be less and less beautiful, but they can't lack beauty entirely. But God, most good and most just, grudges no beauty whether fashioned by the soul's damnation, retreat, or perseverance. But number also begins from one, and is beautiful in equality and likeness, and bound by order. And so, whoever confesses there's no nature of any kind, but desires unity, and tries as much as it can to be like itself, and holds its salvation as a proper order in place or time or weight of body, must confess all things whatever and of any size are made from one beginning through a form equal to it and like to the riches of His goodness, by which they are joined together in charity as one and one gift from one.

57 And so that verse proposed by us, "*Deus creator omnium*," sounds with the harmony of number not only to the ears, but even more is most pleasing in truth and wholeness to the soul's sentiment. Unless, perhaps, you are

moved by the stupidity, to speak mildly, of those denying anything can be made from nothing, even though God Almighty be said to have made it. Or is it rather the artisan can operate the sensible numbers of his habit by the reasonable numbers of his art, and by sensible numbers those advancing numbers, his numbers in their operation move by, and time-spans belong to; and from these again he can fashion visible forms in wood numbered with place-spans; and the nature of things serving God's will cannot make this wood from earth and other elements; and could not even make these final things from nothing? In fact the time-numbers of a tree must precede its place-numbers. For there's no stem does not in fixed time-measures spring up to replace its seed, germinate, break out into the air, unfold its leaves, become strong, and bring back either fruit or, by very subtle numbers of the wood itself, the force of the seed. And how much more the bodies of animals where the placing of the members presents a much more numbered equalness to sight. Can these be made of the elements and these elements not have been made of nothing? For which among them is more ordinary and lowly than earth. Yet first it has the general form of body where a unity and numbers and order are clearly shown to be. For any part of it, no matter how small, must be extended from an indivisible point in length, third takes on breadth, and fourth height, to fill the body. From where, then, is the measure of this progression of one to four? And from where, too, the equality of the parts found in length, breadth, and height? From where a corrationality (for so I have chosen to call proportion), so the ratio length has to the indivisible point, breadth has to length, and height to breadth? Where, I ask, do these things come from, if not from the highest and eternal rule of numbers, likeness, equality, and order? And if you abstract these

things from earth, it will be nothing. And therefore God Almighty has made earth, and earth is made from nothing.

58 Then, too, this form earth is differentiated from the other elements by, doesn't it present something one in so far as it has received it, and no part of it is unlike the whole? And doesn't it have the soundest final ground in its kind by the connection and agreement of the same parts? And the nature of water extends above it, itself abounding in unity, more beautiful and more pellucid because of the greater likeness of its parts, keeping the place of order and its own soundness. And what shall I say of the nature of air, sweeping to unity with a greater reach and as much more beautiful than water is than earth, and so much higher in worth. And what about the supreme circuit of the heavens where the whole universe of visible bodies ends, the highest beauty in its kind, and the soundest excellence of place? Now all these things we've enumerated with the help of the carnal senses, and all things in them, can only receive and hold local numbers seemingly in a kind of rest, if temporal numbers, in motion, precede within and in silence. Likewise, a vital movement measures off and precedes these as they move in time-spans, a vital movement serving the Master of all things, having in its numbers no temporal spans divided out, but with a power providing times. And above this power, the rational and intellectual numbers of the blessed and saintly souls transmit the very law of God no leaf-fall breaks and our hairs are numbered by, to the judgments of earth and hell, without toll from any nature between.

59 I in my littleness have gathered with you what I could and as I could on such great matters. But, if any read this talk of ours committed to writing, they must know

these things have been written by persons much weaker than those who, having followed the authority of the two Testaments, by believing, hoping, and loving, venerate and worship the consubstantial and unchangeable Trinity of the one highest God from whom, through whom, and in whom are all things. For they are purified, not by flashing human reasoning, but by the effective and burning fire of charity. And while we do not think those the heretics deceive with the promises of reason and false science ought to be neglected, yet, in the consideration of the ways themselves, we go more slowly than holy men who deign not to wait in their flying ascent. And yet we should dare not do this if we did not see that many pious sons of that best of mothers, the Catholic Church, who in their youthful studies have sufficiently developed the faculty of speaking and arguing, have, for the confuting of heretics, done this same thing.

LARS VON TRIER/PER KIRKEBY, *BREAKING THE WAVES* (1996)

THE WAVES

VIRGINIA WOOLF

1931

The sun had not yet risen. The sea was indistinguishable from the sky, except that the sea was slightly creased as if a cloth had wrinkles in it. Gradually as the sky whitened a dark line lay on the horizon dividing the sea from the sky and the grey cloth became barred with thick strokes moving, one after another, beneath the surface, following each other, pursuing each other, perpetually.

As they neared the shore each bar rose, heaped itself, broke and swept a thin veil of white water across the sand. The wave paused, and then drew out again, sighing like a sleeper whose breath comes and goes unconsciously. Gradually the dark bar on the horizon became clear as if the sediment in an old wine-bottle had sunk and left the glass green. Behind it, too, the sky cleared as if the white sediment there had sunk, or as if the arm of a woman couched beneath the horizon had raised a lamp and flat bars of white, green and yellow spread across the sky like the blades of a fan. Then she raised her lamp higher and the air seemed to become fibrous and to tear away from the green surface flickering and flaming in red and yellow fibres like the smoky fire that roars from a bonfire. Gradually the fibres of the burning bonfire were fused into one haze, one incandescence which lifted the weight of the woollen grey sky on top of it and turned it to a million atoms of soft blue. The surface of the sea slowly became transparent and lay rippling and sparkling until the dark stripes were almost rubbed out. Slowly the arm that held the lamp raised it higher and then higher until a broad flame became visible; an arc of fire burnt on the rim of the horizon, and all round it the sea blazed gold.

The light struck upon the trees in the garden, making one leaf transparent and then another. One bird chirped high up; there was a pause; another chirped lower down. The sun sharpened the walls of the house, and rested like the tip of a fan upon a white blind and made a blue finger-print of shadow under the leaf by the bedroom window. The blind stirred slightly, but all within was dim and unsubstantial. The birds sang their blank melody outside.

[...]

The sun rose higher. Blue waves, green waves swept a quick fan over the beach, circling the spike of sea-holly and leaving shallow pools of light here and there on the sand. A faint black rim was left behind them. The rocks which had been misty and soft hardened and were marked with red clefts.

Sharp stripes of shadow lay on the grass, and the dew dancing on the tips of the flowers and leaves made the garden like a mosaic of single sparks not yet formed into one whole. The birds, whose breasts were specked canary and rose, now sang a strain or two together, wildly, like skaters rollicking arm-in-arm, and were suddenly silent, breaking asunder.

The sun laid broader blades upon the house. The light touched something green in the window corner and made it a lump of emerald, a cave of pure green like stoneless fruit. It sharpened the edges of chairs and tables and stitched white table-cloths with fine gold wires. As the light increased a bud here and there split asunder and shook out flowers, green veined and quivering, as if the effort of opening had set them rocking, and pealing a faint carillon as they beat their frail clappers against their white walls. Everything became softly amorphous, as if the china of

the plate flowed and the steel of the knife were liquid. Meanwhile the concussion of the waves breaking fell with muffled thuds, like logs falling, on the shore.

[...]

The sun rose. Bars of yellow and green fell on the shore, gilding the ribs of the eaten-out boat and making the sea-holly and its mailed leaves gleam blue as steel. Light almost pierced the thin swift waves as they raced fan-shaped over the beach. The girl who had shaken her head and made all the jewels, the topaz, the aquamarine, the water-coloured jewels with sparks of fire in them, dance, now bared her brows and with wide-opened eyes drove a straight pathway over the waves. Their quivering mackerel sparkling was darkened; they massed themselves; their green hollows deepened and darkened and might be traversed by shoals of wandering fish. As they splashed and drew back they left a black rim of twigs and cork on the shore and straws and sticks of wood, as if some light shallop had foundered and burst its sides and the sailor had swum to land and bounded up the cliff and left his frail cargo to be washed ashore.

In the garden the birds that had sung erratically and spasmodically in the dawn on that tree, on that bush, now sang together in chorus, shrill and sharp; now together, as if conscious of companionship, now alone as if to the pale blue sky. They swerved, all in one flight, when the black cat moved among the bushes, when the cook threw cinders on the ash heap and startled them. Fear was in their song, and apprehension of pain, and joy to be snatched quickly now at this instant. Also they sang emulously in the clear morning air, swerving high over the elm tree, singing together as they chased each other,

escaping, pursuing, pecking each other as they turned high in the air. And then tiring of pursuit and flight, lovelily they came descending, delicately declining, dropped down and sat silent on the tree, on the wall, with their bright eyes glancing, and their heads turned this way, that way; aware, awake; intensely conscious of one thing, one object in particular.

Perhaps it was a snail shell, rising in the grass like a grey cathedral, a swelling building burnt with dark rings and shadowed green by the grass. Or perhaps they saw the splendour of the flowers making a light of flowing purple over the beds, through which dark tunnels of purple shade were driven between the stalks. Or they fixed their gaze on the small bright apple leaves, dancing yet withheld, stiffly sparkling among the pink-tipped blossoms. Or they saw the rain drop on the hedge, pendent but not falling, with a whole house bent in it, and towering elms; or, gazing straight at the sun, their eyes became gold beads.

Now glancing this side, that side, they looked deeper, beneath the flowers, down the dark avenues into the unlit world where the leaf rots and the flower has fallen. Then one of them, beautifully darting, accurately alighting, spiked the soft, monstrous body of the defenceless worm, pecked again and yet again, and left it to fester. Down there among the roots where the flowers decayed, gusts of dead smells were wafted; drops formed on the bloated sides of swollen things. The skin of rotten fruit broke, and matter oozed too thick to run. Yellow excretions were exuded by slugs, and now and again an amorphous body with a head at either end swayed slowly from side to side. The gold-eyed birds darting in between the leaves observed that purulence, that wetness, quizzically. Now and then they plunged the tips of their beaks savagely into the sticky mixture.

Now, too, the rising sun came in at the window, touching the red-edged curtain, and began to bring out circles and lines. Now in the growing light its whiteness settled in the plate; the blade condensed its gleam. Chairs and cupboards loomed behind so that though each was separate they seemed inextricably involved. The looking-glass whitened its pool upon the wall. The real flower on the window-sill was attended by a phantom flower. Yet the phantom was part of the flower, for when a bud broke free the paler flower in the glass opened a bud too.

The wind rose. The waves drummed on the shore, like turbaned warriors, like turbaned men with poisoned assegais who, whirling their arms on high, advance upon the feeding flocks, the white sheep.

[..]

The sun, risen, no longer couched on a green mattress darting a fitful glance through watery jewels, bared its face and looked straight over the waves. They fell with a regular thud. They fell with the concussion of horses' hooves on the turf. Their spray rose like the tossing of lances and assegais over the riders' heads. They swept the beach with steel blue and diamond-tipped water. They drew in and out with the energy, the muscularity, of an engine which sweeps its force out and in again. The sun fell on corn-fields and woods, rivers became blue and many-plaited, lawns that sloped down to the water's edge became green as birds' feathers softly ruffling their plumes. The hills, curved and controlled, seemed bound back by thongs, as a limb is laced by muscles; and the woods which bristled proudly on their flanks were like the curt, clipped mane on the neck of a horse.

In the garden where the trees stood, thick over flowerbeds, ponds, and greenhouses the birds sang in the hot sunshine, each alone. One sang under the bedroom window; another on the topmost twig of the lilac bush; another on the edge of the wall. Each sang stridently, with passion, with vehemence, as if to let the song burst out of it, no matter if it shattered the song of another bird with harsh discord. Their round eyes bulged with brightness; their claws gripped the twig or rail. They sang, exposed without shelter, to the air and the sun, beautiful in their new plumage, shell-veined or brightly mailed, here barred with soft blues, here splashed with gold, or striped with one bright feather. They sang as if the song were urged out of them by the pressure of the morning. They sang as if the edge of being were sharpened and must cut, must split the softness of the blue-green light, the dampness of the wet earth; the fumes and steams of the greasy kitchen vapour; the hot breath of mutton and beef; the richness of pastry and fruit; the damp shreds and peelings thrown from the kitchen bucket, from which a slow steam oozed on the rubbish heap. On all the sodden, the damp-spotted, the curled with wetness, they descended, dry-beaked, ruthless, abrupt. They swooped suddenly from the lilac bough or the fence. They spied a snail and tapped the shell against a stone. They tapped furiously, methodically, until the shell broke and something slimy oozed from the crack. They swept and soared sharply in flights high into the air, twittering short, sharp notes, and perched in the upper branches of some tree, and looked down upon leaves and spires beneath, and the country white with blossom, flowing with grass, and the sea which beat like a drum that raises a regiment of plumed and turbaned soldiers. Now and again their songs ran together in swift scales like the interlacings of a mountain stream whose waters, meeting,

foam and then mix, and hasten quicker and quicker down the same channel, brushing the same broad leaves. But there is a rock; they sever.

The sun fell in sharp wedges inside the room. Whatever the light touched became dowered with a fanatical existence. A plate was like a white lake. A knife looked like a dagger of ice. Suddenly tumblers revealed themselves upheld by streaks of light. Tables and chairs rose to the surface as if they had been sunk under water and rose, filmed with red, orange, purple like the bloom on the skin of ripe fruit. The veins on the glaze of the china, the grain of the wood, the fibres of the matting became more and more finely engraved. Everything was without shadow. A jar was so green that the eye seemed sucked up through a funnel by its intensity and stuck to it like a limpet. Then shapes took on mass and edge. Here was the boss of a chair; here the bulk of a cupboard. And as the light increased, flocks of shadow were driven before it and conglomerated and hung in many-pleated folds in the background.

[..]

The sun had risen to its full height. It was no longer half seen and guessed at, from hints and gleams, as if a girl couched on her green-sea mattress tired her brows with water-globed jewels that sent lances of opal-tinted light falling and flashing in the uncertain air like the flanks of a dolphin leaping, or the flash of a falling blade. Now the sun burnt uncompromising, undeniable. It struck upon the hard sand, and the rocks became furnaces of red heat; it searched each pool and caught the minnow hiding in the cranny, and showed the rusty cartwheel, the white bone, or the boot without laces stuck, black as iron, in the sand. It gave to everything its exact measure of colour; to the

sandhills their innumerable glitter, to the wild grasses their glancing green; or it fell upon the arid waste of the desert, here wind-scourged into furrows, here swept into desolate cairns, here sprinkled with stunted dark-green jungle trees. It lit up the smooth gilt mosque, the frail pink-and-white card houses of the southern village, and the long-breasted, white-haired women who knelt in the river bed beating wrinkled cloths upon stones. Steamers thudding slowly over the sea were caught in the level stare of the sun, and it beat through the yellow awnings upon passengers who dozed or paced the deck, shading their eyes to look for the land, while day after day, compressed in its oily throbbing sides, the ship bore them on monotonously over the waters.

The sun beat on the crowded pinnacles of southern hills and glared into deep, stony river beds where the water was shrunk beneath the high slung bridge so that washer-women kneeling on hot stones could scarcely wet their linen; and lean mules went picking their way among the chattering grey stones with panniers slung across their narrow shoulders. At midday the heat of the sun made the hills grey as if shaved and singed in an explosion, while, further north, in cloudier and rainier countries hills smoothed into slabs as with the back of a spade had a light in them as if a warder, deep within, went from chamber to chamber carrying a green lamp. Through atoms of grey-blue air the sun struck at English fields and lit up marshes and pools, a white gull on a stake, the slow sail of shadows over blunt-headed woods and young corn and flowing hayfields. It beat on the orchard wall, and every pit and grain of the brick was silver pointed, purple, fiery as if soft to touch, as if touched it must melt into hot-baked grains of dust. The currants hung against the wall in ripples and cascades of polished red; plums swelled out their leaves, and all the blades of the grass were run together in one

fluent green blaze. The trees' shadow was sunk to a dark pool at the root. Light descending in floods dissolved the separate foliage into one green mound.

The birds sang passionate songs addressed to one ear only and then stopped. Bubbling and chuckling they carried little bits of straw and twig to the dark knots in the higher branches of the trees. Gilt and purpled they perched in the garden where cones of laburnum and purple shook down gold and lilac, for now at midday the garden was all blossom and profusion and even the tunnels under the plants were green and purple and tawny as the sun beat through the red petal, or the broad yellow petal, or was barred by some thickly furred green stalk.

The sun struck straight upon the house, making the white walls glare between the dark windows. Their panes, woven thickly with green branches, held circles of impenetrable darkness. Sharp-edged wedges of light lay upon the window-sill and showed inside the room plates with blue rings, cups with curved handles, the bulge of a great bowl, the crisscross pattern in the rug, and the formidable corners and lines of cabinets and bookcases. Behind their conglomeration hung a zone of shadow in which might be a further shape to be disencumbered of shadow or still denser depths of darkness.

The waves broke and spread their waters swiftly over the shore. One after another they massed themselves and fell; the spray tossed itself back with the energy of their fall. The waves were steeped deep-blue save for a pattern of diamond-pointed light on their backs which rippled as the backs of great horses ripple with muscles as they move. The waves fell; withdrew and fell again, like the thud of a great beast stamping.

[..]

The sun no longer stood in the middle of the sky. Its light slanted, falling obliquely. Here it caught on the edge of a cloud and burnt it into a slice of light, a blazing island on which no foot could rest. Then another cloud was caught in the light and another and another, so that the waves beneath were arrow-struck with fiery feathered darts that shot erratically across the quivering blue.

The topmost leaves of the tree were crisped in the sun. They rustled stiffly in the random breeze. The birds sat still save that they flicked their heads sharply from side to side. Now they paused in their song as if glutted with sound, as if the fullness of midday had gorged them. The dragon-fly poised motionless over a reed, then shot its blue stitch further through the air. The far hum in the distance seemed made of the broken tremor of fine wings dancing up and down on the horizon. The river water held the reeds now fixed as if glass had hardened round them; and then the glass wavered and the reeds swept low. Pondering, sunken headed, the cattle stood in the fields and cumbrously moved one foot and then another. In the bucket near the house the tap stopped dripping, as if the bucket were full, and then the tap dripped one, two, three separate drops in succession.

The windows showed erratically spots of burning fire, the elbow of one branch, and then some tranquil space of pure clarity. The blind hung red at the window's edge and within the room daggers of light fell upon chairs and tables making cracks across their lacquer and polish. The green pot bulged enormously, with its white window elongated in its side. Light driving darkness before it spilt itself profusely upon the corners and bosses; and yet heaped up darkness in mounds of unmoulded shape.

The waves massed themselves, curved their backs and crashed. Up spurted stones and shingle. They swept round the rocks, and the spray, leaping high, spattered the

walls of a cave that had been dry before, and left pools inland, where some fish stranded lashed its tail as the wave drew back.

[...]

The sun had now sunk lower in the sky. The islands of cloud had gained in density and drew themselves across the sun so that the rocks went suddenly black, and the trembling sea holly lost its blue and turned silver, and shadows were blown like grey cloths over the sea. The waves no longer visited the further pools or reached the dotted black line which lay irregularly upon the beach. The sand was pearl white, smoothed and shining. Birds swooped and circled high up in the air. Some raced in the furrows of the wind and turned and sliced through them as if they were one body cut into a thousand shreds. Birds fell like a net descending on the tree-tops. Here one bird taking its way alone made wing for the marsh and sat solitary on a white stake, opening its wings and shutting them.

Some petals had fallen in the garden. They lay shell-shaped on the earth. The dead leaf no longer stood upon its edge, but had been blown, now running, now pausing, against some stalk. Through all the flowers the same wave of light passed in a sudden flaunt and flash as if a fin cut the green glass of a lake. Now and again some level and masterly blast blew the multitudinous leaves up and down and then, as the wind flagged, each blade regained its identity. The flowers, burning their bright discs in the sun, flung aside the sunlight as the wind tossed them, and then some heads too heavy to rise again drooped slightly.

The afternoon sun warmed the fields, poured blue into the shadows and reddened the corn. A deep varnish was laid like a lacquer over the fields. A cart, a horse, a

flock of rooks — whatever moved in it was rolled round in gold. If a cow moved a leg it stirred ripples of red gold, and its horns seemed lined with light. Sprays of flaxen-haired corn lay on the hedges, brushed from the shaggy carts that came up from the meadows short legged and primeval looking. The round-headed clouds never dwindled as they bowled along, but kept every atom of their rotundity. Now, as they passed, they caught a whole village in the fling of their net and, passing, let it fly free again. Far away on the horizon, among the million grains of blue-grey dust, burnt one pane, or stood the single line of one steeple or one tree.

The red curtains and the white blinds blew in and out, flapping against the edge of the window, and the light which entered by flaps and breadths unequally had in it some brown tinge, and some abandonment as it blew through the blowing curtains in gusts. Here it browned a cabinet, there reddened a chair, here it made the window waver in the side of the green jar.

All for a moment wavered and bent in uncertainty and ambiguity, as if a great moth sailing through the room had shadowed the immense solidity of chairs and tables with floating wings.

[...]

The sun was sinking. The hard stone of the day was cracked and light poured through its splinters. Red and gold shot through the waves, in rapid running arrows, feathered with darkness. Erratically rays of light flashed and wandered, like signals from sunken islands, or darts shot through laurel groves by shameless, laughing boys. But the waves, as they neared the shore, were robbed of light, and fell in one long concussion, like a wall falling, a wall of grey stone, unpierced by any chink of light.

A breeze rose; a shiver ran through the leaves; and thus stirred they lost their brown density and became grey or white as the tree shifted its mass, winked and lost its domed uniformity. The hawk poised on the topmost branch flicked its eyelids and rose and sailed and soared far away. The wild plover cried in the marshes, evading, circling, and crying further off in loneliness. The smoke of trains and chimneys was stretched and torn and became part of the fleecy canopy that hung over the sea and the fields.

Now the corn was cut. Now only a brisk stubble was left of all its flowing and waving. Slowly a great owl launched itself from the elm tree and swung and rose, as if on a line that dipped, to the height of the cedar. On the hills the slow shadows now broadened, now shrank, as they passed over. The pool on the top of the moor looked blank. No furry face looked there, or hoof splashed, or hot muzzle seethed in the water. A bird, perched on an ash-coloured twig, sipped a beak full of cold water. There was no sound of cropping, and no sound of wheels, but only the sudden roar of the wind letting its sails fill and brushing the tops of the grasses. One bone lay rain-pocked and sun-bleached till it shone like a twig that the sea has polished. The tree, that had burnt foxy red in spring and in midsummer bent pliant leaves to the south wind, was now black as iron, and as bare.

The land was so distant that no shining roof or glittering window could be any longer seen. The tremendous weight of the shadowed earth had engulfed such frail fetters, such snail-shell encumbrances. Now there was only the liquid shadow of the cloud, the buffeting of the rain, a single darting spear of sunshine, or the sudden bruise of the rain-storm. Solitary trees marked distant hills like obelisks.

The evening sun, whose heat had gone out of it and whose burning spot of intensity had been diffused,

made chairs and tables mellow and inlaid them with lozenges of brown and yellow. Lined with shadows their weight seemed more ponderous, as if colour, tilted, had run to one side. Here lay knife, fork and glass, but lengthened, swollen, and made portentous. Rimmed in a gold circle the looking-glass held the scene immobile as if everlasting in its eye.

Meanwhile the shadows lengthened on the beach; the blackness deepened. The iron black boot became a pool of deep blue. The rocks lost their hardness. The water that stood round the old boat was dark as if mussels had been steeped in it. The foam had turned livid and left here and there a white gleam of pearl on the misty sand.

[...]

Now the sun had sunk. Sky and sea were indistinguishable. The waves breaking spread their white fans far out over the shore, sent white shadows into the recesses of sonorous caves and then rolled back sighing over the shingle.

The tree shook its branches and a scattering of leaves fell to the ground. There they settled with perfect composure on the precise spot where they would await dissolution. Black and grey were shot into the garden from the broken vessel that had once held red light. Dark shadows blackened the tunnels between the stalks. The thrush was silent and the worm sucked itself back into its narrow hole. Now and again a whitened and hollow straw was blown from an old nest and fell into the dark grasses among the rotten apples. The light had faded from the tool-house wall and the adder's skin hung from the nail empty. All the colours in the room had overflowed their banks. The precise brush stroke was swollen and lop-sided; cupboards and chairs melted their brown masses into one huge obscurity.

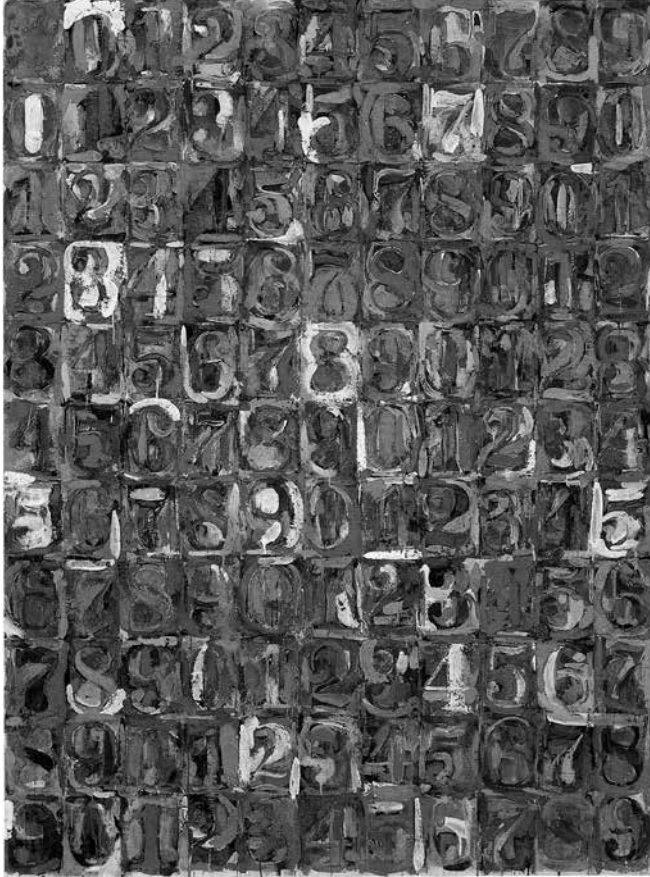
The height from floor to ceiling was hung with vast curtains of shaking darkness. The looking-glass was pale as the mouth of a cave shadowed by hanging creepers.

The substance had gone from the solidity of the hills. Travelling lights drove a plummy wedge among unseen and sunken roads, but no lights opened among the folded wings of the hills, and there was no sound save the cry of a bird seeking some lonelier tree. At the cliff's edge there was an equal murmur of air that had been brushed through forests, of water that had been cooled in a thousand glassy hollows of mid-ocean.

As if there were waves of darkness in the air, darkness moved on, covering houses, hills, trees, as waves of water wash round the sides of some sunken ship. Darkness washed down streets, eddying round single figures, engulfing them; blotting out couples clasped under the showery darkness of elm trees in full summer foliage. Darkness rolled its waves along grassy rides and over the wrinkled skin of the turf, enveloping the solitary thorn tree and the empty snail shells at its foot. Mounting higher, darkness blew along the bare upland slopes, and met the fretted and abraded pinnacles of the mountain where the snow lodges for ever on the hard rock even when the valleys are full of running streams and yellow vine leaves, and girls, sitting on verandahs, look up at the snow, shading their faces with their fans. Them, too, darkness covered.

[...]

The waves broke on the shore.



JASPER JOHNS, NUMBERS IN COLOR (1958–59)

A THOUSAND PLATEAUS CAPITALISM AND SCHIZOPHRENIA

GILLES DELEUZE
FÉLIX GUATTARI

1980

III. There Are Constants or Universals of Language That Enable Us to Define It as a Homogeneous System

The question of structural invariants—and the very idea of structure is inseparable from invariants, whether atomic or relational—is essential to linguistics. It is what allows linguistics to claim a basis in pure scientificity, to be nothing but science ... safe from any supposedly external or pragmatic factor. The question of invariants assumes several closely connected forms: (1) the constants of a language (phonological, by commutativity; syntactical, by transformativity; semantic, by generativity); (2) the universals of language (by decomposition of the phoneme into distinctive features; of syntax into fundamental constituents; of signification into minimal semantic elements); (3) trees linking constants to one another, with binary relations between trees (see Chomsky's linear arborescent method); (4) competence, in principle coextensive with language and defined by judgments of grammaticality; (5) homogeneity, bearing on elements and relations

as well as intuitive judgments; (6) synchrony, which erects an “in-itself” and a “for-itself” of language, perpetually moving from the objective system to the subjective consciousness that apprehends its principle (that of the linguist himself or herself).

One can juggle all of these factors, subtract some or even add new ones. They go together, however, because the essentials of all of them are present on the level of any one. For example, the distinction between speech and language is recapitulated in the distinction between competence and performance, but at the level of grammaticality. If it is objected that the distinction between competence and performance is entirely relative (a linguistic competence can be economic, religious, political, or aesthetic, etc.; the teaching competence of a grade school teacher may be only a performance in relation to the judgment of an inspector or government regulations), linguists respond that they are willing to multiply levels of competence, and even to introduce pragmatic values into the system. Brekle, for example, proposes adding an “idiosyncratic performatory competence” factor tied to a whole constellation of linguistic, psychological, or sociological factors. But what use is this injection of pragmatics if pragmatics is in turn considered to have constants or universals of its own? And in what way are expressions like “I,” “promise,” “know” more universal than “greet,” “name,” or “condemn”? Similarly, when efforts are made to make Chomsky’s trees bud and to shatter linear order, as long as the pragmatic components marking the ruptures are placed above the tree or effaced from the derivation nothing has really been accomplished, one has failed to constitute a rhizome. In truth, the nature of the abstract machine is the most general problem: there is no reason to tie the abstract to the universal or the constant, or to

efface the singularity of abstract machines insofar as they are built around variables and variations.

The debate between Chomsky and Labov will give us a better understanding of what the issue is. Every language is an essentially heterogeneous reality; linguists know this and say so. But this is a *factual* remark. Chomsky asks only that one carve from this aggregate a homogeneous or standard system as a basis for abstraction or idealization, making possible a scientific study of *principles*. Limiting oneself to standard English is thus not the issue, for even a linguist who studies Black English or the English of the ghettos is obliged to extract a standard system guaranteeing the constancy and homogeneity of the object under study (no science can operate any other way, they say). Thus Chomsky pretends to believe that by asserting his interest in the variable features of language, Labov is situating himself in a de facto pragmatics external to linguistics. Labov, however, has other ambitions. When he brings to light lines of *inherent variation*, he does not see them simply as “free variants” pertaining to pronunciation, style, or nonpertinent features that lie outside the system and leave the homogeneity of the system intact; neither does he see them as a de facto mix between two systems, each homogeneous in its own right, as if the speaker moved from one to the other. He refuses the alternative linguistics set up for itself: assigning variants to different systems, or relegating them to a place outside the structure. It is the variation itself that is systematic, in the sense in which musicians say that “the theme is the variation.” Labov sees variation as a de jure component affecting each system from within, sending it cascading or leaping on its own power and forbidding one to close it off, to make it homogeneous in principle. Labov does consider variables of all kinds, phonetic, phonological, syntactical,

semantic, stylistic. Yet it would seem difficult to accuse him of missing the distinction between the *de jure* and the *de facto*—or between linguistics and stylistics, or synchrony and diachrony, or pertinent and nonpertinent features, or competence and performance, or the grammaticality of language and the agrammaticality of speech. Although this may be hardening his positions, we would say rather that Labov proposes a different distribution of the *de facto* and the *de jure*, and especially a different conception of the *de jure* itself and of abstraction. He takes the example of a young black person who, in a very short series of phrases, seems to pass from the Black English system to the standard system eighteen times. Is it not the abstract distinction between the two systems that proves arbitrary and insufficient? For the majority of the forms belongs to one or the other only by virtue of the fortuities of a given sequence. Must it not be admitted that every system is in variation and is defined not by its constants and homogeneity but on the contrary by a variability whose characteristics are immanent, continuous, and regulated in a very specific mode (*variable or optional rules*)?

How can we conceptualize this continuous variation at work within a language, even if it means overstepping the limits Labov sets for himself as well as the conditions of scientificity invoked by linguistics? In the course of a single day, an individual repeatedly passes from language to language. He successively speaks as “father to son” and as a boss; to his lover, he speaks an infantilized language; while sleeping he is plunged into an oniric discourse, then abruptly returns to a professional language when the telephone rings. It will be objected that these variations are extrinsic, that it is still the same language. But that is to prejudge the question. First, it is not certain that the phonology is the same, nor the syntax, nor the

semantics. Second, the whole question is whether this supposedly identical language is defined by invariants or, on the contrary, by the line of continuous variation running through it. Some linguists have suggested that linguistic change occurs less by systemic rupture than by a gradual modification of frequency, by a coexistence and continuity of different usages. Take as an example the statement, “I swear!” It is a different statement depending on whether it is said by a child to his or her father, by a man in love to his loved one, or by a witness before the court. These are like three sequences. (Or Messiaen’s four “amen”s stretched over seven sequences.) Once again, there is no reason to say that the variables are merely situational, and that the statement remains constant in principle. Not only are there as many statements as there are effectuations, but all of the statements are present in the effectuation of one among them, so that the line of variation is virtual, in other words, real without being actual, and consequently continuous regardless of the leaps the statement makes. To place the statement in continuous variation is to send it through all the prosodic, semantic, syntactical, and phonological variables that can affect it in the shortest moment of time (the smallest interval). Build the *continuum* of “I swear!” with the corresponding transformations. This is the standpoint of pragmatics, but a pragmatics internal to language, immanent, including variations of linguistic elements of all kinds. For example, Kafka’s line of the three proceedings: the father’s proceedings in the family; the engagement proceedings at the hotel; and the court proceedings. There is a constant tendency to seek a “reduction”: everything is explained by the situation of the child in relation to its father, or of the man in relation to castration, or of the citizen in relation to the law. But this is to content oneself with extracting a pseudoconstant of content, which

is no better than extracting a pseudoconstant of expression. Placing-in-variation allows us to avoid these dangers, because it builds a continuum or medium without beginning or end. Continuous variation should not be confused with the continuous or discontinuous character of the variable itself: the order-word, a continuous variation for a discontinuous variable ... A variable can be continuous over a portion of its trajectory, then leap or skip, without that affecting its continuous variation; what this does is impose an absent development as an “alternative continuity” that is virtual yet real.

A constant or invariant is defined less by its permanence and duration than by its function as a center, if only relative. In the tonal or diatonic system of music, laws of resonance and attraction determine centers valid for all modes and endowed with stability and attractive power (*pouvoir*). These centers therefore organize distinct, distinctive, forms that are clearly established for a certain amount of time: a linear, codified, centered system of the arborescent type. It is true that the minor “mode” gives tonal music a decentered, runaway, fugitive character due to the nature of its intervals and the lesser stability of its chords. This mode thus has the ambiguity of undergoing operations that align it to a major model or standard at the same time as it continues to display a certain modal power (*puissance*) irreducible to tonality, as though music set out on a journey and garnered all resurgences, phantoms of the Orient, imaginary lands, traditions from all over. But temperament, tempered chromaticism has an even greater ambiguity: stretching the action of the center to the most distant tones, but also preparing the disaggregation of the central principle, replacing the centered forms of continuous development with a form that constantly dissolves and transforms itself. When development subordinates

form and spans the whole, as in Beethoven, variation begins to free itself and becomes identified with creation. But when chromaticism is unleashed, becomes a generalized chromaticism, turns back against temperament, affecting not only pitches but all sound components—durations, intensities, timbre, attacks—it becomes impossible to speak of a sound form organizing matter; it is no longer even possible to speak of a continuous development of form. Rather, it is a question of a highly complex and elaborate material making audible nonsonorous forces. The couple matter-form is replaced by the coupling material-forces. The synthesizer has taken the place of the old “a priori synthetic judgment,” and all functions change accordingly. By placing all its components in continuous variation, music itself becomes a superlinear system, a rhizome instead of a tree, and enters the service of a virtual cosmic continuum of which even holes, silences, ruptures, and breaks are a part. Thus, the important thing is certainly not to establish a pseudobreak between the tonal system and atonal music; the latter, on the contrary, in breaking away from the tonal system, only carried temperament to its ultimate conclusion (although no Viennese stopped there). The essential thing is almost the opposite movement: the ferment in the tonal system itself (during much of the nineteenth and twentieth centuries) that dissolved temperament and widened chromaticism while preserving a relative tonality, which reinvented new modalities, brought a new amalgamation of major and minor, and in each instance conquered realms of continuous variation for this variable or that. This ferment came to the forefront and made itself heard in its own right; and, through the molecular material thus wrought, it made audible the nonsonorous forces of the cosmos that have always agitated music—a bit of Time in the pure state, a grain of absolute

Intensity... The words “tonal,” “modal,” “atonal” do not mean much. Music is not alone in being art as cosmos and in drawing the virtual lines of an infinite variation.

Once again, the objection will be raised that music is not a language, that the components of sound are not pertinent features of language, that there is no correspondence between the two. We are not suggesting any correspondence. We keep asking that the issue be left open, that any presupposed distinction be rejected. This especially applies to the language-speech distinction, which is used to relegate all kinds of variables at work within expression and enunciation to a position outside language. The Voice-Music relation proposed by Jean-Jacques Rousseau, on the other hand, could have taken not only phonetics and prosody but all of linguistics in a different direction. The voice in music has always been a privileged axis of experimentation, playing simultaneously on language and sound. Music has linked the voice to instruments in various ways; but as long as the voice is song, its main role is to “hold” sound, it functions as a constant circumscribed on a note and *accompanied* by the instrument. Only when the voice is tied to timbre does it reveal a tessitura that renders it heterogeneous to itself and gives it a power of continuous variation: it is then no longer accompanied, but truly “machined,” it belongs to a musical machine that prolongs or superposes on a single plane parts that are spoken, sung, achieved by special effects, instrumental, or perhaps electronically generated. This is the sound plane of a generalized “glissando” implying the constitution of a statistical space in which each variable has, not an average value, but a probability of frequency that places it in continuous variation with the other variables. Luciano Berio’s *Visage* (Face) and Dieter Schnebel’s *Glossolalie* (Speaking in tongues) are typical examples of this. And despite what Berio himself

says, it is less a matter of using pseudoconstants to produce a simulacrum of language or a metaphor for the voice than of attaining that secret neuter language without constants and entirely in indirect discourse where the synthesizer and the instrument speak no less than the voice, and the voice plays no less than the instrument. It should not be thought that music has forgotten how to sing in a now mechanical and atomized world; rather, an immense coefficient of variation is affecting and carrying away all of the phatic, aphatic, linguistic, poetic, instrumental, or musical parts of a single sound assemblage—“a simple scream suffusing all degrees” (Thomas Mann). There are many procedures for placing the voice in variation, not only *Sprechgesang* (speech-song), which constantly leaves pitch behind by descent or ascent, but also circular breathing techniques and zones of resonance in which several voices seem to issue from the same mouth. Secret languages are very significant in this connection, in learned as well as popular music. Certain ethnomusicologists have found extraordinary cases (in Dahomey, for example) where a first, diatonic, vocal part is superseded by a chromatic descent into a secret language that slips from one sound to the next in a continuous fashion, modulating a sound continuum into smaller and smaller intervals until it becomes a “parlando” all of the intervals of which blur together—and then the diatonic part is itself transposed according to the chromatic levels of a terraced architecture, the song sometimes interrupted by a parlando, by a simple conversation lacking definite pitch. It is perhaps characteristic of secret languages, slangs, jargons, professional languages, nursery rhymes, merchants’ cries to stand out less for their lexical inventions or rhetorical figures than for the way in which they effect continuous variations of the common elements of language. They are chromatic

languages, close to a musical notation. A secret language does not merely have a hidden cipher or code still operating by constants and forming a subsystem; *it places the public language's system of variables in a state of variation.*

This is what we are getting at: a generalized chromaticism. Placing elements of any nature in continuous variation is an operation that will perhaps give rise to new distinctions, but takes none as final and has none in advance. On the contrary, this operation in principle bears on the voice, speech, language, and music simultaneously. There is no reason to make prior, principled distinctions. Linguistics in general is still in a kind of major mode, still has a sort of diatonic scale and a strange taste for dominants, constants, and universals. All languages, in the meantime, are in immanent continuous variation: neither synchrony nor diachrony, but asynchrony, chromaticism as a variable and continuous state of language. For a chromatic linguistics according pragmatism its intensities and values.

What is called a style can be the most natural thing in the world; it is nothing other than the procedure of a continuous variation. Of the dualisms established by linguistics, there are few with a more shaky foundation than the separation between linguistics and stylistics: Because a style is not an individual psychological creation but an assemblage of enunciation, it unavoidably produces a language within a language. Take an arbitrary list of authors we are fond of: Kafka once again, Beckett, Gherasim Luca, Jean-Luc Godard. It will be noted that they are all more or less in a bilingual situation: Kafka, the Czechoslovakian Jew writing in German; Beckett, the Irishman writing in English and French; Luca, originally from Romania; Godard and his will to be Swiss. But this is only circumstantial, an opportunity, and the opportunity can be found elsewhere. It will also be noted that many of them

are not only or not primarily writers (Beckett and theater and television, Godard and film and television, Luca and his audiovisual machines). The reason for this is that when one submits linguistic elements to a treatment producing continuous variation, when one introduces an internal pragmatics into language, one is necessarily led to treat nonlinguistic elements such as gestures and instruments in the same fashion, as if the two aspects of pragmatics joined on the same line of variation, in the same continuum. Moreover, the idea perhaps comes first from outside, with language following only later, as with the necessarily exterior sources of a style. But the essential thing is that each of these authors has his own procedure of variation, his own widened chromaticism, his own mad production of speeds and intervals. The creative stammering of Gherasim Luca, in the poem "Passionnement" (Passionately). Godard's is another kind of stammering. In theater: Robert Wilson's whispering, without definite pitch, and Carmelo Bene's ascending and descending variations. It's easy to stammer, but making language itself stammer is a different affair; it involves placing all linguistic, and even nonlinguistic, elements in variation, both variables of expression and variables of content. A new form of redundancy, AND ... AND ... AND ... There has always been a struggle in language between the verb *être* (to be) and the conjunction *et* (and) between *est* and *et* (is and and [which in French are identical in pronunciation—Trans.]) It is only in appearance that these two terms are in accord and combine, for the first acts in language as a constant and forms the diatonic scale of language, while the second places everything in variation, constituting the lines of a generalized chromaticism. From one to the other, everything shifts. Writers in British or American English have been more conscious than the French of this struggle and the

stakes involved, and of the valence of the “and.” It was Proust who said that “masterpieces are written in a kind of foreign language.” That is the same as stammering, making language stammer rather than stammering in speech. To be a foreigner, but in one’s own tongue, not only when speaking a language other than one’s own. To be bilingual, multilingual, but in one and the same language, without even a dialect or patois. To be a bastard, a half-breed, but through a purification of race. That is when style becomes a language. That is when language becomes intensive, a pure continuum of values and intensities. That is when all of language becomes secret, yet has nothing to hide, as opposed to when one carves out a secret subsystem within language. One attains this result only by sobriety, creative subtraction. Continuous variation has only ascetic lines, a touch of herb and pure water.

It is possible to take any linguistic variable and place it in variation following a necessarily virtual continuous line between two of its states. We are no longer in the situation of linguists who expect the constants of language to experience a kind of mutation or undergo the effects of changes accumulated in speech alone. Lines of change or creation are fully and directly a part of the abstract machine. Hjelmslev remarked that a language necessarily includes unexploited possibilities or potentialities and that the abstract machine must include these possibilities or potentialities. “Potential” and “virtual” are not at all in opposition to “real”; on the contrary, the reality of the creative, or the placing-in-continuous variation of variables, is in opposition only to the actual determination of their constant relations. Each time we draw a line of variation, the variables are of a particular nature (phonological, syntactical or grammatical, semantic, and so on), but the line itself is apertinent, asyntactic or agrammatical, asemantic. Agrammat-

icality, for example, is no longer a contingent characteristic of speech opposed to the grammaticality of language; rather, it is the ideal characteristic of a line placing grammatical variables in a state of continuous variation. Let us take Nicolas Ruwet’s examples of certain singular expressions of Cummings’s: “he danced his did,” or “they went their came.” It is possible to reconstitute the variations through which the grammatical variables pass in virtuality in order to end up as agrammatical expressions of this kind (“he did his dance,” “he danced his dance,” “he danced what he did,” ...; “they went as they came,” “they went their way,” ...). In spite of Ruwet’s structural interpretation, we should avoid taking the view that the atypical expression is produced by the successive correct forms. It is instead the atypical expression that produces the placing-in-variation of the correct forms, uprooting them from their state as constants. The atypical expression constitutes a cutting edge of deterritorialization of language, it plays the role of *tensor*; in other words, it causes language to tend toward the limit of its elements, forms, or notions, toward a near side or a beyond of language. The tensor effects a kind of transitivity of the phrase, causing the last term to react upon the preceding term, back through the entire chain. It assures an intensive and chromatic treatment of language. An expression as simple as AND ... can play the role of tensor for all of language. In this sense, AND is less a conjunction than the atypical expression of all of the possible conjunctions it places in continuous variation. The tensor, therefore, is not reducible either to a constant or a variable, but assures the variation of the variable by subtracting in each instance the value of the constant ($n - 1$). Tensors coincide with no linguistic category; nevertheless they are pragmatic values essential to both assemblages of enunciation and indirect discourses.

Some believe that these variations do not express the usual labor of creation in language and remain marginal, confined to poets, children, and lunatics. That is because they wish to define the abstract machine by constants that can be modified only secondarily, by a cumulative effect or syntagmatic mutation. But the abstract machine of language is not universal, or even general, but singular; it is not actual, but virtual-real; it has, not invariable or obligatory rules, but optional rules that ceaselessly vary with the variation itself, as in a game in which each move changes the rules. That is why abstract machines and assemblages of enunciation are complementary, and present in each other. The abstract machine is like the diagram of an assemblage. It draws lines of continuous variation, while the concrete assemblage treats variables and organized their highly diverse relations as a function of those lines. The assemblage negotiates variables at this or that level of variation, according to this or that degree of deterritorialization, and determines which variables will enter into constant relations or obey obligatory rules and which will serve instead as a fluid matter for variation. We should not conclude from this that the assemblage brings only a certain resistance or inertia to bear against the abstract machine; for even “constants” are essential to the determination of the virtualities through which the variation passes, they are themselves optionally chosen. There is indeed braking and resistance at a certain level, but at another level of the assemblage there is nothing but a come-and-go between different types of variables, and corridors of passage traveled in both directions: the variables effectuate the machine in unison, in the sum of their relations. There is therefore no basis for a distinction between a constant and collective language, and variable and individual speech acts. The abstract machine is always

singular, designated by the proper name of a group or individual, while the assemblage of enunciation is always collective, in the individual as in the group. The Lenin abstract machine, and the Bolshevik collective assemblage... The same goes for literature, for music. There is no primacy of the individual; there is instead an indissolubility of a singular Abstract and a collective Concrete. The abstract machine does not exist independently of the assemblage, any more than the assemblage functions independently of the machine.

IV. Language Can Be Scientifically Studied Only under the Conditions of a Standard or Major Language

Since everybody knows that language is a heterogeneous, variable reality, what is the meaning of the linguists' insistence on carving out a homogeneous system in order to make a scientific study possible? It is a question of extracting a set of constants from the variables, or of determining constant relations between variables (this is already evident in the phonologists' concept of commutativity). But the scientific model taking language as an object of study is one with the political model by which language is homogenized, centralized, standardized, becoming a language of power, a major or dominant language. Linguistics can claim all it wants to be science, nothing but pure science—it wouldn't be the first time that the order of pure science was used to secure the requirements of another order. What is grammaticality, and the sign S, the categorical symbol that dominates statements? It is a power marker before it is a syntactical marker, and Chomsky's trees establish constant relations between power variables.

Forming grammatically correct sentences is for the normal individual the prerequisite for any submission to social laws. No one is supposed to be ignorant of grammaticality; those who are belong in special institutions. The unity of language is fundamentally political. There is no mother tongue, only a power takeover by a dominant language that at times advances along a broad front, and at times swoops down on diverse centers simultaneously. We can conceive of several ways for a language to homogenize, centralize: the republican way is not necessarily the same as the royal way, and is not the least harsh. The scientific enterprise of extracting constants and constant relations is always coupled with the political enterprise of imposing them on speakers and transmitting order-words.

Speak white and loud
 yes what a wonderful language
 for hiring
 giving orders
 appointing the hour of death in the works
 and of the break that refreshes ...

Must a distinction then be made between two kinds of languages, “high” and “low,” major and minor? The first would be defined precisely by the power (*pouvoir*) of constants, the second by the power (*puissance*) of variation. We do not simply wish to make an opposition between the unity of a major language and the multiplicity of dialects. Rather, each dialect has a zone of transition and variation; or better, each minor language has a properly dialectical zone of variation. According to Malmberg, it is rare to find clear boundaries on dialect maps; instead, there are transitional and limitrophe zones, zones of indiscernibility. It is also said that “the Quebecois language is so rich in

modulations and variations of regional accents and in games with tonic accents that it sometimes seems, with no exaggeration, that it would be better preserved by musical notation than by any system of spelling.” The very notion of dialect is quite questionable. Moreover, it is relative because one needs to know in relation to what major language it exercises its function: for example, the Quebecois language must be evaluated not only in relation to standard French but also in relation to major English, from which it borrows all kinds of phonetic and syntactical elements, in order to set them in variation. The Bantu dialects must be evaluated not only in relation to the mother tongue but also in relation to Afrikaans as a major language, and English as a counter-major language preferred by blacks. In short, the notion of dialect does not elucidate that of minor language, but the other way around; it is the minor language that defines dialects through its own possibilities for variation. Should we identify major and minor languages on the basis of regional situations of bilingualism or multilingualism including at least one dominant language and one dominated language, or a world situation giving certain languages an imperialist power over others (for example, the role of American English today)?

At least two things prevent us from adopting this point of view. As Chomsky notes, a dialect, ghetto language, or minor language is not immune to the kind of treatment that draws a homogeneous system from it and extracts constants: Black English has its own grammar, which is not defined by a sum of mistakes or infractions against standard English; but that grammar can be studied only by applying to it the same rules of study that are applied to standard English. In this sense, the notions of major and minor seem to have no linguistic relevance. When

French lost its worldwide major function it lost nothing of its constancy and homogeneity, its centralization. Conversely, Afrikaans attained homogeneity when it was a locally minor language struggling against English. Even politically, especially politically, it is difficult to see how the upholders of a minor language can operate if not by giving it (if only by writing in it) a constancy and homogeneity making it a locally major language capable of forcing official recognition (hence the political role of writers who assert the rights of a minor language). But the opposite argument seems more compelling: the more a language has or acquires the characteristics of a major language, the more it is affected by continuous variations that transpose it into a “minor” language. It is futile to criticize the worldwide imperialism of a language by denouncing the corruptions it introduces into other languages (for example, the purists’ criticisms of English influences in French, the petit-bourgeois or academic denunciation of “Franglais”). For if a language such as British English or American English is major on a world scale, it is necessarily worked upon by all the minorities of the world, using very diverse procedures of variation. Take the way Gaelic and Irish English set English in variation. Or the way Black English and any number of “ghetto languages” set American English in variation, to the point that New York is virtually a city without a language. (Furthermore, American English could not have *constituted* itself without this linguistic labor of the minorities.) Or the linguistic situation in the old Austrian empire: German was a major language in relation to the minorities, but as such it could not avoid being treated by those minorities in a way that made it a minor language in relation to the German of the Germans. There is no language that does not have intralinguistic, endogenous, internal minorities.

So at the most general level of linguistics, Chomsky’s and Labov’s positions are constantly passing and converting into each other. Chomsky can say that even a minor, dialectical, or ghetto language cannot be studied unless invariants are extracted from it and “extrinsic or mixed” variables are eliminated; and Labov can respond that even a standard or major language cannot be studied independently of “inherent” variations, which are precisely neither mixed nor extrinsic. *You will never find a homogeneous system that is not still or already affected by a regulated, continuous, immanent process of variation* (why does Chomsky pretend not to understand this?).

There are not, therefore, two kinds of languages but two possible treatments of the same language. Either the variables are treated in such a way as to extract from them constants and constant relations or in such a way as to place them in continuous variation. We were wrong to give the impression at times that constants existed alongside variables, linguistic constants alongside variables of enunciation: that was only for convenience of presentation. For it is obvious that the constants are drawn from the variables themselves; universals in linguistics have no more existence in themselves than they do in economics and are always concluded from a universalization or a rendering-uniform involving variables. *Constant is not opposed to variable*; it is a treatment of the variable opposed to the other kind of treatment, or continuous variation. So-called obligatory rules correspond to the first kind of treatment, whereas optional rules concern the construction of a continuum of variation. Moreover, there are a certain number of categories or distinctions that cannot be invoked, that are inapplicable and useless as a basis for objections because they presuppose the first treatment and are entirely subordinated to the quest for constants:

for example, language as opposed to speech; synchrony as opposed to diachrony; competence as opposed to performance; distinctive features as opposed to nondistinctive (or secondarily distinctive) features. For nondistinctive features, whether prosodic, stylistic, or pragmatic, are not only omnipresent variables, in contrast to the presence or absence of a constant; they are not only superlinear and “suprasegmental” elements, in contrast to linear segmental elements; their very characteristics give them the power to place all the elements of language in a state of continuous variation—for example, the impact of tone on phonemes, accent on morphemes, or intonation on syntax. These are not secondary features but another treatment of language that no longer operates according to the preceding categories.

“Major” and “minor” do not qualify two different languages but rather two usages or functions of language. Bilingualism, of course, provides a good example, but once again we use it simply for the sake of convenience. Doubtless, in the Austrian empire Czech was a minor language in relation to German; but the German of Prague already functioned as a potentially minor language in relation to the German of Vienna or Berlin; and Kafka, a Czechoslovakian Jew writing in German, submits German to creative treatment as a minor language, constructing a continuum of variation, negotiating all of the variables: make language stammer, or make it “wail,” stretch tensors through all of language, even written language, and draw from it cries, shouts, pitches, durations, timbres, accents, intensities. Two conjoined tendencies in so-called minor languages have often been noted: an impoverishment, a shedding of syntactical and lexical forms; but simultaneously a strange proliferation of shifting effects,

a taste for overload and paraphrase. This applies to the German of Prague, Black English, and Quebecois. But with rare exceptions, the interpretation of the linguists has been rather malevolent, invoking a consubstantial poverty and preciosity. The alleged poverty is in fact a restriction of constants and the overload an extension of variations functioning to deploy a continuum sweeping up all components. The poverty is not a lack but a void or ellipsis allowing one to sidestep a constant instead of tackling it head on, or to approach it from above or below instead of positioning oneself within it. And the overload is not a rhetorical figure, a metaphor, or symbolic structure; it is a mobile paraphrase bearing witness to the unlocalized presence of an indirect discourse at the heart of every statement. From both sides we see a rejection of reference points, a dissolution of constant form in favor of differences in dynamic. The closer a language gets to this state, the closer it comes not only to a system of musical notation, but also to music itself.

Subtract and place in variation, remove and place in variation: a single operation. Minor languages are characterized not by overload and poverty in relation to a standard or major language, but by a sobriety and variation that are like a minor treatment of the standard language, a becoming-minor of the major language. The problem is not the distinction between major and minor language; it is one of a becoming. It is a question not of reterritorializing oneself on a dialect or a patois but of deterritorializing the major language. Black Americans do not oppose Black to English, they transform the American English that is their own language into Black English. Minor languages do not exist in themselves: they exist only in relation to a major language and are also investments of that language for the purpose of making it minor.

One must find the minor language, the dialect or rather idiolect, on the basis of which one can make one's own major language minor. That is the strength of authors termed "minor," who are in fact the greatest, the only greats: having to conquer one's own language, in other words, to attain that sobriety in the use of a major language, in order to place it in a state of continuous variation (the opposite of regionalism). It is in one's own language that one is bilingual or multilingual. Conquer the major language in order to delineate in it as yet unknown minor languages. Use the minor language to send the *major language racing*. Minor authors are foreigners in their own tongue. If they are bastards, if they experience themselves as bastards, it is due not to a mixing or intermingling of languages but rather to a subtraction and variation of their own language achieved by stretching tensors through it.

The notion of *minority* is very complex, with musical, literary, linguistic, as well as juridical and political, references. The opposition between minority and majority is not simply quantitative. Majority implies a constant, of expression or content, serving as a standard measure by which to evaluate it. Let us suppose that the constant or standard is the average adult-white-heterosexual-European-male-speaking a standard language (Joyce's or Ezra Pound's Ulysses). It is obvious that "man" holds the majority, even if he is less numerous than mosquitoes, children, women, blacks, peasants, homosexuals, etc. That is because he appears twice, once in the constant and again in the variable from which the constant is extracted. Majority assumes a state of power and domination, not the other way around. It assumes the standard measure, not the other way around. Even Marxism "has almost always translated hegemony from the point of view of the national worker, qualified, male and over thirty-five." A determi-

nation different from that of the constant will therefore be considered minoritarian, by nature and regardless of number, in other words, a subsystem or an outsystem. This is evident in all the operations, electoral or otherwise, where you are given a choice, but on the condition that your choice conform to the limits of the constant ("you mustn't choose to change society..."). But at this point, everything is reversed. For the majority, insofar as it is analytically included in the abstract standard, is never anybody, it is always Nobody—Ulysses—whereas the minority is the becoming of everybody, one's potential becoming to the extent that one deviates from the model. There is a majoritarian "fact," but it is the analytic fact of Nobody, as opposed to the becoming-minoritarian of everybody. That is why we must distinguish between: the majoritarian as a constant and homogeneous system; minorities as subsystems; and the minoritarian as a potential, creative and created, becoming. The problem is never to acquire the majority, even in order to install a new constant. There is no becoming-majoritarian; majority is never becoming. All becoming is minoritarian. Women, regardless of their numbers, are a minority, definable as a state or subset; but they create only by making possible a becoming over which they do not have ownership, into which they themselves must enter; this is a becoming-woman affecting all of humankind, men and women both. The same goes for minor languages: they are not simply sublanguages, idiolects or dialects, but potential agents of the major language's entering into a becoming-minoritarian of all of its dimensions and elements. We should distinguish between minor languages, the major language, and the becoming minor of the major language. Minorities, of course, are objectively definable states, states of language, ethnicity, or sex with their own ghetto terri-

torialities, but they must also be thought of as seeds, crystals of becoming whose value is to trigger uncontrollable movements and deterritorializations of the mean or majority. That is why Pasolini demonstrated that the essential thing, precisely in free indirect discourse, is to be found neither in language A, nor in language B, but “in language X, which is none other than language A in the actual process of becoming language B.” There is a universal figure of minoritarian consciousness as the becoming of everybody, and that becoming is creation. One does not attain it by acquiring the majority. The figure to which we are referring is continuous variation, as an amplitude that continually oversteps the representative threshold of the majoritarian standard, by excess or default. In erecting the figure of a universal minoritarian consciousness, one addresses powers (*puissances*) of becoming that belong to a different realm from that of Power (*Pouvoir*) and Domination. Continuous variation constitutes the becoming-minoritarian of everybody, as opposed to the majoritarian Fact of Nobody. Becoming-minoritarian as the universal figure of consciousness is called autonomy. It is certainly not by using a minor language as a dialect, by regionalizing or ghettoizing, that one becomes revolutionary; rather, by using a number of minority elements, by connecting, conjugating them, one invents a specific, unforeseen, autonomous becoming.

The major and minor mode are two different treatments of language, one of which consists in extracting constants from it, the other in placing it in continuous variation. The order-word is the variable of enunciation that effectuates the condition of possibility of language and defines the usage of its elements according to one of the two treatments; we must therefore return to it as the only “metalanguage” capable of accounting for this double

direction, this double treatment of variables. The problem of the functions of language is in general poorly formulated because this order-word variable, which subsumes all possible functions, is overlooked. Following Canetti's suggestions, we may begin from the following pragmatic situation: the order-word is a death sentence; it always implies a death sentence, even if it has been considerably softened, becoming symbolic, initiatory, temporary, etc. Order-words bring immediate death to those who receive the order, or potential death if they do not obey, or a death they must themselves inflict, take elsewhere. A father's orders to his son, “You will do this,” “You will not do that,” cannot be separated from the little death sentence the son experiences on a point of his person. Death, death; it is the only judgment, and it is what makes judgment a system. The verdict. But the order-word is also something else, inseparably connected: it is like a warning cry or a message to flee. It would be oversimplifying to say that flight is a reaction against the order-word; rather, it is included in it, as its other face in a complex assemblage, its other component. Canetti is right to invoke the lion's roar, which enunciates flight and death simultaneously. The order-word has two tones. The prophet receives order-words just as much in taking flight as in longing for death: Jewish prophetism fused the wish to be dead and the flight impulse with the divine order-word.

Now if we consider the first aspect of the order-word, in other words, death as the expressed of the statement, it clearly meets the preceding requirements: even though death essentially concerns bodies, is attributed to bodies, its immediacy, its instantaneousness, lends it the authentic character of an incorporeal transformation. What precedes and follows it may be an extensive system of actions and passions, a slow labor of bodies; in itself, it

is neither action nor passion, but a pure act, a pure transformation that enunciation fuses with the statement, the sentence. That man is dead ... You are already dead when you receive the order-word ... In effect, death is everywhere, as that ideal, uncrossable boundary separating bodies, their forms, and states, and as the condition, even initiatory, even symbolic, through which a subject must pass in order to change its form or state. This is the sense in which Canetti speaks of “enantiomorphosis”: a regime that involves a hieratic and immutable Master who at every moment legislates by constants, prohibiting or strictly limiting metamorphoses, giving figures clear and stable contours, setting forms in opposition two by two and requiring subjects to die in order to pass from one form to the other. It is always by means of something incorporeal that a body separates and distinguishes itself from another. The figure, insofar as it is the extremity of a body, is the noncorporeal attribute that limits and completes that body: death is the Figure. It is through death that a body reaches completion not only in time but in space, and it is through death that its lines form or outline a shape. There are dead spaces just as there are dead times. “If [enantiomorphosis is] practiced often the whole world shrivels. ... Social prohibitions against metamorphosis are perhaps the most important of all. ... Death itself, the strictest of all boundaries, is what is interposed between classes.” In a regime of this kind, any new body requires the erection of an opposable form, as well as the formation of distinct subjects; death is the general incorporeal transformation attributed to all bodies from the standpoint of their forms and substances (for example, the body of the Party cannot come into its own without an operation of enantiomorphosis, and without the formation of new activists, which assumes the elimination of the first generation).

It is true that we are bringing in considerations of content as well as expression. For even at the moment when the two planes are most distinct, as the regime of bodies and the regime of signs in an assemblage, they are still in reciprocal presupposition. The incorporeal transformation is the expressed of order-words, but also the attribute of bodies. Not only do linguistic variables of expression enter into relations of formal opposition or distinction favorable to the extraction of constants; nonlinguistic variables of content do also. As Hjelmslev notes, an expression is divided, for example, into phonic units in the same way a content is divided into social, zoological, or physical units (“calf divides into young-bovine-male). The network of binarities, or arborescences, is applicable to both sides. There is, however, no analytic resemblance, correspondence, or conformity between the two planes. But their independence does not preclude isomorphism, in other words, the existence of the same kind of constant relations on both sides. It is by virtue of this type of relations that linguistic and nonlinguistic elements are inseparable from the start, despite their absence of correspondence. The elements of content give the interminglings of bodies clear contours at the same time as the elements of expression give the noncorporeal expresseds a power of sentencing or judgment. These elements are all abstract or deterritorialized to different degrees, but in each instance they effect a reterritorialization of the overall assemblage on certain order-words and contours. Indeed, the significance of the doctrine of synthetic judgment is to have demonstrated that there is an a priori link (isomorphism) between Sentence and Figure, form of expression and form of content. If we consider the other aspect of the order-word, flight rather than death, it appears that variables are in a new state, that of continuous variation. An incorporeal

transformation is still attributed to bodies, but it is now a passage to the limit: that is the only way, not to eliminate death, but to reduce it or make it a variation itself. This movement pushes language to its own limits, while bodies are simultaneously caught up in a movement of metamorphosis of their contents or a process of exhaustion causing them to reach or overstep the limit of their figures. This is an appropriate place to bring up the opposition between minor sciences and major sciences: for example, the tendency of the broken line to become a curve, a whole operative geometry of the trait and movement, a pragmatic science of placings-in-variation that operates in a different manner than the royal or major science of Euclid's invariants and travels a long history of suspicion and even repression (we will return to this question later). The smallest interval is always diabolical: the master of metamorphoses is opposed to the invariant hieratic king. It is as though an intense matter or a continuum of variation were freed, here in the internal tensors of language, there in the internal tensions of content. The idea of the smallest interval does not apply to figures of the same nature; it implies at least a curve and a straight line, a circle and a tangent. We witness a transformation of substances and a dissolution of forms, a passage to the limit or flight from contours in favor of fluid forces, flows, air, light, and matter, such that a body or a word does not end at a precise point. We witness the incorporeal power of that intense matter, the material power of that language. A matter more immediate, more fluid, and more ardent than bodies or words. In continuous variation the relevant distinction is no longer between a form of expression and a form of content but between two inseparable planes in reciprocal presupposition. The relativity of the distinction between them is now fully realized on the plane of consistency,

where the assemblage is swept up by a now absolute deterritorialization. Absolute, however, does not mean undifferentiated: differences, now "infinitely small," are constituted in a single matter serving both for expression as incorporeal power and for content as limitless corporeality. The relation of presupposition between variables of content and expression no longer requires two forms: the placing-in-variation of the variables instead draws the two forms together and effects the conjunction of cutting edges of deterritorialization on both sides; this occurs on the plane of a single liberated matter that contains no figures, is deliberately unformed, and retains in expression and in content of intensities conjugates or forms a rhizome throughout the entire assemblage the moment the assemblage is swept up by these vectors or tensions of flight. For the question was not how to elude the order-word but how to elude the death sentence it envelops, how to develop its power of escape, how to prevent escape from veering into the imaginary or falling into a black hole, how to maintain or draw out the revolutionary potentiality of the order-word. Hofmannsthal adopts the order-word, "Germany, Germany!," or the need to reterritorialize, even in a "melancholy mirror." But beneath this order-word he hears another, as if the old German "figures" were mere constants that were then effaced to uncover a relation with nature and life all the more profound for being variable. When should this relation to life be a hardening, when submission? At what moment is rebellion called for and at what moment surrender or impassibility? When is dry speech necessary and when exuberance or amusement? Whatever the breaks and ruptures, only continuous variation brings forth this virtual line, this virtual continuum of life, "the essential element of the real beneath the everyday." There is a

splendid statement in one of Herzog's films. The main character asks himself a question and then says, Who will answer this answer? Actually, there is no question, answers are all one ever answers. To the answer already contained in a question (cross-examination, competition, plebiscite, etc.) one should respond with questions from another answer. One should bring forth the order-word of the order-word. In the order-word, life must answer the answer of death, not by fleeing, but by making flight act and create. There are pass-words beneath order-words. Words that pass, words that are components of passage, whereas order-words mark stoppages or organized, stratified compositions. A single thing or word undoubtedly has this twofold nature: it is necessary to extract one from the other—to transform the compositions of order into components of passage.



BILL BRANDT, RAINSWEPT ROOFS (~1933)

CONJURING THE UNIVERSE THE ORIGINS OF THE LAWS OF NATURE

221

PETER ATKINS

2018

8. Measure for Measure

The origin of the fundamental constants

The fundamental constants, quantities like the speed of light ($c = 2.998 \times 10^8$ metres per second), Planck's constant ($h = 6.626 \times 10^{-34}$ joule-seconds), Boltzmann's constant ($k = 1.381 \times 10^{-23}$ joules per kelvin), and the fundamental electric charge ($e = 1.602 \times 10^{-19}$ coulombs), play an extraordinary role in the consequences of the laws of nature. The laws effectively issue orders about how to behave given various parameters such as mass and charge, and the fundamental constants determine the magnitudes of the resulting changes. For instance, the laws of nature we call special relativity imply that space and time become mingled the faster one travels; the speed of light establishes the extent of that mingling for a given speed of travel. The laws of electromagnetism imply that a charged particle is deflected by an electric field, and the fundamental charge determines the extent of that deviation for a given strength of field. The energy of an oscillator, like a mass on a spring or a pendulum, according to the laws of quantum mechanics, can step up a ladder of values, and Planck's constant tells us the separation of the rungs of this ladder:

if it were zero there would be no gaps between the rungs and the energy of the oscillator could be increased continuously; that Planck's constant is so small (note the 10^{-34}) implies that the rungs are so close that we don't detect the separation in everyday pendulums and wobbling springs. But it is there.

There has also been a great deal of discussion about the serendipity of the values we currently have, for even tiny deviations from their values, it is argued, would have catastrophic consequences for the emergence of life, of consciousness, and of the ability to wonder why they have those seemingly benign values. With even slightly different values, stars might not form, or if they did form might burn their fuel so fast that there was no time for life to evolve, and so on.

To my mind there are two classes of fundamental constants: those that don't exist and those that do. As might be suspected, the values of the ones that don't exist are much easier to explain than the values of the ones that do. The former are essentially a consequence of mankind making, over the course of its intellectual history, sensible but fundamentally inappropriate choices about how things should be measured and reported (for instance, length in metres and time in seconds). The latter, the constants that really do exist in a fundamental way, and thus which are the truly fundamental constants, are coupling constants that summarize the strength of the interaction between entities, such as the strength of the force between electric charges, the strength of the interaction of an electric charge with an electromagnetic field, and the strength of the nuclear forces that bind elementary particles together and into the structures we call atomic nuclei. They also include the gravitational constant ($G = 6.673 \times 10^{-11}$ joule-metres per square kilogram) for specifying the

strength of the gravitational field due to a massive body, and therefore which establishes the orbits of planets around their stars, contributes to the formation of galaxies, and determines the acceleration of an apple's fall.

Although tables of fundamental constants express them with units, such as the speed of light being so many metres per second, they shouldn't really have units. Put another way, the fundamental constants that don't exist all have the value 1 (so, $c = 1$, not $c = 2.998 \times 10^8$ metres per second), and the fundamental constants that do exist are best expressed in such a way that they too have no units. As I shall explain, instead of the fundamental charge having the value $e = 1.602 \times 10^{-19}$ coulomb, it is best expressed in a form that has the value $1/137$. The other actual fundamental constants are all best expressed similarly as various other pure numbers. As will become clear, I think I can explain the value 1 but not values like $1/137$. At present, we really have no idea where the numbers like $1/137$ come from, and I shall make no pretence of knowing any better than anyone else. That is a shame, because it is these numbers that govern our existence and the emergence of thought: had $1/137$ turned out to be $1/136$ or $1/138$ instead, we might not be here to know.

These remarks need to be elaborated so that you can see what I have in mind and why I think there are the two classes of constant. I shall not deal with all the fundamental constants (there are about a dozen important ones, and a number of combinations that are treated as though they are of the same rank). I shall just select a handful that I regard as truly fundamental and discuss their origins.

I'll begin with perhaps the most important fundamental constant of all, the speed of light, c (from *celeritas*). I consider it to have that rank because, even though it

doesn't exist, it governs the structure of spacetime, the arena of all action.

There is more to space than meets the eye. Isaac Newton (1642–1726), not to mention René Descartes (1596–1650) and that extraordinary mind of antiquity, Aristotle (384–322 BC), who both inspired and suffocated thought, and we ourselves all glance at space and see that it is three dimensional. Albert Einstein (1879–1955), standing on the shoulders of others, changed all that. His special relativity (of 1905, his *annus mirabilis* but with more glory still to come as “special” evolved into the even more extraordinary “general”) invites you to accept that space is entwined with time, and that what you thought of space and of time should not be regarded as each one separately but as components of a single arena, namely spacetime. That theory brings more discomfort and overthrow of the seemingly secure, for you then have to accept that what you regard as space and time are not what your neighbour might identify. If that neighbour is moving (most neighbours are, even if they are merely strolling, driving, or flashing past in a rocket), they have different perceptions of what component of spacetime is space and what is time.

It all depends on how fast you are moving. If you and I are not moving, then what you and I regard as space and time are exactly that: space and time. But suppose you are moving: you are walking, driving, or rocketing. Then you modify your perception in an extraordinary way: time rotates into space and space rotates into time. You are perfectly capable of asserting that something stationary is at a fixed location on a coordinate you regard as “space”. But I, as a neighbour walking past, perceive space and time differently, and I no longer agree with your allocation of space and time to the event. The faster I travel relative to

you the observer, the more my perception of time is rotated into my perception of space, and vice versa. Each of us, as we go about our daily activities, perceives space and time differently: your space is not mine, nor is your time mine (unless we are moving at exactly the same speed, including sitting still). The differences show up only if our relative speeds are very high, approaching the speed of light. That is merciful, for otherwise science and society would probably both be impossible. Nevertheless, it is the case that the fabric of reality is such that spacetime resolves differently for each of us and depends on our relative state of motion (hence “relativity”).

Now we can return to the role of the speed of light. It is sometimes thought of as a puzzle why there is a limiting speed for the propagation of information, with it being impossible according to special relativity to exceed c . Why is there such a limit? Could it be that there is a kind of viscous drag like that responsible for imposing a terminal velocity on a ball as it drops through a viscous medium? Is space viscous and the speed of light the terminal velocity for information as it drops through it? No: the explanation is much deeper and therefore simpler than that. The speed of light is simply the speed at which you have to travel for your perception of time to be rotated wholly into it appearing to be space. There is simply no further degree of rotation possible. There is no such thing as viscous drag on information passing through space: the limiting speed is a feature of our perception of space and time themselves.

But why does the speed of light have its particular value (of exactly 299'792'458 metres per second, about 670 million miles per hour)? The explanation lies in an artefact of human bureaucracy, boiling down to the fact that by convention we measure lengths in metres and not

seconds. Various suggestions were made when the metre was first defined (in 1790, with French revolutionary zeal for the rationalization of just about everything, including the aristocracy). An early suggestion was to define it as one tenmillionth of the distance from the North Pole to the equator along a meridian, chosen diplomatically rather than sensibly to lie more or less half way between Paris and Washington in their respective young republics, and therefore which unhelpfully both started and ended in the sea. Compromise was then cast aside and the choice of meridian was shifted to the one that runs through Paris. A metal rod was then cast to enable this ultimate standard to be publicized and used more widely with greater convenience.

Since then, bearing in mind that the Earth effectively breathes and consequently the fiducial distance is not constant, and in principle therefore nor is the metre, a more precise and unchanging definition has been accepted. The metre is now defined as $1/299'792'458$ of the distance that light travels (in a vacuum) in one second. Thus it is that all measurements of length are actually measurements of time. For instance, a person 1.7 metres tall could be recorded as being $1.7/299'792'458$ seconds, or 5.7 nanoseconds, tall. Although light travels $299'792'458$ metres in one second, that could be reported as $299'792'458/299'792'458$ seconds, or 1 second. So what is the speed of light? If it travels through 1 second in 1 second, its speed (distance divided by time) is 1. No units; just 1. If you are in a car travelling at 100 kilometres per hour (that is about 28 metres per second), you should be able to work out that your speed is actually merely $0.000'000'093$. At such a slow speed, it is obvious that you can ignore relativistic effects and be confident that your space hasn't been rotated into resembling time (compared

to my assessment, as you flash past) and we should have no argument, at least to within reasonable precision, about whether two events are simultaneous.

I hope you can now accept that $c=1$. That until now you thought it was expressed as a lot of metres per second turns out to be a historical accident: for perfectly understandable and sensible reasons, civil society measured distance and time in different units. Measure them in the same units, and a profoundly important fundamental constant effectively disappears. From now on, whenever I refer to a length L conventionally measured in metres, I shall denote it L^\dagger , the dagger signifying that the metres have been done to death and that henceforth it is to be reported in seconds. All speeds now lose their units and are pure numbers.

I suspect you might be wondering whether other rabbits can be pushed back into hats. What about probably the second most important fundamental constant, Planck's constant, h ? Just as the speed of light essentially introduced relativity into science, Planck's constant effectively introduced quantum mechanics, so culturally they are of similar potency. The vanished c pervades all the formulations of special relativity; could it be the case that h , which is present in all formulations of quantum theory, should disappear too simply because a property historically was reported in convenient but fundamentally inappropriate units?

The German physicist Max Planck (1858–1947) was the initiator of quantum mechanics in what he regarded as act of despair. That despair was directed at the failure of classical physics, which he rightly loved, to account for what was thought to be the elementary problem of the colour of light emitted by an incandescent body, essentially why red hot became white hot as the

temperature is raised. Classical physics had led to the erroneous conclusion that all objects should be white hot even when mildly warm. According to classical physics, there should be no darkness. Moreover, and worse, any object, even the merely warm, should devastate the countryside with gamma radiation. Planck's despair led him to suppose in 1900, or shortly before, that if something oscillated with a certain frequency, then it could exchange energy with the rest of the world only in packets, "quanta", of energy, with the size of the packet proportional to the frequency: low-frequency oscillating things could exchange little packets; high-frequency oscillating things could exchange only big packets. Classical physics had supposed that an oscillator of any frequency could exchange energy in any amount; Planck's hypothesis supposed that energy is "quantized", or exchanged in packets. That simple but revolutionary suggestion, which Planck seems to have hated as it was contrary to all his classical upbringing (Einstein had similar difficulties with quantum mechanics in general), accounted for the colour of hot objects, indeed the colour of objects at any temperature. We now know that it accounts for the colour of the Sun, at around 5772 K in the light-emitting surface regions, and of the entire universe, which has cooled to a miserly 2.7 K yet still glows with radiation characteristic of a body at that temperature.

In conventional physics, energy is reported in joules J. A joule is quite a small unit, but very suitable for everyday discourse. For instance, each beat of a human heart requires about 1 joule of energy. The battery of a currently typical smartphone stores around 50 kilojoules of energy. The joule is quite a recent introduction, replacing a ragbag of earlier units that included calories, ergs, and "British thermal units". In the nineteenth

century, as thermodynamics and the science of energy was emerging, heat was reported typically in calories and work was reported in ergs.

Here is an analogy to introduce an important point. There was once considerable interest in the efficiencies of steam engines, and therefore in the relation between calories of heat supplied and ergs of work produced. Elaborate experiments were performed to establish "the mechanical equivalent of heat", the conversion factor, then perceived as a rather lowly fundamental constant, that could be used to convert the measurements of one form of energy into another. However, although those experiments were an important component of our intellectual progress, they were in another sense a complete waste of time. Had the early investigators measured heat and work in the same units, both calories or both ergs, then the conversion factor, that particular fundamental constant, would have been 1. That is now the case (except in a few isolated archaic islands of activity, including everyday food science) with the joule being used to report both forms of energy. The "mechanical equivalent of heat" is now history or, to put it another way, 1.

I am sure you can see the parallels in this activity with the arguments I have been presenting about the real fundamental constants, or at least the ones that don't, or shouldn't, exist: choose the same units for related quantities, and conversion factors become 1. Planck's constant is a candidate for this treatment. It was introduced to relate the frequency of oscillation to the size of the corresponding energy packets, the minimum size of the quanta that can be transferred.

The way ahead should now be clear. Let's do away with joules and report energy as a frequency, in cycles per second. Whenever I want to report energy as a frequency,

I shall denote it E^\dagger and report it as so many cycles per second. There is no longer any need for a conversion factor between them, any more than there is a need to report and list the mechanical equivalent of heat or, having decided to report distance in seconds, for there to report and list the speed of light. Planck's constant has become 1. Joules, like calories and ergs, are now history. There might at first thought seem to be profound implications for quantum mechanics if $h=1$ rather than its conventional tiny value: but that is not the case, as I shall develop after swilling out a few more items littering the gutters of the Augean stable of conventional units.

A semi-final point in this connection is that with the shenanigans developed so far, Einstein's formula $E=mc^2$ becomes $E^\dagger=m^\dagger$ with both properties reported as frequencies. You are welcome to keep the form $E^\dagger=m^\dagger c^2$, but to do so you now have to accept that $c=1$, as I have already argued. A truly final point is that you can now see that because $E^\dagger=m^\dagger$, energy and mass are the same.

Just about everyone these days (except in the USA, in company with Burma and Liberia) expresses mass in kilograms and its fractions (grams) or multiples (tonnes, 1000 kilograms). The kilogram was originally defined (back in the 1790s) as the mass of a litre of water at a certain temperature. Like the metre, that definition was refined and replaced by a standard kilogram, the "International prototype of the kilogram" (IPK), a cylinder of platinum-iridium alloy maintained at the *Bureau International des Poids et Mesures* in Sèvres, on the outskirts of Paris, and with various secondary copies spread around the world. Unfortunately, even the IPK is not perfectly stable, for impurities evaporate from it, air diffuses into it, and minute scratches are caused when it is handled, so what is meant

by "a kilogram" is slowly changing. The current proposals are to define the kilogram in terms of Planck's constant, an eternal constant (as far as we know), so that the meaning of "a kilogram" is fixed for all time and anyone with access to the fundamental constants knows exactly what is meant. What does that mean for our current purposes?

Let's adopt the view that humanity, in its usual muddly way, made a collective but sensible mistake when it adopted the kilogram as a measure of mass. Instead of the kilogram, suppose it had adopted the second, or more precisely the "cycles per second", just like a frequency. With extraordinary prescience, it could have done that by reporting not m but $m^\dagger=mc^2/h$ and reporting mass in oscillations per second. A mass of 1 kilogram, for instance, would then be reported as 1.4×10^{50} cycles per second. If you think of yourself as a well-proportioned 70-kilogram person, from now on you should think of your mass as a breathtaking 9.5×10^{51} cycles per second by converting mass in kilograms into an energy in joules by multiplying by the square of the speed of light (that is, use $mc^2=E$), and then using Planck's constant to express that energy as a frequency in cycles per second. The unit "cycles per second" is becoming a little tedious to write and to read; it is actually the definition of the unit "hertz" (Hz), which is named after the regrettably short-lived pioneer of radio communication, Heinrich Hertz (1857–94), so 1 cycle per second is 1 hertz. By adopting this procedure of multiplying by c^2 and then dividing by h , your mass will turn out to be around 9.5×10^{51} hertz. That might seem a silly way to report mass, but that isn't the point. In everyday practice the kilogram is sensible and useful. I, though, am trying to get to the root of reporting data in the most consistent manner and in the processes bringing my typographical dagger to the throats of conventional units.

We can now see why setting $b = 1$ is of no consequence in the physical world, in the sense that it leaves quantum mechanics intact. One way to do that is to show that the Schrödinger equation (which I introduced in Chapter 3 as one of the principal components of quantum mechanics) remains unchanged apart from the interpretation of its symbols, but equations as complicated as his are confined to lurk in the shadows of this book, the Notes. Another way is to lead you into the foundations of his equations. That turns out to be possible, for foundations, even in science, are invariably simpler than the edifices they support.

If you are a commuter, you are already half way to understanding quantum mechanics. The term “commuter” stems from the common practice of selling a ticket for “there and back” for less than the sum of the individual “there” and “back” fares: the return fare is “commuted” (from the Latin *commutare*, “to change, to alter”). Put another way, the cost of the “back” fare is not the same as the “there” fare (provided you have already invested in the “there” fare). Quantum mechanics differs from classical mechanics in much the same way. The analogy is as follows. The fare for travel “there” becomes multiplication of linear momentum by position; the “back” fare becomes multiplication of position by linear momentum (note the opposite order). The two “fares” are not the same, and the difference is called the “commutator” of the position and linear momentum.

A railway company can adjust its fares for commuters at whim. Nature appears to have settled on a particular standard commutation, and the reduction in the round trip is equal to a minor (but farreaching) modification of Planck’s constant. That is, going “there” with linear momentum multiplied by position minus coming “back” with position multiplied by linear momentum, is propor-

tional to b . The whole of the deviation of the predictions of quantum mechanics from classical mechanics springs from that commutation of the “there and back” fare, and all quantitative aspects stem from the fact that Nature’s board of directors have allowed the commuter discount to be proportional to Planck’s constant.

In conventional units Planck’s constant is so tiny (but pregnant) that the board of directors of classical mechanics decided it wasn’t worth the administrative hassle of giving the commuters any discount. It is easy to see their point. It would be like getting a 1 penny discount on a fare of many trillions of pounds. From that perfectly reasonable decision, classical mechanics emerges.

Reasonable it might be, but wrong it is too. The actual board of directors of Nature insist on maintaining the discount. The most successful ever mathematical description of matter and radiation, quantum mechanics, differs from classical mechanics by the simple offer of a discount to commuters, yet has consequences of the profoundest implication. As I have indicated, Newton and his contemporaries and immediate successors had no inkling of the lack of commutation of position and momentum, and developed his and their wonderful cathedral of theoretical structure we call classical mechanics on this oversight. From it grew an understanding of the heavens, for who cares about such a tiny discount when bodies as big as planets are encircling the Sun? But when scientists turned their attention to electrons in atoms, when the “there” and “back” fares are themselves very tiny, then the commutation discount is tremendously significant. On a fare of one pound, the discount could be as much as 50 pence; it simply cannot be ignored.

How, then, is it possible to set b equal to 1 rather than to a miniscule 10^{-34} and still end up with classical

mechanics being appropriate for everyday objects? Wouldn't that mean that any everyday position and momentum qualifies for a significant commutator's discount? The weasel position is that I finessed the problem by leaving off the units of 10^{-34} .

The values of everyday positions and momenta, which might have quite ordinary everyday values in the old units of position in metres, mass in kilograms, and speed in metres per second, become enormous when expressed in the new units of position in seconds, mass as a frequency in cycles per second, and speed in no units at all. As a result, the product of position and momentum for an everyday object also becomes enormous in the new units, and far, far bigger than 1. In the old way of looking at things, position and momentum had everyday values and h was exceedingly small. In the new way, it is h that has an everyday value (of 1) and position and momentum are exceedingly large. The result, the discount being negligible, is effectively the same and the consequence of that negligibility is the same too: you don't need quantum mechanics for everyday objects.

I need to mention here that great clarifier of human thought, Heisenberg's uncertainty principle, which he formulated in 1927, for it stems from the lack of commutation of momentum and position. The principle states that it is not possible to know, with arbitrary precision, position and momentum simultaneously. Quantum mechanics, much to the discomfort of those brought up in the classical tradition (I include Bohr and Einstein), thereby reveals that we have to make a choice when seeking to specify the state of a system. It instructs us to choose a description in terms of position or choose a description in terms of momenta, either of which can be specified with arbitrary precision. If you insist, as a result of your clas-

sical conditioning, to speak in terms of both descriptions, believing that only then can your description of the world be complete, you are brought up short by the uncertainty principle, which implies that the two descriptions are intrinsically incompatible. If you cannot shake off your conditioning as a classical physicist, you are led to the view that quantum mechanics disallows a complete description of Nature. A much more positive view, however, is that what the practitioners of classical mechanics took to be "complete" was in fact unattainably over-complete. Quantum mechanics tells us that the use of both descriptions simultaneously is inconsistent. It is a bit like starting a sentence in one language and ending it in another. You have to choose your language, for otherwise your message will be incomprehensible and your interlocutor, in this case the universe, will look at you blankly. Quantum mechanics strips away this common-sense inspired error and accepts that completeness exists in one language or the other, in position or momentum, not both. When that is accepted, the description of the universe is simplified (but still not simple). That is why I regard the uncertainty principle as a great clarifier.

I have done away with c and with h , the hinges on which relativity and quantum mechanics swing. Is there room in the graveyard for other fundamental constants? If I were to identify the single most important fundamental constant that is in effect the hinge of thermodynamics, then I would choose Boltzmann's constant, k . It occurs in the all-important Boltzmann distribution that I lauded in Chapter 5, it is carved into Boltzmann's tombstone for his definition of entropy, and it occurs in disguise (among other entities, as the gas constant in the discussion of gases) subversively throughout thermodynamics. It is, however,

completely unnecessary and can be eliminated and buried by using arguments not unlike those that I have used to do away with c and b .

The mistake, once again a sensible, understandable, and laudable mistake, goes back to Celsius and Fahrenheit, whom I introduced in Chapter 4 as the inventors of early temperature scales, and was compounded by Kelvin's introduction of a seemingly more natural absolute scale. First, you need to recognize that all three were seduced by convention, with perhaps Celsius the least seduced. In our current world, the hotter the object the higher the temperature, on all three scales. As I have mentioned, Celsius originally had it going the opposite way, the hotter the lower on his original scale. I think he was, unknowingly, on the right track, for in a variety of ways I think "the hotter the lower" is more natural at a thermodynamically fundamental level, as I shall explain. But all three, in my view, got it wrong by introducing a new unit of measurement (the degree, and later the kelvin, K) to report temperature, just as introducing metres to measure length instead of using seconds also resulted in unnecessary confusion that became apparent as science matured. In the latter connection you have seen that had length been measured in seconds, then there would have been no need to introduce the fundamental constant c , the speed of light. In a similar vein, I shall argue that had temperature been reported in the same units as energy, then there would have been no need to introduce Boltzmann's constant.

There are obviously a number of matters that I need to explain. Boltzmann's constant, which is so many joules per kelvin, can be regarded as a way of converting kelvins to joules. If you have already agreed to report temperature in joules, then there would be no need to

convert it into those units. Moreover, if there is a uniform relation between temperature in kelvins and joules, then there is no ambiguity in the change of units. You might end up with some unfamiliar funny numbers, but unfamiliar funniness is not one of the criteria of acceptability in science (although it might be one in the pragmatic everyday world). For example, with the currently accepted value of Boltzmann's constant, a mild 20 °C (293 K) would be reported as an unfamiliar 4.0 zeptojoules (zepto is the perhaps unfamiliar but useful prefix denoting 10⁻²¹) and water would boil at 5.2 zeptojoules. If you agree to report temperatures in joules (or its submultiples, such as zeptojoules), then the gradations on our thermometers will have to be in joules or a submultiple of joules, and each degree on the current Celsius scale becomes 0.0138 zeptojoules. Once you have done that, there is no need ever again to invoke Boltzmann's constant in any expression. In effect, if you insist on using the equations you come across in current textbooks, then wherever k appears you should ascribe to it the value 1. Now k has gone the way of c and b . It is a superfluous fundamental constant that emerged simply because the early scientists were misled by sensible everyday practice into introducing a new but unnecessary unit for the measurement of temperature.

But what did I mean by Celsius originally being less in error than Fahrenheit and Kelvin, and it being better to think of temperatures unfamiliarly going down as things get hotter? Here I have in mind the fact that many expressions in thermodynamics, and in particular its cousin "statistical thermodynamics", which provides the link between the molecular and the bulk, between the individual and the crowd, are strikingly simpler if expressed as the inverse of temperature (that is, as $1/T$ rather than T , not simply reversed with 0 and 100 changing places).

The mathematics seems to be crying out to us that a natural temperature scale is one in which the scale should be not simply reversed but turned upside down. With temperature already in zeptojoules, its inverse would be reported in “per zeptojoules”. In this way (I leave the little arithmetic to you), the boiling point of water would be 0.19 per zeptojoule and its freezing point would be higher at 0.27 per zeptojoule.

From now on, I’ll express all temperatures upside down and converted, as so many “per zeptojoules”, and denote the newly defined temperature by the letter \mathcal{F} (tee-dash). As I have forbidden myself to quote any formulas except in the safe space of the Notes, to which I refer you, 6 you will have to accept my word that if you take any formula in statistical thermodynamics, then it looks, and is, simpler when T is replaced by \mathcal{F} . But there is more to that replacement than appearance.

Everyone (well, almost everyone) knows that you can’t reach the absolute zero of temperature. The third law of thermodynamics expresses that unattainability in more sophisticated, scientifically acceptable terms, adding “in a finite number of steps” and a bit more, but that is its general gist. It might seem odd that $T=0$, the bottom of the Kelvin scale, can’t be reached in a finite number of steps. But $T=0$ corresponds to $\mathcal{F}=\infty$, and there is probably little psychological rejection of the impossibility of reaching infinite \mathcal{F} in a finite number of steps.

A deeper simplification comes from the exploration of various equations of statistical thermodynamics. Although negative absolute temperatures (temperatures like -100 K) are meaningless in ordinary thermodynamics (they are like negative lengths: something can’t be -1 metre long), there is nothing wrong with fiddling about with the equations of statistical thermodynamics and seeing what

happens to various properties (for instance entropy) as the temperature is allowed to sink though zero and become negative, and even become negatively infinite. For instance, you could take any of the formulae in note 6 and see what happens when you insert a negative value of the temperature. Typically, nasty things happen when you do that, with the properties showing sharp jumps or squirting off to infinity as the temperature passes through zero. However, if the same properties are plotted against \mathcal{F} , then all these jumps and squirts disappear, and all the properties behave smoothly. This taming of the properties strongly suggests (it is no more than that) that \mathcal{F} is a more fundamental measure of temperature than T . But, I shall now argue that it is not quite fundamental enough: it hasn’t reached rock bottom in fundamentality.

I am sure that you are seeing a pattern emerging through these chapters, with everything becoming simplified by being expressed either in seconds (time and distance) or as a frequency in “per second” (energy). You have also seen that inverse temperature \mathcal{F} is an inverse energy in “per zeptojoules”. Now note that we can convert that inverse energy to inverse “per second”, which is simply seconds. Then 20°C becomes 0.16 picoseconds (pico is the prefix denoting 10^{-12}), water freezes at 0.18 picoseconds and boils at 0.13 picoseconds.

At this stage, the three fundamental constants of relativity, quantum mechanics, and thermodynamics, c , h , and k , have become redundant. Put another way, if you insist on using equations in which they appear (such as $E=mc^2$), and have chosen to express the properties (such as E and m) in related units (such as seconds or their variations), then you have to set each fundamental constant equal to 1 and there is no longer a mystery about their origin.

I now leave these non-existent fundamental constants which I can explain and turn to the ones that really exist and I cannot explain. There are just two that I shall mention, but others are lurking in this Pandora's box of the currently inexplicable. Both are coupling constants, governing the strengths of two varieties of interaction.

I have already mentioned the fundamental charge, e , which expresses the strength of electromagnetic interactions, such as the strength of the attraction between two charges and the strength of the interaction of an electron (which has charge $-e$) with an electric field, such as that in a radio wave. The size of this fundamental constant affects the strength of the interaction between electrons and nuclei in atoms, and therefore the sizes and properties of atoms, the strength of the bonds between atoms and therefore the formation of compounds, and the strength of the interactions of electrons in atoms and molecules and the electromagnetic field, so it also affects the colours of materials and the intensity of those colours. It plays a role within atomic nuclei, for the positively charged protons within nuclei are subject to intense mutual repulsions.

Once again it is best to detach the magnitude of the fundamental charge from human-inspired units and to express it as a pure number. Whenever you see units attached to a constant, you can't be sure that it is large or small: large or small compared to what? In its case, the fundamental charge is commonly wrapped in other fundamental constants to produce a dimensionless number, the "fine-structure constant", α (alpha), which is so-called because it was introduced to explain some of the detailed structure of the spectrum of hydrogen atoms. It has the value I mentioned earlier, namely $1/137$. That α is so small reflects the weakness of electromagnetic interactions (compared to the strong force at work within nuclei) and

is responsible for molecules, which are held together by electromagnetic interactions, being much more malleable than nuclei in the sense that they can be torn apart and reassembled in chemical reactions. If α were close to 1, there would be no chemistry, molecules, if they existed at all, would be the size of atomic nuclei, and life (a highly elaborate chemical reaction) would not have emerged. The universe would have been biologically silent.

No one yet knows why α has the value $1/137$. In one scenario, all the forces once had the same strength but as the universe expanded and cooled their strengths diverged, and $1/137$ emerged as the strength of one of them. That value, I presume, will be explained once a more comprehensive theory of the inception, structure, and evolution of the universe has been formulated, but at present its value is a mystery. That is not to say that a variety of concoctions of numbers like π and $\sqrt{2}$ have not been cobbled together, some with impressively close values to the experimental value. However, they are cobblings together with no reliable theoretical foundation and none of them has been accepted by the scientific community as anything other than numerical jugglings. The problem, though, is of enormous importance for understanding the universe and our place in it. There are similar coupling constants for the strong and weak forces that play a role in nuclear structure. Some future theory of the fundamental forces (and the fundamental particles they act on) will have to account for all their values.

The only other coupling constant I shall mention is the one that governs the strength of gravity. This constant, the "gravitational constant", G , appears in the inverse square law of gravitational attraction between two masses. The gravitational constant can be turned into a dimensionless quantity, α_G , analogous to the finestructure

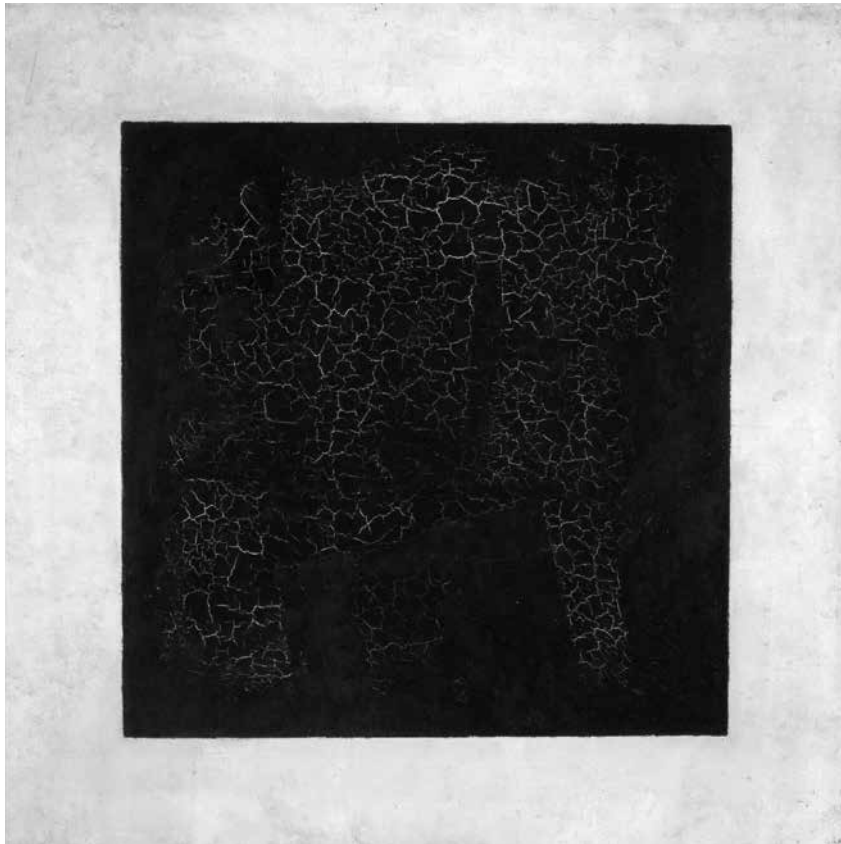
constant, effectively replacing the square of the charge of an electron (which appears in α) by the square of the mass of an electron, when it turns out to be 1.752×10^{-45} . Now you can see that it is a very tiny quantity, and conclude that gravity is a far, far weaker force than electromagnetism. That is beneficial for the emergence of thinking entities, currently at least us, for it gives time for star formation, galaxy formation, the persistence of planets in orbits around their stars, and the inception and evolution of folk. If it were much stronger, we—everything—would all be in a big black hole together (and not know it). No one has a clue about the origin of the value of G . Current speculations include the possibility that it was once strong but fizzled out to nearly nothing when the universe cooled (much like the fine-structure constant, but its fizzling out went further). Some speculate that it really is strong still, but that much of the strength of gravity has leaked out into the six or seven dimensions that have yet to unfurl and be detectable. No one knows why gravity is so weak, and certainly not why α_G has its current value, and I will not pretend otherwise.

Where are we? The laws of nature control the behaviour of entities in a general way, but their quantitative consequences depend on the values of various fundamental constants. These include the speed of light, which is central to relativity, Planck's constant, which is central to quantum mechanics, and Boltzmann's constant, which is central to thermodynamics. However, I have tried to show that if all physical observables are expressed in the same or related units rather than being trapped in a pragmatic but motley collection of human-devised units, then these three fundamental constants can be discarded. Put another way, if you go on insisting that they appear in equations, then you can

set them all equal to 1 provided you express all observable properties in related units (I have chosen seconds and its variations). There is another class of fundamental constant which consists of effectively coupling constants that express the strengths of various forces, such as the electromagnetic force and the gravitational force. No one yet has a clue about why they have their current, and for us serendipitous, values.



ABSOLUTE	248	SPEED	316
ABUNDANCE	250	SUBORDINATION	318
ACCELERATION	252	THEFT	320
ACCIDENT	254	VIRUS	322
AFTERMATH	256		
CHAOS	258		
CONTAMINATION	260		
COPY	262		
CORRUPTION	264		
DECAY	266		
DECONSTRUCTION	268		
DERIVATIVES	270		
DIFFERENCE	272		
DOMINATION	274		
EXPENDABLE	276		
EXTIMACY	278		
HABIT	280		
HARMONY	282		
LEISURE	284		
LIMIT	286		
LUNACY	288		
MEMORY	290		
MONITORING	292		
MYTH	294		
NECESSITY	296		
NOISE	298		
NOMAD	300		
ORDER	302		
PARODY	304		
RELATIVITY	306		
REPETITION	308		
REVOLUTION	310		
SCARCITY	312		
SEDENTARY	314		



KASIMIR MALEVICH, BLACK SQUARE (1915)

That mathematics and musical concord were the basis of ideal proportion was a common belief of the circles in which Palladio moved. Here there was felt to be a correspondence between the perfect numbers, the proportions of the human figure and the elements of musical harmony; and Sir Henry Wotton, as British ambassador to Venice at a slightly later date, reflects some part of this attitude when he writes:

The two principal Consonances that most ravish the Ear are, by the consent of all Nature, the Fifth and the Octave; whereof the first riseth radically, from the Proportion between two and three. The other from the double Interval, between one and two, or between two and four, etc. Now if we shall transport these Proportions, from audible to visible Objects, and apply them as shall fall fittest..., there will indubitably result from either, a graceful and harmonious Contentment to the Eye.

It was not, in fact, suggested that architectural proportions were derived from musical harmonies, but rather that the laws of proportions were established mathematically and everywhere diffused. The universe of Platonic and Pythagorean speculation was compounded of the simpler relationships of numbers, and such cosmos was formed within the triangle made by the square and the cube of the numbers 1, 2, 3. Also, its qualities, rhythms, and relationships were established within this framework of numbers up to 27; and if such numbers governed the works of God, it was considered fitting that the works of man should be similarly constructed, that a building should be a representative, in microcosm, of the process exhibited at a larger scale in the workings of the world. In Alberti's words: "Nature is sure to act consistently and with a constant analogy in all her operations"; and, therefore, what is patent in music must also be so in architecture.

COLIN ROWE, THE MATHEMATICS OF THE IDEAL VILLA (1976)

Not what we have, but what we
enjoy, constitutes our abundance.

EPICURUS, UNKNOWN (~300 BC)

Sir Henry Wotton's *Elements of Architecture* (1624) promptly introduced the new style to England and the Netherlands. [...] Huygens shared Wotton's ambition to popularize a style combining Italian regularity and order with French convenience (*commodité*). In another one of his roles, secretary to the stadholder of the Netherlands, who was pro-French, he assisted in a Dutch translation of the *Elements*. . . Inigo Jones may first have applied these lessons in the English architectural context, when in 1636 he borrowed from a French book of chimneypiece designs to redecorate rooms for Queen Henrietta Maria, the daughter of Marie de' Medici.

The political associations of such designs delayed the English aristocracy's whole-hearted adoption of the new domestic interior until the Restoration. Shortly thereafter, the London fire of 1666 provided a coincidental imperative for new construction, and the number of small fireplaces greatly increased during the city's rebuilding. They accorded with cosmopolitan style and suited the increased use of coal for heating. The colossal enterprise at Versailles was making an unquestionable standard of what had hitherto been the fashionably innovative design of mirrored chimneypiece and small fireplace. Ironically, the gigantic scale and cold formality of the French court reinforced the trend toward equating domestic amenity with small, elegantly designed chimneypieces. A new room, the closet, developed as a truly private space literally behind the scenes of the court. In this privileged but necessarily small room, a modestly scaled but exquisitely designed combination of chimney and looking glass identified the ideal personal space. . . Smaller fireplaces necessitated more fireplaces, which meant more chimneypieces; with more chimneypieces came more looking glasses.

JOHN CROWLEY, THE INVENTION OF PROGRESS, FROM LUXURY TO COMFORT (2001)

Time Shrink, n.

Describes the way in which your perceived life shrinks when it becomes over-efficient from multi-tasking, and not enough down-gaps are left between specific experiences.

**SHUMON BASAR WITH DOUGLAS COUPLAND & HANS ULRICH OBRIST,
THE AGE OF EARTHQUAKES (2015)**



UNKNOWN, LYNDON JOHNSON WATCHING APOLLO 8 NEWS (1968)

$$z \left\{ \begin{array}{l} y_1 \\ y_2 \\ y_3 \end{array} \right\} \left\{ \begin{array}{l} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \\ x_6 \\ x_7 \\ x_8 \\ x_9 \end{array} \right.$$

J.L. BORGES, FICITONS (1944)

As both Creation and Fall, the accident is an unconscious work, an *invention* in the classical sense of uncovering that which was hidden—before it emerges into the light of day. Unlike the natural accident, the man-made accident is the product of the introduction of a new device or material substance. [...]

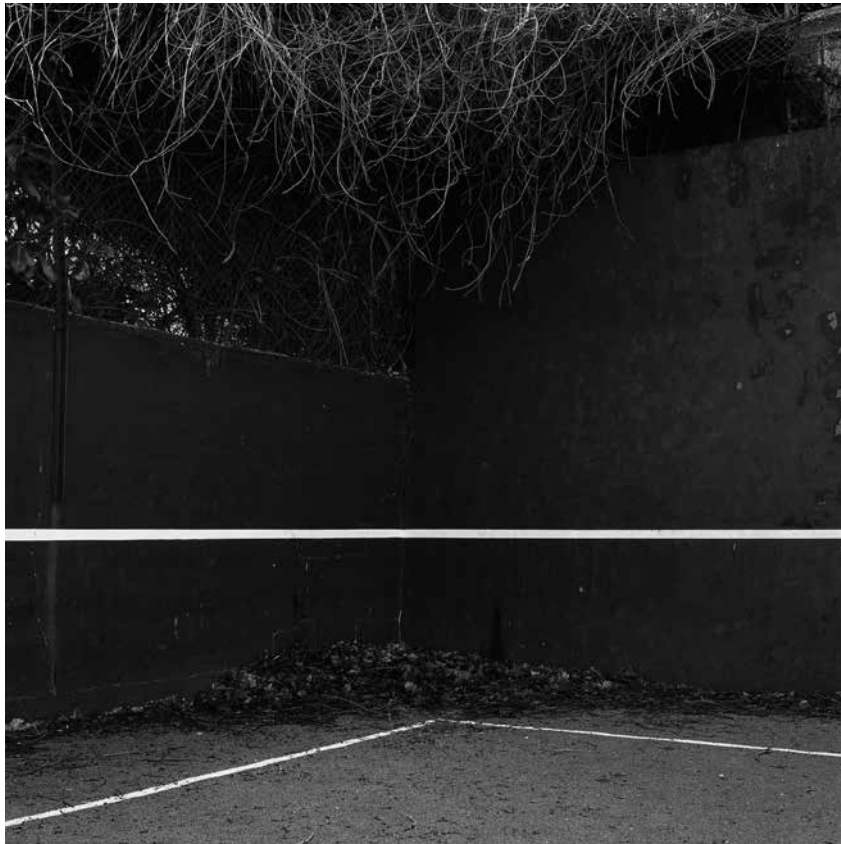
In fact, the *visible velocity* of substance—the velocity of a means of transport or the speed of calculation or information—is only ever the emergent part of the iceberg of the *invisible-velocity* of the accident. And this applies both in the realms of road traffic and the circulation of values.

To be convinced of this, one need only observe the most recent stock-exchange crashes, the successive bursting of speculative bubbles on the single market of what is now an interconnected financial system.

Given this state of affairs, catastrophic in very large measure for the very future of humanity, we must necessarily acknowledge the urgent need to make perceptible—if not visible—the speed of the emergence of the accident, of those accidents that plunge history into mourning.

In order to do this, we must attempt *as quickly as possible*—while the vain search goes on for some black box that could reveal the parameters of the contemporary catastrophe—to bring out the flagrant character of the disaster specific to new technologies, and to do this by drawing on scientific expertise, of course, but also by way of a philosophical and cultural approach, which may no longer be said to have anything to do with the publicistic expressionism of the promoters of technical equipment since, as Malraux once put it, “*Culture is what makes man something other than an accident in the Universe.*”

PAUL VIRILIO, THE ORIGINAL ACCIDENT (2007)



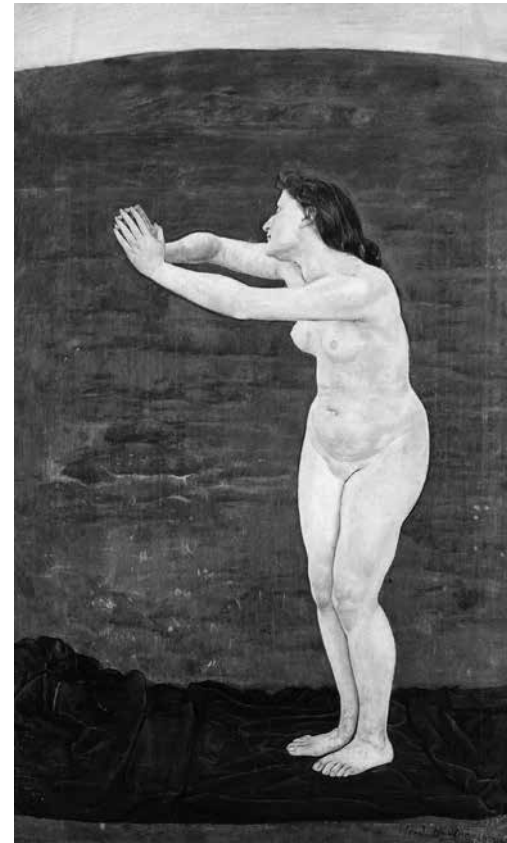
MATILDE TRAVASSOS, LINE IN COURT (2019)

Historians have the habit of characterizing past ages in terms of materials. We have the Stone Age, the Copper Age, the Bronze Age, and the Iron Age, followed at some remove by the Dark Ages, which couldn't have been a good time to be around. There would be some justification for calling the 20th century the Age of Plastics. The establishment of General Bakelite Corp. in 1910 initiated an age in synthetic polymers that provided plastics, fibers, and elastomers for a multitude of uses. Perhaps the importance and ubiquity of plastics is best demonstrated by the famous scene from the 1967 movie *The Graduate* in which recent college graduate Benjamin is given the following one word of advice by Mr. McGuire, "Plastics". McGuire goes on to tell Benjamin there is a great future in plastics. Screenplay writers Calder Willingham and Buck Henry probably intended the audience to believe that Benjamin was being tempted to sell out for mere financial success, but it has always seemed to us that this was good advice for its time and place.

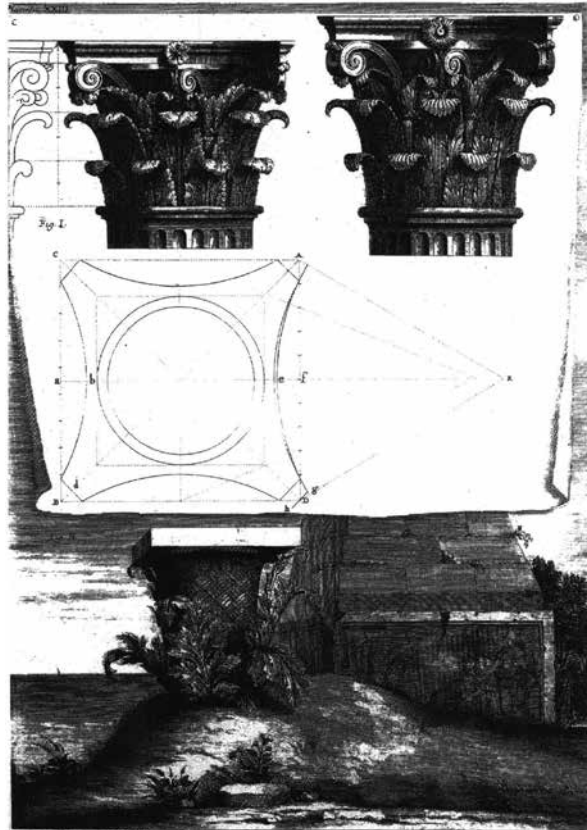
AMERICAN CHEMICAL SOCIETY, 100+ YEARS OF PLASTICS (2011)

The single biggest problem in communication is the illusion that it has taken place.

GEORGE BERNARD SHAW, COMMUNICATION (1900)



FERDINAND HODLER, COMMUNICATION WITH THE INFINITE (1892)



VITRUVIUS, TEN BOOKS ON ARCHITECTURE, CORINTHIAN CAPITAL AND ITS ORIGINS, PLATE XXIII (1684)

The reactionary attempt to sever technologically constituted forms from their functional contexts and turn them into natural constants – that is, to stylize them – appears, in a mode similar to Jugendstil, somewhat later in Futurism.

WALTER BENJAMIN, THE ARCADES PROJECT (1927–1940)



HERZOG & DE MEURON, HELVETIA CAMPUS BASEL (2013–)

But have we a right to assume the survival of something that was originally there, alongside of what was later derived from it? ...It is hardly necessary to remark that all these remains of Ancient Rome are found dovetailed into the jumble of a great metropolis which has grown up in the last few centuries since the Renaissance... Now let us, by a flight of imagination, suppose...in Rome the palace of the Caesars and the Septizonium of Septimus Severus would still be carrying on its battlements the beautiful statues which graced it until the siege by the Goths, and so on. But more than this. In the place occupied by the Palazzo Caffarelli would one more stand – without the Palazzo having to be removed – the temple of Jupiter Capitolinus; and this not in the latest shape, as the Romans of the Empire saw it, but also in its earliest one, when it still showed Etruscan forms and was ornamented with terracotta antefixes. Where the Coliseum now stands we could at the same time admire Nero's vanished Golden House. On the Piazza of the Pantheon we should find not only the Pantheon of today, as it was bequeathed to us by Hadrian, but on the same site, the original edifice erected by Agrippa; indeed, the same piece of ground will be supporting the church of Santa Maria soprano Minerva and the ancient temple over which it was built...

SIGMUND FREUD, CIVILIZATION AND ITS DISCONTENTS (1929–30)



JEAN-LUC GODARD, PIERROT LE FOU (1965)

Highways, first promoted with stories about freedom and uninterrupted movement, possessed an organizational logic that actually caused congestion. ARPAnet, first characterized as a stealth network for the military, lent itself to the kinds of exchanges that finally generated the internet. Promises of decentralization accompanied the first electrical utilities, just as promises of open access have accompanied contemporary broadband networks. Yet both networks, at certain junctures in their evolution, have sponsored constricting monopolies, whether scattered or centralized. The mass-produced suburbs sold unique country homes but delivered the virtually identical products of an assembly-line organization. Facebook, a platform created for social networking on a college campus, revealed another initially unrecognized potential when, in the Arab Spring, it was used as an instrument of dissent. Likewise the zone, created and promoted as a tool of free trade and economic liberalism, has often produced closed, exurban enclaves.

In all these cases, some of the most consequential political outcomes of infrastructure space remain undeclared in the dominant stories that portray them. Information resides in the technologies—from telecommunications to construction—as well as in the declared intent or story—from decentralization to stealth. Yet information also resides in a complex of countless other factors and activities. All these activities, taken together, lend the organization some other agency or capacity—a disposition—that often escapes detection or explanation.

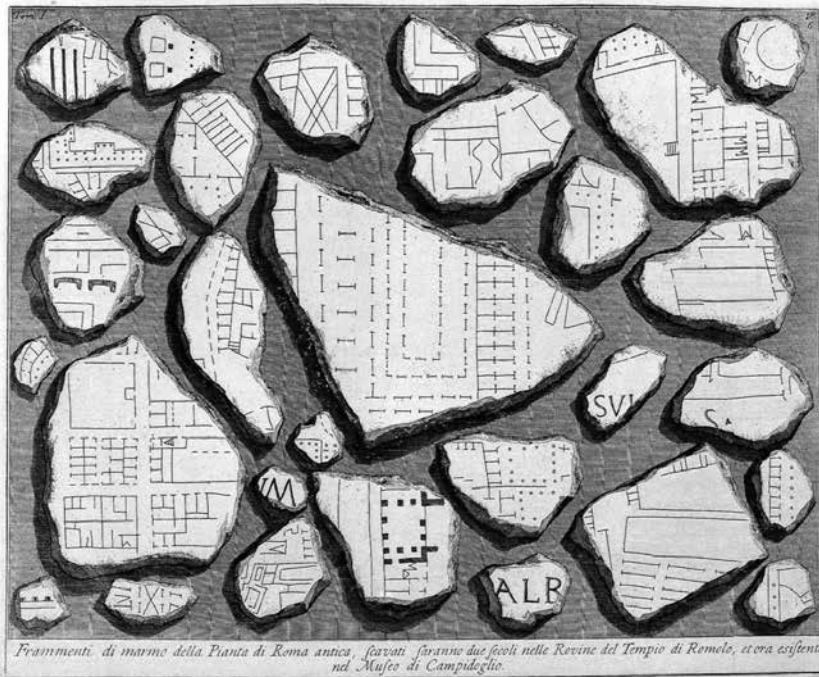
KELLER EASTERLING, EXTRASTATECRAFT: THE POWER OF INFRASTRUCTURE SPACE (2014)

The life of an organism knows three phases. In the beginning, all is simple, then the organism complexifies and diversifies itself, to finally simplify once again through a process of complete desintegration before dissolving into an inorganic nirvana (death). The third phase is thus called *secondary simplifying merger before death*. This process is applied not only to all living organisms, but also to states, to art, to architectural styles, to philosophical systems and to all cultural worlds.

CONSTANTIN LEONTIEV, BYZANTISME ET MONDE SLAVE (1919)



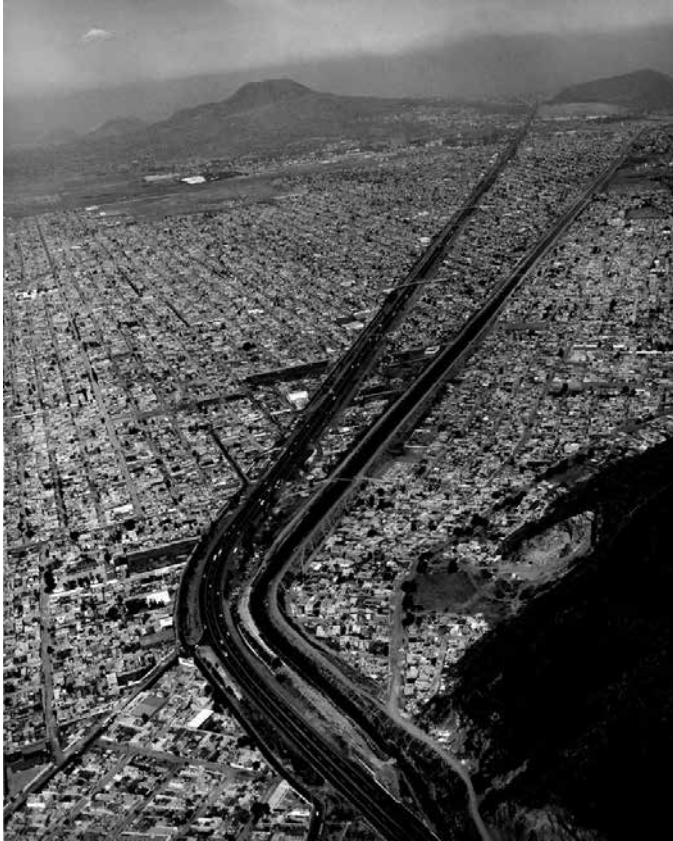
JOHN EVERETT MILLAIS, OPHELIA (1851–52)



G.B. PIRANESI, FRAGMENTS OF THE MARBLE PLAN OF ANCIENT ROME (1756)

The art of jigsaw puzzling begins with wooden puzzles cut by hand, whose maker undertakes to ask himself all the questions the player will have to solve, and, instead of allowing chance to cover his tracks, aims to replace it with cunning, trickery and subterfuge. All the elements occurring in the image to be reassembled – this armchair covered in gold brocade, that three-pointed black hat with its rather ruined black plume, or that silver-braided bright yellow livery – serve by design as points of departure for trails that lead to false information.

GEORGES PEREC, LIFE, A USER'S MANUAL (1978)



BALTHASAR BURKHARD, MEXICO CITY (1999)

This is the story of America.
Everybody's doing what they think
they're supposed to do.

JACK KEROUAC, ON THE ROAD, THE ORIGINAL SCROLL (1957)



JOSEPH BENOÎT SUVÉE, THE INVENTION OF THE ART OF DRAWING (1791)

The fault of representation lies in not going beyond the form of identity, in relation to both the object seen and the seeing subject. Infinite representation may well multiply points of view and organise these in series; these are no less subject to the condition of converging upon the same object, upon the same world. [It] may well multiply figures and moments and organise these into circles endowed with self-movement; these no less turn around a single centre which is that of the great circles of consciousness. By contrast, when the modern work of art develops its permitting series and its circular structures, it indicates to philosophy a path leading to the abandonment of representation. It is not enough to multiply perspectives in order to establish perspectivism. To every perspective or point of view there must correspond an autonomous work with its own self-sufficient sense: what matters is the divergence of series, the decentring of circles, “monstrosity”. The totality of circles and series is thus a formless ungrounded chaos which has no law other than its own repetition. [...] Nothing, however, is lost; each series exists only by virtue of the return of the others. Everything has become simulacrum, for by simulacrum we should not understand a simple imitation but rather the act by which the very idea of a model or privileged position is challenged and overturned. The simulacrum is the instance which includes a difference within itself, such as (at least) two divergent series on which it plays, all resemblance abolished so that one can no longer point to the existence of an original and a copy. It is in this direction that we must look for the conditions, not of possible experience, but of real experience (selection, repetition, etc.). It is here that we find the lived reality of a sub-representative domain. If it is true that representation has identity as its element and similarity as its unit of measure, then pure presence such as it appears in the simulacrum has the “disparate” as its unit of measure—in other words, always a difference of difference as its immediate element.

GILLES DELEUZE, DIFFERENCE AND REPETITION (1968)

I enjoy the fact that there are kings
at cards and chess and am bored
by checkers, this dolefully egalitarian
game where each pawn dreams of
being a *parvenu*.

VLADIMIR VOLKOFF, THE KING (1987)

Consumable pseudo-cyclical time is spectacular time, both as the time of consumption of images in the narrow sense, and as the image of consumption of time in the broad sense. The time of image-consumption, the medium of all commodities, is inseparably the field where the instruments of the spectacle exert themselves fully, and also their goal, the location and main form of all specific consumption: it is known that the time-saving constantly sought by modern society, whether in the speed of vehicles or in the use of dried soups, is concretely translated for the population of the United States in the fact that the mere contemplation of television occupies it for an average of three to six hours a day. The social image of the consumption of time, in turn, is exclusively dominated by moments of leisure and vacation, moments presented at a distance and desirable by definition, like every spectacular commodity. Here this commodity is explicitly presented as the moment of real life, and the point is to wait for its cyclical return. But even in those very moments reserved for living, it is still the spectacle that is to be seen and reproduced, becoming ever more intense. What was represented as genuine life reveals itself simply as more genuinely spectacular life.

GUY DEBORD, SOCIETY OF THE SPECTACLE (1967)

These days we tend to fear the future, having lost trust in our collective ability to mitigate its excesses, to render it less frightful and repellent, as well as somewhat user-friendlier. What we still, by inertia, call ‘progress’ evokes nowadays emotions opposite from those that Kant, who coined the concept, meant it to arouse. More often than not, it evokes the fear of an impending catastrophe instead of the joy of more comfort approaching and more worrisome inconvenience being about to perish and be cast into oblivion.

The first thing to leap to mind whenever ‘progress’ is mentioned is, for many of us, the prospect of more jobs for humans—those requiring intellectual skills as much as the already-vanished manual ones—that are bound to soon disappear, replaced by computers and computer managed robots; and of yet steeper hills up which the battle for survival will need to be fought. According to almost all available research, the ‘millennials’—the young people currently entering the labour market, facing the challenges of adult self-reliance and the uncertainties endemic to the search for a decent, satisfactory, gratifying and recognized social position—are the first post-war generation to voice a fear of losing instead of raising, the social standing achieved by their parents; most ‘millennials’ expect their future to bring worsening of their life conditions, instead of paving the way to their further improvements that marked their parents’ life story and which their parents taught them to expect and to work for. All in all, the vision of unstoppable ‘progress’ portends the menace of loss instead of auguring new attainments and moving up in the world; it is now associated more with social degradation than with advancement and promotion.

ZYGMUNT BAUMAN, RETROTOPIA (2017)



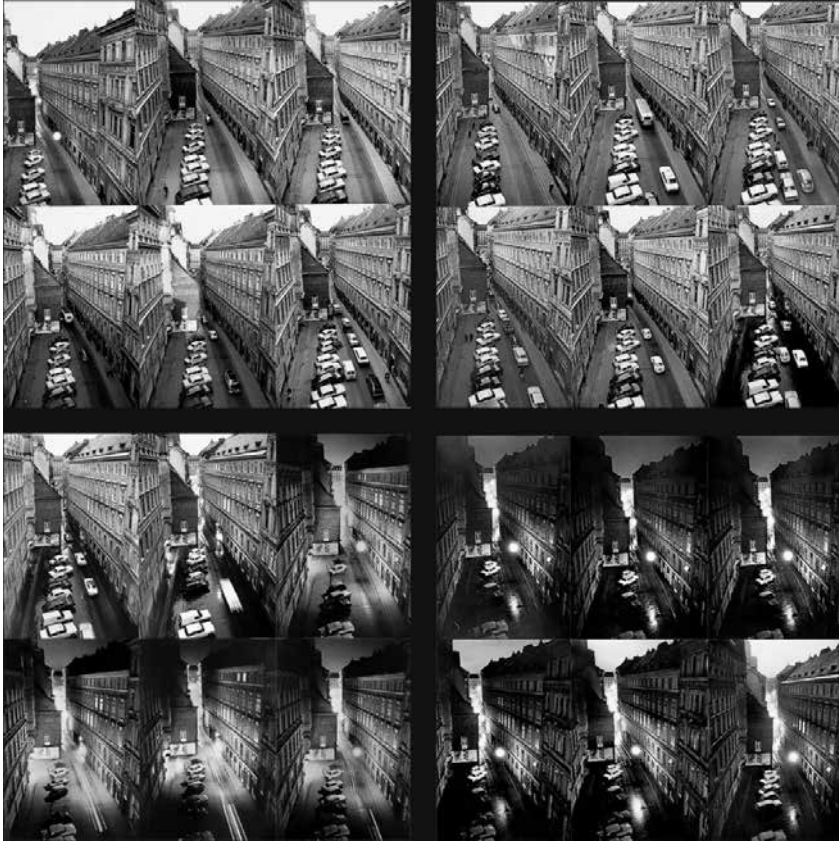
BRITISH AIRWAYS, BRITISH CONCORDE FLEET (1986)



STIJN VANHEULE, RECONSTRUCTION OF JACQUES LACAN'S
DOUBLE MIRROR SET-UP: PROJECTION OF A VIRTUAL VASE
AROUND REAL FLOWERS (~2011)

Self-consciousness exists in itself and for itself in that, and by the fact that it exists for another self-consciousness; that is to say, it is only by being acknowledged or recognised.

G.W.F. HEGEL, PHENOMENOLOGY OF THE MIND (1807)

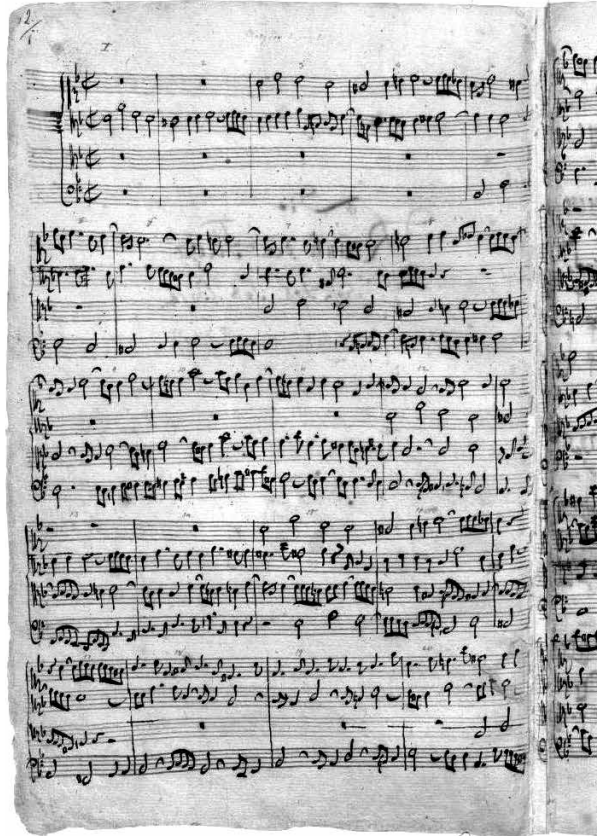
VALIE EXPORT, ZEITGEDICHT (1970)

What has changed since yesterday? At first sight, it's really the same. Is the sky perhaps cloudier? It would really be subjective to say that there are, for example, fewer people or fewer cars. There are no birds to be seen. There is a dog on the plaza. Over the Hôtel Récamier (far behind it?) a crane stands out in the sky (it was there yesterday, but I don't recall making note of it). I couldn't say whether the people I'm seeing are the same ones as yesterday, whether the cars are the same ones as yesterday. On the other hand, if the birds (pigeons) came (and why wouldn't they come) I'd feel sure they would be the same birds.

Many things have not changed, have apparently not budged (the letters, the symbols, the fountain, the plaza, the benches, the church, etc.); I myself am sitting at the same table.

Buses pass by. I've lost all interest in them.

GEORGES PEREC, ATTEMPT AT EXHAUSTING A PLACE IN PARIS (1975)



J.S. BACH, THE ART OF FUGUE, FIRST PAGE MANUSCRIPT (~1745)

We have observed, that a species of greatness arises from the artificial infinite; and that this infinite consists in an uniform succession of great parts: we observed, too, that the same uniform succession had a like power in sounds. But because the effects of many things are clearer in one of the senses than in another, and that all the senses bear analogy to and illustrate one another, I shall begin with this power in sounds, as the cause of the sublimity from succession is rather more obvious in the sense of hearing. [...] When the ear receives any simple sound, it is struck by a single pulse of the air, which makes the eardrum and the other membranous parts vibrate according to the nature and species of the stroke. [...] And it must be observed, that expectation itself causes a tension. [...] But though, after a number of strokes, we expect still more, not being able to ascertain the exact time of their arrival, when they arrive, they produce a sort of surprise, which increases this tension yet further. For I have observed, that when at any time I have waited very earnestly for some sound, that returned at intervals, (as the successive firing of cannon), though I fully expected the return of the sound, when it came it always made me start a little; the ear-drum suffered a convulsion, and the whole body consented with it. The tension of the part thus increasing at every blow, by the united forces of the stroke itself, the expectation, and the surprise, it is worked up to such a pitch as to be capable of the sublime; it is brought just to the verge of pain. Even when the cause has ceased, the organs of hearing being often successively struck in a similar manner, continue to vibrate in that manner for some time longer; this is an additional help to the greatness of the effect.

EDMUND BURKE, A PHILOSOPHICAL ENQUIRY ON OUR IDEAS OF THE SUBLIME AND BEAUTIFUL, THE INFINITE (1757)



RENÉ MAGRITTE, MAN READING A NEWSPAPER (1928)

Whatever concept one may hold, from a metaphysical point of view, concerning the freedom of the will, certainly its appearances, which are human actions, like every other natural event are determined by universal laws. However obscure their causes, history, which is concerned with narrating these appearances, permits us to hope that if we attend to the play of freedom of the human will in the large, we may be able to discern a regular movement in it, and that what seems complex and chaotic in the single individual may be seen from the standpoint of the human race as a whole to be a steady and progressive though slow evolution of its original endowment.

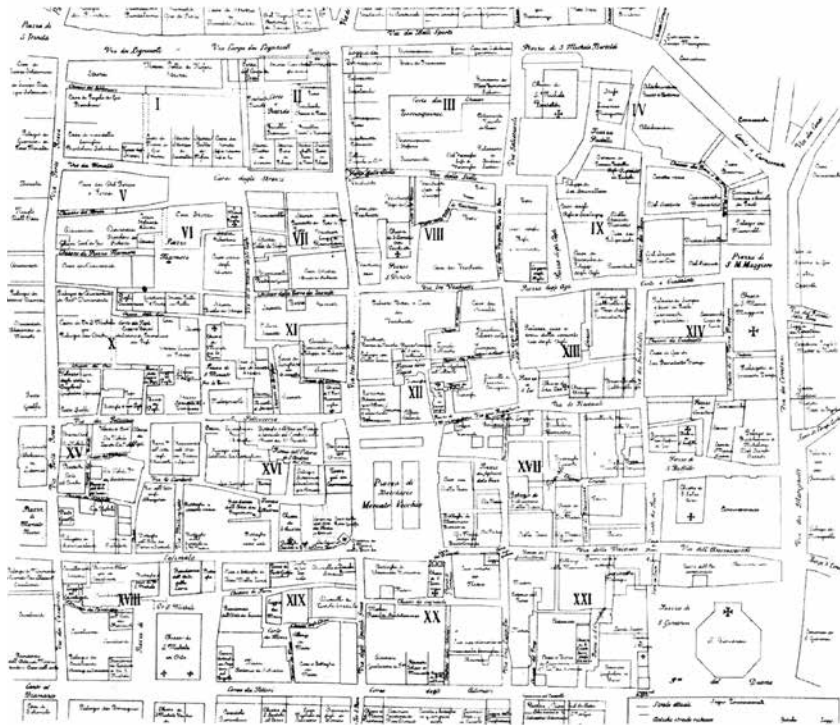
IMMANUEL KANT, IDEA FOR A UNIVERSAL HISTORY FROM A COSMOPOLITAN POINT OF VIEW (1784)

The fundamental actions of the scientific faculty of knowledge appear to us in this sense to be the following: setting limits that mark a renunciation of infinite speeds and layout a plane of reference; assigning variables that are organised in series tending toward these limits; coordinating the independent variables in such a way as to establish between them or their limits necessary relations on which distinct functions depend, the plane of reference being a coordination in actuality; determining mixtures or states of affairs that are related to the coordinates and to which functions refer.

GILLES DELEUZE, WHAT IS PHILOSOPHY? (1991)



DELPHI, SIGHTSEEING: NEW NATIONAL GALLERY, BERLIN (2017)



UNKNOWN, FLORENCE 1427 PARCEL MAP, REDRAWN (1989)

I do not think it is an exaggeration to say that behind every twentieth-century grid there lies – like a trauma that must be repressed – a symbolist window parading in the guise of a treatise on optics. Once we realise this, we can also understand that in twentieth-century art there are “grids” even where we do not expect to find them [...]. Because of its bivalent structure (and history) the grid is fully, even cheerfully, schizophrenic.

ROSALIND KRAUSS, GRIDS (1979)

There must be a difference in kind between matter and memory, between pure perception and pure collection, between the present and the past. The past is no longer, it has ceased to be. We have thus confused Being with being-present. Nevertheless, the present is not; rather, it is pure becoming, always outside itself. It is not; but it acts. The past, on the other hand, has ceased to act or to be useful. But it has not ceased to be. Useless and inactive, impassive, it IS, in the full sense of the word: it is identical with being in itself. [...] The past is contemporaneous with the present that it has been; and it would never be constituted if it did not coexist with the present whose past it is.

GILLES DELEUZE, BERGSONISM (1988)

bon bon il est un pays

*all right all right there's a land
where forgetting where forgetting weights
gently upon worlds unnamed
there the head we shush it the head is mute
and one knows no but one knows nothing
the song of dead mouths dies
on the shore it has made its voyage
there is nothing to mourn*

*my loneliness I know oh well I know it badly
I have the time is what I tell myself I have time
but what time famished bone the time of the dog
of a sky incessantly palling my grain of sky
of microns of years of darkness*

*you want me to go from A to B I cannot
I cannot come out I'm in a traceless land
yes yes it's a fine thing you've got there a mighty fine thing
what is that ask me no more questions
spiral dust of instants what is this the same
the calm the love the hate the calm the calm*

SAMUEL BECKETT, BON BON IL EST UN PAYS (1978)



CENTRE NATIONAL DU CINÉMA ET DE L'IMAGE ANIMÉE, MARCEL PROUST (1904)

Our heritage was left to us
without a testament.

RENÉ CHAR, FEUILLETS D'HYPNOS,
TRANS. BY HANNAH ARENDT (1948, 1967)

$$\begin{array}{r}
 1 + 1 = 3 \\
 2 + 3 = 6 \\
 4 + 4 = 5 \\
 7 + 3 = 8 \\
 5 + 1 = 2 \\
 3 + 4 = 9 \\
 6 + 2 = 7 \\
 8 + 7 = 4 \\
 1 + 5 = 2
 \end{array}$$

SIGMAR POLKE, LÖSUNGEN (1969)

[Decadent style] is ingenious, complicated, learned, full of shades of meaning and research, always pushing further the limits of language... forcing itself to express in thought that which is most ineffable, and in form the vaguest and most fleeting contours; listening that it may translate them to the subtle confidences of the neuropath, to the avowals of aging and depraved passion, and to the singular hallucinations of the fixed idea verging on madness... In opposition to the classic style, it admits of shading, and these shadows teem and swarm with the larvae of superstitions, the haggard phantoms of insomnia, nocturnal terrors, remorse which starts and turns back at the slightest noise, monstrous dreams stayed only by impotence, obscure phantasies at which daylight would stand amazed, and all that the soul conceals of the dark, the unformed, and the vaguely horrible, in its deepest and furthest recesses.

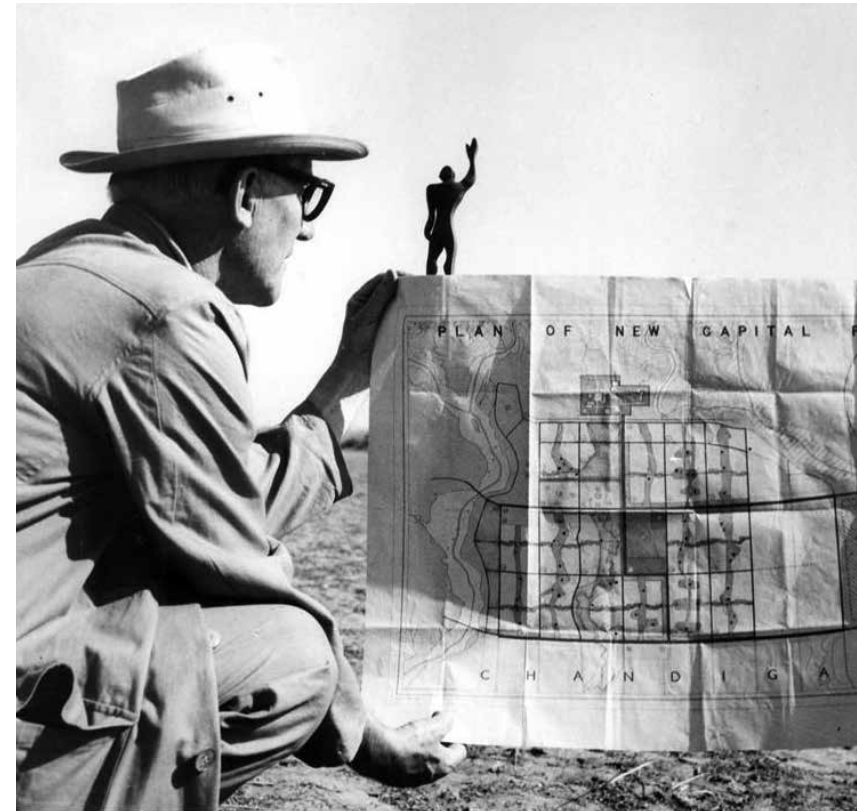
THÉOPHILE GAUTIER, CHARLES BAUDELAIRE AND HIS LIFE (1923)

The Fund or Securities are these: That of the *Fire Office* is Ground Rents [Now] to the Value of *Fifty Thousand Pounds*, settled upon Trustees, to make good all Losses from Fire; and to be Increased, as the Number of Houses *Insured* Increase. The Strength of this Security stands upon this Supposition, That the Fund is so Large, considering the Houses *Insured* are dispersed at several distances, That it is very improbable (unless the whole City be Destroyed at once) that any Loss at One time should exceed the *Fund*; and then it will be always the Interest of the *Insurers* (as of men that have *Morgaged* their Land for less than the Value) to pay the Debt when called for, to prevent a greater Loss, since the Land is of more Value than the Debt.

The Security of the *Friendly Society*, is the mutual Covenants between the *Insured* and *Insurers*: The Design is thus framed. The *Insured* deposite into the hands of the *Insurers*, *Six Shillings, Eight Pence*, for Insuring *One Hundred Pound* on a Brick House, and double for Timber; and Covenant to pay the residue of their *Premiums* when there shall be occasion, not exceeding *Thirty Shillings* for *One Hundred Pound* on a Brick House, and double on Timber, at one Loss. Upon Condition, That after such a Loss to be at Liberty to go off from the Society: Also they Covenant to pay *Sixteen Pence per Annum* for every Hundred Pound *Insured* on a Brick House, and double on Timber, for the *Insurers* trouble and charge of *Holding Stakes, Collecting the Money, and Executing the Office*, under a penalty of *Losing their Money deposited; with the Benefit of being after Insured;* and to be *Casbeired out of the Company*, if they do not pay their Rent within the time limited.

The *Insurers* Covenant with the *Insured*: And because they are Trusted with Money, give *Collateral Security*, to the Value of *Sixteen Thousand Pounds* to perform these Covenants.

NICHOLAS BARBON, A LETTER TO A GENTLEMAN IN THE COUNTRY GIVING AN ACCOUNT OF THE TWO INSURANCE OFFICES: THE FIRE OFFICE AND THE FRIENDLY SOCIETY (1698)



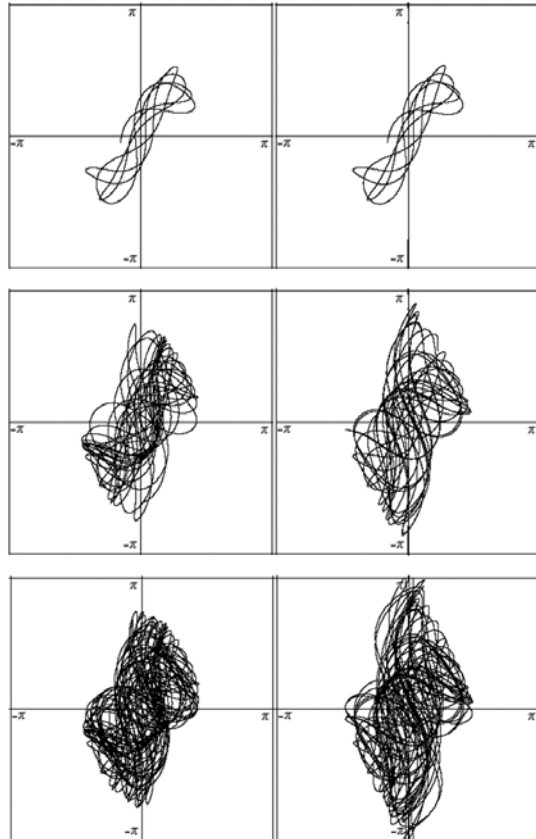
UNKNOWN, LE CORBUSIER AND HIS MODULOR IN CHANDIGARH (~1952)



EGID & COSMAS ASAM, ST JOHANNES NEPOMUK CHURCH (1733–46)

Noise has one advantage. It drowns out words. And suddenly he realized that all his life he had done nothing but talk, write, lecture, concoct sentences, search for formulations and amend them, so in the end no words were precise, their meanings were obliterated, their content lost, they turned into trash, chaff dust, sand; prowling through his brain, tearing at his head. they were his insomnia, his illness. And what he yearned for at that moment, vaguely, but with all his might, was unbounded music, absolute sound, a pleasant and happy all-encompassing, over-powering, window-rattling din to engulf, once and for all, the pain, the futility, the vanity of words. Music was the negation of sentences, music was the anti-word!

MILAN KUNDERA, *THE UNBEARABLE LIGHTNESS OF BEING* (1984)



UNKNOWN, DOUBLE PENDULUM

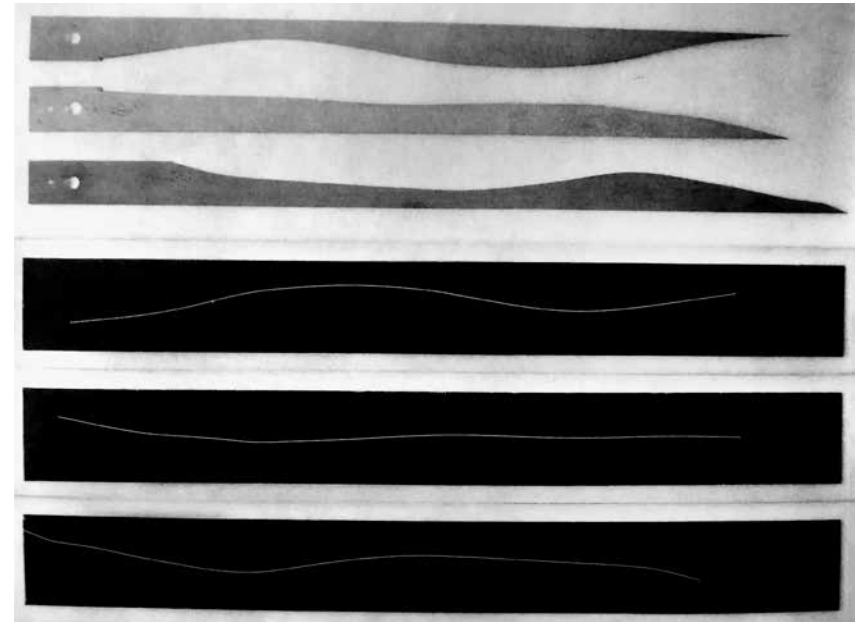
2. Logic

The different internments or spaces of enclosure through which the individual passes are independent variables: each time one is supposed to start from zero, and although a common language for all these places exists, it is analogical. On the other hand, the different control mechanisms are inseparable variations, forming a system of variable geometry the language of which is numerical (which doesn't necessarily mean binary). Enclosures are molds, distinct castings, but controls are a modulation, like a self-deforming cast that will continuously change from one moment to the other, or like a sieve whose mesh will transmute from point to point.

GILLES DELEUZE, POSTSCRIPT ON THE SOCIETIES OF CONTROL (1990)

Scruple, n.
unit of weight in the apothecaries' system, equal to 20 grains, or one-third dram, and equivalent to 1.296 grams. It was sometimes mistakenly assigned to the avoirdupois system. In ancient times, when coinage weights customarily furnished the lower subdivisions of weight systems, the scruple (from Latin *scrupulus*, "small stone" or "pebble") was a unit of Roman commercial weight as well as a unit of coinage weight. One *drachma*, the basic Greek silver unit, consisted of three scruples.

ENCYCLOPÆDIA BRITANNICA, SCRUPLE (2019)



MARCEL DUCHAMP, THREE STANDARD STOPPAGES (1913 - 14)

Ein Musikalischer Spass

Sextet in F: A Musical Joke

4th Movement

Wolfgang Amadeus MOZART
(1756-1791)
KV 522

Presto.

Horn in F

Violin I

Violin II

Viola

Violoncello

11

20

W.A. MOZART, EIN MUSIKALISCHER SPASS KV522 (1787)

He departs. The machine swings in SOCRATES in a basket.

STREPSIADES Socrates! my little Socrates!

SOCRATES *loftily* Mortal, what do you want with me?

STREPSIADES First, what are you doing up there? Tell me, I beseech you.

SOCRATES *pompously* I am traversing the air and contemplating the sun.

STREPSIADES Thus it's not on the solid ground, but from the height of this basket, that you slight the gods, if indeed....

SOCRATES I have to suspend my brain and mingle the subtle essence of my mind with this air, which is of the like nature, in order clearly to penetrate the things of heaven. I should have discovered nothing, had I remained on the ground to consider from below the things that are above; for the earth by its force attracts the sap of the mind to itself. It's just the same with the watercress.

STREPSIADES What? Does the mind attract the sap of the watercress? Ah! my dear little Socrates, come down to me! I have come to ask you for lessons.

ARISTOPHANES, THE CLOUDS (421-418 BC)



JEFFREY SMART, T.S. EUGENIDES, PIRAEUS (1970–71)

In the hermetic books it is written that what is down below is equal to what is on high, and what is on high is equal to what is down below; in the Zohar, that the higher world is a reflection of the lower. The Histriones founded their doctrine on a perversion of this idea. They invoked Matthew 6:12 (“and forgive us our debts, as we forgive our debtors”) and 11:12 (“the kingdom of heaven suffereth violence”) to demonstrate that the earth influences heaven, and I Corinthians 13:12 (“for now we see through a glass, darkly”) to demonstrate that everything we see is false. Perhaps contaminated by the Monotones, they imagined that all men are two men and that the real one is the other, the one in heaven. They also imagined that our acts project an inverted reflection, in such a way that if we are awake, the other sleeps, if we fornicate, the other is chaste, if we steal, the other is generous. When we die, we shall join this other and be him. (Some echo of these doctrines persisted in Léon Bloy.) Other Histriones reasoned that the world would end when the number of its possibilities was exhausted; since there can be no repetitions, the righteous should eliminate (commit) the most infamous acts, so that these will not soil the future and will hasten the coming of the kingdom of Jesus. This article was negated by other sects, who held that the history of the world should be fulfilled in every man.

J.L. BORGES, THE THEOLOGAINS (1947)

We are observing ourselves being observed by the painter, and made visible to his eyes by the same light that enables us to see him. And just as we are about to apprehend ourselves, transcribed by his hand as though in a mirror, we find that we can in fact apprehend nothing of that mirror but its lustreless back. The other side of a psyche. [...] Among all these elements intended to provide representations, while impeding them, hiding them, concealing them because of their position or their distance from us, this is the only one that fulfils its function in all honesty and enables us to see what it is supposed to show. Despite its distance from us, despite the shadows all around it. But it isn't a picture: it is a mirror. It offers us at last that enchantment of the double that until now has been denied us, not only by the distant paintings but also by the light in the foreground with its ironic canvas.

Of all the representations represented in the picture this is the only one visible; but no one is looking at it. [...] It must be admitted that this indifference is equalled only by the mirror's own. It is reflecting nothing, in fact, of all that is there in the same space as itself: neither the painter with his back to it, nor the figures in the centre of the room. It is not the visible it reflects, in those bright depths. In Dutch painting it was traditional for mirrors to play a duplicating role: they repeated the original contents of the picture, only inside an unreal, modified, contracted, concave space. One saw in them the same things as one saw in the first instance in the painting, but decomposed and recomposed according to a different law. Here, the mirror is saying nothing that has already been said before.

MICHEL FOUCAULT, THE ORDER OF THINGS (1966)



RENÉ MAGRITTE, LA REPRODUCTION INTERDITE (1937)

Man is something that shall be overcome. Man is a rope, tied between beast and overman – a rope over an abyss. What is great in man is that he is a bridge and not an end.

F.W. NIETZSCHE, THUS SPOKE ZARATHUSTRA (1883–91)

The late-modern society produces singularities. It does no longer aim at the general, standardized and average solely, but promotes and expects uniqueness. Things, individuals, events, places and communities – everything wants to be special... The result is a competition of attention and evaluation for the status of this uniqueness, the so-called singularity. The result: there are losers and winners. Digital technologies, such as social media platforms and smartphones, are a necessary condition of the process.

ANDREAS RECKWITZ, THE SOCIETY OF SINGULARITIES (2017)

On a map of the world in terms of product or income per head, the rich countries lie in the temperate zones, particularly in the northern hemisphere; the poor countries, in the tropics and semitropics. As John Kenneth Galbraith put it when he was an agricultural economist:

“[If] one marks off a belt a couple of thousand miles in width encircling the earth at the equator one finds within it no developed countries... Everywhere the standard of living is low and the span of human life is short.”

And Paul Streeten, who notes in passing the instinctive resistance to bad news:

“Perhaps the most striking fact is that most underdeveloped countries lie in the tropical and semi-tropical zones, between the Tropic of Cancer and Tropic of Capricorn. Recent writers have too easily glossed over this fact and considered it largely fortuitous. This reveals the deepseated optimistic bias with which we approach problems of development and the reluctance to admit the vast differences in initial conditions with which today’s poor countries are faced compared with the pre-industrial phase of more advanced countries.”

To be sure, geography is only one factor in play here. Some scholars blame technology and the rich countries that have developed it: they are charged with inventing methods suited to temperate climates, so that potentially fertile tropical soil remains fallow. Others accuse the colonial powers of disrupting the equatorial societies, so that they have lost control of their environment. Thus the slave trade, by depopulating large areas and allowing them to revert to bush, is said to have encouraged the tsetse fly and the spread of trypanosomiasis (sleeping sickness). Most writers prefer to say nothing on the subject. One must not take that easy way out. The historian may not erase or rewrite the past to make it more pleasing; and the economist, whose easy assumption that every country is destined to develop sooner or later, must be ready to look hard at failure. Whatever one may say about the weakening of geographical constraints today in an age of tropical medicine and high technology, they have not vanished and were clearly more powerful earlier. The world has never been a level playing field, and everything costs.

DAVID LANDES, THE WEALTH AND POVERTY OF NATIONS (1998)



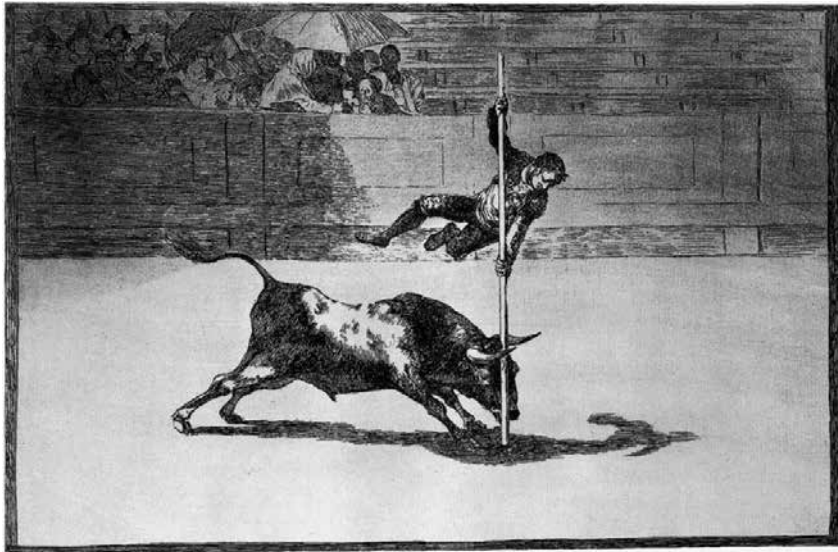
H.P. MOORE, CLIPPERTON ISLAND (~1930)



JOSEPH SCHERSCHEL, LEVITTOWN AERIAL VIEW OF ROWS OF MODEST HOUSES IN NEW HOUSING DEVELOPMENT COMMUNITY (1958)

[...] even though the nomadic trajectory may follow trails or customary routes, it does not fulfill the function of the sedentary road, which is to *parcel out a closed space to people*, assigning each person a share and regulating the communication between shares.

G. DELEUZE & F. GUATTARI, NOMADODOLOGY: THE WAR MACHINE (1986)



FRANCISCO DE GOYA, THE SPEED AND DARING OF JUANITO APIÑANI IN THE RING OF MADRID (1816)

I experience more time than you do.

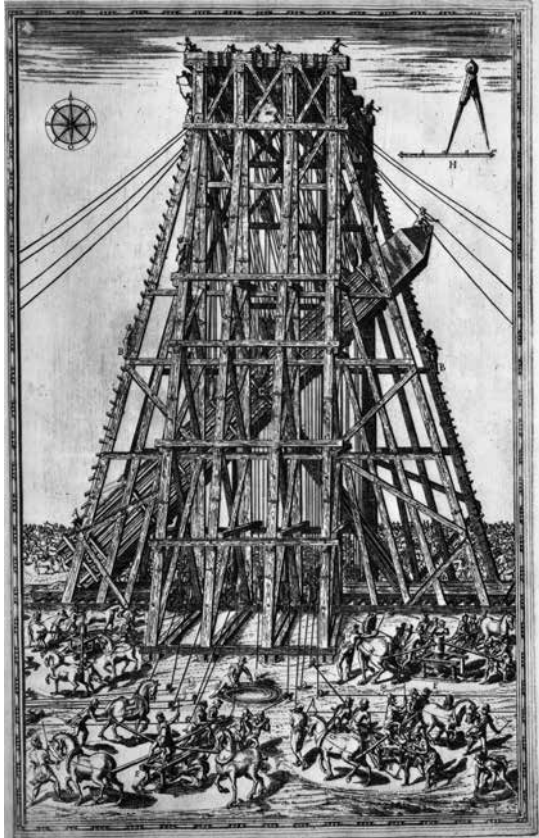
SHUMON BASAR WITH DOUGLAS COUPLAND & HANS ULRICH OBRIST,
THE AGE OF EARTHQUAKES (2015)

I would rather entertain and hope
that people learned something than
educate people and hope they were
entertained.

WALT DISNEY, ENTERTAINMENT (~1950)

Load up on guns, bring your friends
It's fun to lose and to pretend
She's over-bored and self-assured
Oh no, I know a dirty word
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello
With the lights out, it's less dangerous
Here we are now, entertain us
I feel stupid and contagious
Here we are now, entertain us
A mulatto, an albino, a mosquito, my libido
Yeah, hey
I'm worse at what I do best
And for this gift I feel blessed
Our little group has always been
And always will until the end
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello
With the lights out, it's less dangerous
Here we are now, entertain us
I feel stupid and contagious
Here we are now, entertain us
A mulatto, an albino, a mosquito, my libido
Yeah, hey
And I forget just why I taste
Oh yeah, I guess it makes me smile
I found it hard, it's hard to find
Oh well, whatever, never mind
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello
With the lights out, it's less dangerous
Here we are now, entertain us
I feel stupid and contagious
Here we are now, entertain us
A mulatto, an albino, a mosquito, my libido
A denial, a denial, a denial, a denial, a denial
A denial, a denial, a denial, a denial

NIRVANA, SMELLS LIKE TEEN SPIRIT (1991)



DOMENICO FONTANA, LOWERING OF VATICAN OBELISK (1586)

Nothing is original. Steal from anywhere that resonates with inspiration or fuels your imagination. Devour old films, new films, music, books, paintings, photographs, poems, dreams, random conversations, architecture, bridges, street signs, trees, clouds, bodies of water, light and shadows. Select only things to steal from that speak directly to your soul. If you do this, your work (and theft) will be authentic. Authenticity is invaluable; originality is non-existent. And don't bother concealing your thievery – celebrate it if you feel like it. In any case, always remember what Jean-Luc Godard said: “It's not where you take things from – it's where you take them to.”

JIM JARMUSCH, MOVIEMAKER MAGAZINE #53 (2004)

After integration-extraction in a cell, viruses may, due to an error in excision, carry off fragments of their host's DNA and transmit them to new cells: this in fact is the basis for what we call 'genetic engineering'. As a result, the genetic information of one organism may be transferred to another by means of viruses. We could even imagine an extreme case where this transfer of information would go from a more highly evolved species to one that is less evolved or was the progenitor of the more evolved species. This mechanism, then, would run in the opposite direction to evolution in the classical sense. If it turns out that this kind of transferral of information has played a major role, we would in certain cases have to *substitute reticular schemas (with communications between branches after they have become differentiated) for the bush or tree schemas currently used to represent evolution.*

**YVES CHRISTEN, LE RÔLE DES VIRUS DANS L'ÉVOLUTION,
IN: DELEUZE & GUATTARI, THOUSAND PLATEAUS (1975)**



**CHARLES GARNIER, CHÂPITEAU DES PILASTRES INTÉRIEURS DES
LOGGIAS, PALAIS GARNIER (~1875)**



AFFECT, AFFECTIONS
ANALOGIES
AGENT
ARSENAL
ASSEMBLAGE
BEAUTY
BODY
DESIRE
DETOURNEMENT
HISTORY
IMAGE
IMAGES &
PERCEPTION
LEITMOTIF
METAPHORS
MILIEU
MODELS
MONTAGE
MORPHOLOGY
MUSIC
NARRATIVE
NECESSITY
PERCEPT, AFFECT &
CONCEPT
PROJECT
PROJECTILE
REFERENCE
REPertoire
SCENARIO
SIGNS, SYMBOLS &
ALLEGORIES
SITUATION
STORY
SUBLIME

TERRITORY
TIME
TRAIT
TYPE
UTILITY
VALUE

It depends on whoever enters
 Whether I am tomb or treasure
 That I speak or stay quiet
 It is up to you solely
 Friend do not enter without desire.

PAUL VALERY, INSCRIPTION AT THE PALAIS DE CHAILLOT,
 PASSY AISLE, TOWARDS THE EIFFEL TOWER (1937)

AFFECT, AFFECTION

A

Neither word denotes a personal feeling (*sentiment* in Deleuze and Guattari). *L'affect* (Spinoza's *affectus*) is an ability to affect and be affected. It is a pre-personal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act. *L'affection* (Spinoza's *affectio*) is each such state considered as an encounter between the affected body and a second – affecting – body (with body taken in its broadest possible sense to include “mental” or ideal bodies).

GILLES DELEUZE & FÉLIX GUATTARI, A THOUSAND PLATEAUS (1987)

ANALOGIES

When Le Corbusier compared the edifice with a machine he saw an analogy where nobody saw one before. When Aalto compared the design of his organically shaped vases with the Finnish landscape, or his design for a theatre in Germany with a tree stump, he did the same; and when Haring designed with anthropomorphic images in mind he again did just that—seeing an analogy where nobody has seen one before. In the course of the twentieth century it has become recognized that analogy in the most general sense plays a far more important role in architectural design than that of simply following functional requirements or solving pure technical problems. All the constructivist designs for instance, have to be seen as a reference to the dynamic world of machines, factories and industrial components to which they are analogous.

[..]

It has been said that scientific discovery consists in seeing analogies where everybody else sees just bare facts. [...] The analogy establishes a similarity, or the existence of some similar principles, between two events that are otherwise completely different. Kant considered the analogy as something indispensable to extend knowledge. In employing the method of analogy it should be possible to develop new concepts and to discover new relationships.

OSWALD MATHIAS UNGERS, *MORPHOLOGIE, CITY METAPHORS* (1982)

AGENT

agent (n.)

1471 in Ripley's *The Comprehend of Alchemy*, perhaps influenced by Old French *agent*, but probably borrowed from Latin *agentem* (nominative *agens*), present participle of *agere* 'to do, act, lead, drive'.

The Latin *agere* is cognate with Greek *agein* to lead, Sanskrit *ajati* '(he) drives', Tocharian *ak-* 'to travel, lead', and Old Icelandic *aka* 'to travel'—all traceable to the Indo-European base *ag-*, with the meaning "drive".

CHAMBERS DICTIONARY OF ETYMOLOGY

ARSENAL

1 A collection of weapons and military equipment.
1.1 A place where weapons and military equipment are stored or made. 1.2 An array of resources available for a certain purpose.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION

ASSEMBLAGE

[An assemblage] is a multiplicity which is made up of many heterogeneous terms and which establishes liaisons, relations between them, across ages, sexes and reigns—different natures. Thus, the assemblage's only unity is that of co-functioning: it is a symbiosis, a 'sympathy'. It is never filiations that are important, but alliances, alloys; these are not successions, lines of descent, but contagions, epidemics, the wind. [...] An assemblage is never technological; if anything, it is the opposite. Tools always presuppose a machine, and the machine is always social before being technical. There is always a social machine that selects or assigns the technical elements used. A tool remains marginal, or little used, until there exists a social machine or collective assemblage that is capable of taking it into its 'phylum'. [...] How can the assemblage be refused the name it deserves, 'desire'? [...] it is the set of the affects which are transformed and circulate in an assemblage of symbiosis, defined by the co-functioning of its heterogeneous parts.

First, in an assemblage there are, as it were, two faces, or at least two heads. There are the states of things, states of bodies (bodies interpenetrate, mix together, transmit affects to one another); but also utterances, regimes of utterances: signs are organized in a new way, new formulations appear, a new style for new gestures (the emblems which individualize the knight, the formulas of oaths, the system of 'declarations', even of love, etc.) Utterances are not part of ideology, there is no ideology: utterances, no less than states of things, are components and cog-wheels in the assemblage.

[...] There is no assemblage without territory, without territoriality and reterritorializations that includes all sorts of artifices. But is there any assemblage without a point of

deterritorialization, without a line of flight that leads it on to new creations, or else towards death?

[...] Desire is revolutionary because it always wants more connections and assemblages.

[...] Desire is always assembled and fabricated, on a plane of immanence or of composition that must itself be constructed at the same time as desire assembles and fabricates. We do not simply mean that desire is historically determined. Historical determination involves a structural instance to play the role of law, or of cause, as a result of which desire is born. But desire is the real agent, merging each time with the variables of an assemblage. It is not lack or privation which leads to desire: one only feels lack in relation to an assemblage from which one is excluded, but one only desires as a result of an assemblage in which one is included (even if this were an association for banditry or revolt).

[...] The minimum real unit is not the word, the idea, the concept or the signifier, but the assemblage. It is always an assemblage that produces utterances. Utterances do not have as their cause a subject that would act as a subject of enunciation, any more than they are related to subjects as subjects of utterance. The utterance is the product of an assemblage – which is always collective, which brings into play within us and outside us populations, multiplicities, territories, becomings, affects, events. The proper name does not designate a subject, but something that happens, at least between two terms which are not subjects, but agents, elements.

GILLES DELEUZE & CLAIRE PARNET, DIALOGUES (1977)

B BEAUTY

Beauty hates ideas. It is self-sufficient. A work of art is beautiful as someone may be beautiful. This beauty I am

talking about... provokes an erection of the soul. You do not argue about an erection... Our time is drying out by dint of chitchat and ideas.

JEAN COCTEAU, POÉSIE CRITIQUE 1 (1959) TRANS. VOLUPTAS

BODY

The surprising thing is the body...
we do not know yet what a body is capable of...

BARUCH SPINOZA, UNKNOWN (~1670)

DESIRE

D

So we were saying a simple thing: desire concerns speeds and slownesses between particles (longitude), affects, intensities and heccities in degrees of power (latitude). A VAMPIRE – TO SLEEP – DAY – AND – TO WAKE UP – NIGHT. Do you realize how simple a desire is? Sleeping is a desire. Walking is a desire. Listening to music, or making music, or writing, are desires. A spring, a winter, are desires. Old age also is a desire. Even death. Desire never needs interpreting, it is it which experiments.

Then we run up against very exasperating objections. They say to us that we are returning to an old cult of pleasure, to a pleasure principle, or to a notion of the festival (the revolution will be a festival...) [...] And above all, it is objected that by releasing desire from lack and law, the only thing we have left to refer to is a state of nature, a desire which would be natural and spontaneous reality. We say quite the opposite: *desire only exists when assembled or machined*. You cannot grasp or conceive of a desire outside a determinate assemblage, on a plane which is not pre-existent

but which must itself be constructed. All that is important is that each group or individual should construct the plane of immanence on which they lead their life and carry on their business. Without these conditions you obviously do lack something, but you lack precisely the conditions that make desire possible. [...] In retrospect every assemblage expresses and creates a desire by constructing the plane that makes it possible and, by making it possible, brings it about. [...] It is in itself an immanent revolutionary process. It is constructivist, not at all spontaneist. Since every assemblage is collective, is itself a collective, it is indeed true that every desire is the affair of the people, or an affair of the masses, a molecular affair.

GILLES DELEUZE & CLAIRE PARNET, DIALOGUES (1977)

DETOURNEMENT

[...] Any elements, no matter where they are taken from, can be used to make new combinations. The discovery of modern poetry regarding the analogical structure of images demonstrates that when two objects are brought together, no matter how far apart their original contexts may be, a relationship is always formed.

GUY DEBORD & GIL VOLMAN, A USER'S GUIDE TO DETOURNEMENT (1956)

H HISTORY

History does not repeat itself, but it often rhymes.

MARK TWAIN (ATT.), UNKNOWN

For we know it well: in politics, nothing is more thrilling than the desire to start over, to pick up the torch of ancient

struggles as one revives unkept promises. In that case, the past not only enlightens the present, it brightens it with a strong, explosive glimmer, one that, literally, sparks things off. Because time that passed is less an inert sediment than rather a fossil energy, always likely to reactivate itself, and this precipitate that is the accomplishment of the past in the present is called “history”.

PATRICK BOUCHERON, L'HISTOIRE EST L'ART DE RAPPELER AUX FEMMES ET AUX HOMMES LEUR CAPACITÉ D'AGIR EN SOCIÉTÉ - TRIBUNE, LE MONDE (20.07.2019) TRANS. VOLUPTAS

IMAGE

I've always said that, in cinema, there were no images. There is always an image *before* and an image *after*. The Present does not exist in cinema. Monday does not exist. It's always Sunday or Tuesday. And Monday is simply the link between the two. And that is the Image. And even the image does not exist. There is a text by Pierre Reverdy that states: “an image is never strong because it is dreadful or brutal but because the solidarity between the ideas is distant and true.” [...] Everything is always *in between*. The light is always in between day and night, between light and dark... Everything is *in between*...

JEAN-LUC GODARD, CINÉMA DES CINÉASTES (1982) TRANS. VOLUPTAS

IMAGES AND PERCEPTION

Probably all of us remember the story of the man in the moon which occupied our childhood fantasies, producing all sorts of images of an old man, carrying a bundle on his back, and whose face used to change depending on the clarity

of the night. He helped to fulfill secret wishes, and he became the friendly companion of romantic couples. Before human intelligence managed to uncover his secret, he was the subject of so many desires and wishes that he became part of our life while existing only in our imagination.

Not only about the moon, but also about the whole firmament the human mind created a vivid fantasy. It probably took a long time to structure the wide starry sky, and to develop a coherent system within a chaotic reality long before science was capable of calculating and measuring the orbits, the gravity, the intensity of speed of light of the stars and to register relevant data. Before that, understanding was based entirely on imaginative concepts. Instead of a set of facts, knowledge referred to a set of constellations derived from perception. The firmament was filled with figures and images, such as the Orion, Castor and Pollux, the Great Bear, and others. Those stars represented a sensuous reality in the human consciousness. Therefore we might conclude: Reality is what our imagination perceives it to be. In a general sense, an image describes a set of facts in such a way that the same visual perception is connected with the conditions as with the image itself.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

L LEITMOTIF

Proust loved Wagner for the high frequency of the leitmotifs, musical reminiscences that construct a familiar landscape.

MARTHE PEYROUX, MARGUERITE YOURCENAR ET PROUST (1990)
TRANS. VOLUPTAS

METAPHORS

M

In everyday language we are constantly using metaphorical expressions without paying any attention to them. For instance, we talk about the foot of the mountain, the leg of the chair, the heart of the city, the mouth of the river, the long arm of the law, the head of the family and a body of knowledge. We use many words that are vivid metaphors although they exist as common expressions of metaphorical character such as: straight from the horse's mouth, the tooth of time, or the tide of events, a forest of masts, the jungle of the city.

Metaphors are transformations of an actual event into a figurative expression, evoking images by substituting an abstract notion for something more descriptive and illustrative. It usually is an implicit comparison between two entities which are not alike but can be compared in an imaginative way. The comparison is mostly done through a creative leap that ties different objects together, producing a new entity in which the characteristics of both take pars. Designers use the metaphor as an instrument of thought that serves the function of clarity and vividness antedating or bypassing logical processes. "A metaphor is an intuitive perception of similarities in dissimilars", as Aristotle defined it.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

MILIEU

In French, *milieu* means 'surroundings', 'medium' (as in chemistry), and 'middle'. [...] 'milieu' should be read as a technical term combining all three meanings.

GILLES DELEUZE & FÉLIX GUATTARI, A THOUSAND PLEATEAUS (1987)

MODELS

A model is commonly understood as somebody who poses as a prototype representing an ideal form. [...] Generally a model is a theoretical complexity in itself which either brings a visual form or a conceptual order into the components of complex situations. In such a model the external form is the expression of an internal structure. [...] To make a model means to find coherence in a given relationship of certain combinations and fixed dispositions. This is usually done with two types of models, visual models and thinking models. They serve as conceptual devices to structure our experiences and turn them into functions or make them intentional. By means of these two models we formulate an objective structure that turns facts into something more certain and therefore more real. It is nothing else than a formal principle which makes it possible to visualize the complexity of appearances in a more ordered way, and which in reverse is a creative approach to structured reality along the knowledge of a model. Not the least the model is an intellectual structure setting targets for our creative activities, just like the design of models-buildings, model-cities, model-communities, and other model conditions supposedly are setting directions for subsequent actions.

OSWALD MATHIAS UNGERS, *MORPHOLOGIE, CITY METAPHORS* (1982)

MONTAGE

If direction is a look, montage is a heartbeat. To foresee is the characteristic of both: but what one seeks to foresee in space, the other seeks in time. Suppose you notice a young girl in the street who attracts you. You hesitate to follow her. A quarter of a second. How to convey this hesitation? *Mise*

en scène will answer the question “How shall I approach her?” But in order to render explicit the other question, “Am I going to love her?”, you are forced to bestow importance on the quarter of a second during which the two questions are born. It may be, therefore, that it will be for the montage rather than the *mise en scène* to express both exactly and clearly the life of an idea or its sudden emergence in the course of a story. When? Without playing on words, each time the situation requires it, each time within a shot when a shock effect demands to take the place of an arabesque, each time between one scene and another when the inner continuity of the film enjoins with a change of shot the superimposition of the description of a character on that of the plot. This example shows that talking of *mise en scène* automatically implies montage. When montage effects surpass those of *mise en scène* in efficacy, the beauty of the latter is doubled, the unforeseen unveiling secrets by its charm in an operation analogous to using unknown quantities in mathematics. Anyone who yields to the temptation of montage yields also to the temptation of the brief shot. How? By making the look a key piece in his game. Cutting of a look is almost the definition of montage, its supreme ambition as well as its submission to *mise en scène*. It is, in effect, to bring out the soul under the spirit, the passion behind the intrigue, to make the heart prevail over the intelligence by destroying the notion of space in favor of that of time.

J.-L. GODARD, *MONTAGE MY FINE CARE, IN: GODARD ON GODARD* (1986)

MORPHOLOGY

There are three basic levels of comprehending physical phenomena: first, the exploration of pure physical facts; second the psychological impact on our inner-self; and

third, the imaginative discovery and reconstruction of phenomena in order to conceptualize them. If, for instance, designing is understood purely technically, then it results in pragmatic functionalism or in mathematical formulas. If designing is exclusively an expression of psychological experiences, then only emotional values matter, and it turns into a religious substitute. If, however, the physical reality is understood and conceptualized as an analogy to our imagination of that reality, then we pursue a morphological design concept, turning it into phenomena which, like all real concepts, can be expanded or condensed; they can be seen as polarities contradicting or complementing each other, existing as pure concepts in themselves like a piece of art. Therefore we might say, if we look at physical phenomena in a morphological sense, like Gestalten in their metamorphosis, we can manage to develop our knowledge without machine or apparatus. This imaginative process of thinking applies to all human activities though the approaches might be different in various fields. But it is always a fundamental process of conceptualizing an unrelated, diverse reality through the use of images, metaphors, analogies, models, signs, symbols and allegories.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

MUSIC

Music expresses the spiritual, it inspires. When I am blind, music is my little Antigone, it helps to see the unbelievable. [...] I've always wished [...] for music to take over whenever it is no longer necessary to see the image, for it to express something else. What interests me, is to see the music, to try to see what one hears and to hear what one sees.

J.-L. GODARD, IN: J.-L. DOUIN, JEAN-LUC GODARD (1994)

N

NARRATIVE

narrative (n.)

1 a spoken or written account of connected events; a story: *a gripping narrative*. 2 the narrated part of a literary work, as distinct from dialogue. 3 the practice or art of telling stories: traditions of oral narrative: *traditions of oral narratives*. 4 the representation in art of an event of story.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION | MERRIAM WEBSTER

narration (n.)

act of narrating. Probably before 1425 *narracioun* 'act of telling a story or recounting in order the particulars of some action, occurrence, or affair,' also "that which is narrated or recounted, a story, an account of events', in Trevisa's translation of Higden's *Polychronicon*; borrowed from Old French *narration* 'account, statement, a relating, recounting, narrating, narrative tale', and directly from Latin *narration* (nominative *narratio*), 'a relating, narrative', from *narrare* 'relate, recount, explain', from a possible pre-Latin word **gnarare*, related to Old Latin *gnarus* 'knowing, skilled' literally 'to make acquainted with', (also found in IGNORE); further related to *gnoscere*, *noscere* 'TO KNOW'.

CHAMBERS DICTIONARY OF ETYMOLOGY

NECESSITY

Man was created out of desire, not out of necessity.

GASTON BACHELARD, LA PSYCHANALYSE DU FEU (1949) TRANS. VOLUPTAS

P PERCEPT, AFFECT AND CONCEPT

Style in philosophy tends towards these three poles, the concept or new ways of thinking, the percept or new ways of seeing and hearing, the affect of new ways of experiencing. It is the philosophical trinity, philosophy as opera: all three are required to build a movement.

GILLES DELEUZE, POURPARLERS (1972–1990)

[...] – the thing or the work of art—is a bloc of sensations, that is to say, a compound of percepts and affects.

Percepts are no longer perceptions; they are independent of a state of those who experience them. Affects are no longer feelings or affections; they go beyond the strength of those who undergo them. Sensations, percepts, and affects are beings whose validity lies in themselves and exceeds any lived. They could be said to exist in the absence of man because man, as he is caught in stone, on the canvas, or by words, is himself a compound of percepts and affects. The work of art is a being of sensation and nothing else: it exists in itself.

Harmonies are affects. Consonance and dissonance, harmonies of tone or color, are affects of music or painting.

[...] The artist creates blocs of percepts and affects, but the only law of creation is that the compound must stand up on its own. The artist's greatest difficulty is to make it *stand up on its own*. Sometimes this requires what is, from the viewpoint of an implicit model, from the viewpoint of livid perceptions and affections, great geometrical improbability, physical imperfection, and organic abnormality. But these sublime errors accede to the necessity of art if they are internal means of standing up (or sitting or lying).

[...] The three thoughts intersect and intertwine but

without synthesis or identification. With its concepts, philosophy brings forth events. Art erects monuments with its sensations. Science constructs states of affairs with its functions. A rich tissue of correspondences can be established between the planes. But the network has its culminating points, where sensation itself becomes sensation of concept or function, where the concept becomes concept of function or of sensation, and where the function becomes function of sensation or concept. And non of these elements can appear without the other being still to come, still indeterminate or unknown. Each created element on a plane calls on other heterogeneous elements, which are still to be created on other planes: thought as heterogenesis.

GILLES DELEUZE & FÉLIX GUATTARI, WHAT IS PHILOSOPHY? (1968)

PROJECT

project (n./v.)

1 an individual or collective enterprise that is carefully planned to achieve a particular aim. 2 extend outwards beyond something else; protrude. 3 throw or cause to move forward or outward; cause (light, shadow, an image) to fall on a surface; cause (a sound) to be heard at a distance; imagine (oneself, a situation, etc.) as having moved to a different place or time.

ORIGIN: late Middle English (in the sense 'preliminary design, tabulated statement'): from Latin *projectum* 'something prominent', neuter past participle of *proicere* 'thrown forth', from *pro-* 'forth' + *jacere* 'to throw'.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION

PROJECTILE

Projectiles—the inert membranes of fortresses and bunkers, the ‘metabolic bodies’ of soldiers, and transport bodies of naval vessels.

PAUL VIRILIO, *SPEED AND POLITICS* (1977)

R REFERENCE

refer (v.)

About 1830 *referren* ‘trace back, assign, or attribute (something) to a person or thing’; borrowed from Old French *referer*, or directly from Latin *referre* (*re-* ‘back’ + *ferre* ‘take, carry, bear’).

CHAMBERS DICTIONARY OF ETYMOLOGY

reference (n.)

act of referring or fact of being referred; formed from English *refer* + *-ent*. The meaning of a direction to a book, passage, etc., where certain information may be found, is first recorded in 1612.

CHAMBERS DICTIONARY OF ETYMOLOGY

reference (n.)

1 the act of referring or consulting 2 a bearing on a matter: RELATION 3 something that refers: such as, a: ALLUSION, MENTION b: Something (such as a sign or indication) that refers a reader or consulter to another source of information (such as a book or passage) c: Consultation of sources of information 4 One referred to or consulted: such as, a: a person to whom inquires as to character or ability can be made b: a statement of the qualifications of a person seeking employment or

appointment given by someone familiar with the person c: i. a source of information (such as a book or passage) to which a reader or consulter is referred ii. a work (such as a dictionary or encyclopedia) containing useful facts or information d: DENOTATION, MEANING

MERRIAM WEBSTER ENGLISH DICTIONARY

REPertoire

repertoire (n.)

the list of plays, ballets, operas, parts, pieces, etc., that a company, actor, musician, or singer is prepared to perform. 1847, borrowing of French *répertoire*, learned borrowing from Late Latin *repertorium* ‘inventory’.

CHAMBERS DICTIONARY OF ETYMOLOGY

repertory (n.)

1 a: a list or supply of dramas, operas, pieces, or parts that a company or person is prepared to perform b: a supply of skills, devices, or expedients c: a list or supply of capabilities 2 a: the complete list or supply of dramas, operas, or musical works available for performance b: the complete list or supply of skills, devices, or ingredients used in a particular field, occupation, or practice.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION

SCENARIO

In the beginning, there was no scenario. The scenario was invented by the accountants who needed to know what Mack Sennett had been filming during the day. He filled a sheet of paper: a pair of socks, a car, three cops, a girl in

a bathing suit... And then they added verbs and adjectives: “a girl in a bathing suit loves a cop who owns three cars...” And it was called “scenario”! But it is the money that made the scenario!

J.-L. GODARD, CINÉMA DES CINÉASTES (1982) TRANS. VOLUPTAS

SIGNS, SYMBOLS AND ALLEGORIES

[...] Almost all our communication is based on signs, symbols and allegories which structure most aspects of our daily routine but also are most often carriers of religious and metaphysical systems. [...]

While signs point to something that they represent, as words are artificial signs for ideas and thoughts, symbols are a penetration of mind and image characterized by misery, depth, and inexhaustible interpretation. [...]

The method of allegory is represented in art whenever it emphasizes thematic content and ideas rather than events and facts. The abiding impression left by the allegorical mode is one if indirect, ambiguous and sometimes even emblematic symbolism that inevitably calls for interpretation.

[...] What all that means—thinking and designing in images, metaphors, models, analogies, symbols and allegories—is nothing more than a transition from purely pragmatic approaches to a more creative mode of thinking. It means a process of thinking in qualitative values rather than quantitative data, a process that is based on synthesis alternate as breathing in and breathing out, as Goethe put it. It is meant to be a transition in the process of thinking from a metrical space to the visionary space of coherent systems, from the concepts of homology to the concepts of morphology.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

SITUATION

First, we believe that the world must be changed. We desire the most liberatory possible change of the society and the life in which we find ourselves confined. We know that such change is possible by means of pertinent actions.

[...] Our central idea is the construction of situations, that is to say, the concrete construction of momentary ambiances of life and their transformation into a superior passionate quality. We must develop a systematic intervention based on the complex factors of two components in perpetual interaction: the material environment of life and the behaviours which that environment gives rise to and which radically transform it.

GUY DEBORD, REPORT ON THE CONSTRUCTION OF SITUATIONS (1957)

STORY

Sometimes reality is too complex. Stories give it form.

JEAN-LUC GODARD, UNKNOWN TRANS. VOLUPTAS

SUBLIME

Whatever is fitted in any sort to excite the ideas of pain, and danger, that is to say, whatever is in any sort terrible, or is conversant about terrible objects, or operates in a manner analogous to terror, is a source of the sublime; that is, it is productive of the strongest emotion, because I am satisfied the ideas of pain are much more powerful than those of pleasure. Without all doubt, the torments which we may be made to suffer, are much greater in their effect on the body and mind, than any pleasures which the most learned

voluptary could suggest, or than the liveliest imagination, and the most sound and exquisitely sensible body could enjoy. [...] When danger or pain press too nearly, they are incapable of giving any delight, and are simply terrible; but at certain distances, and with certain modifications, they may be, and they are delightful, as we everyday experience.

EDMUND BURKE, A PHILOSOPHICAL ENQUIRY INTO THE ORIGIN OF OUR IDEAS OF THE SUBLIME AND BEAUTIFUL (1757)

T TERRITORY

[...] The territory is in fact an act that affects milieus and rhythms, that ‘territorializes’ them. The territory is the product of a territorialization of milieus and rhythms. It amounts to the same thing to ask when milieus and rhythms become territorialized, and what the difference is between a non-territorial animal and a territorial animal. A territory borrows from all the milieus; it bites into them, seizes them bodily (although it remains vulnerable to intrusions). It is built from aspects or portions of milieus. It itself has an exterior milieu, an interior milieu, an intermediary milieu, and an annexed milieu. It has the interior zone of a residence or shelter, the exterior zone of its domain, more or less retractable limits or membranes, intermediary or even neutralized zones, and energy reserves or annexes. It is by essence marked by ‘indexes’, which may be components taken from any of the milieus: materials, organic products, skin or membrane states, energy sources, action-perception condensates. There is a territory precisely when milieu components cease to be directional, becoming dimensional instead, when they cease to be functional to become expressive. There is a territory when the rhythm has expressiveness. What

defines the territory is the emergence of matters of expression (qualities).

[...] The territory is first of all the critical distance between two beings of the same species: Mark your distance. What is mine is first of all my distance; I possess only distances. Don’t anybody touch me, I growl if anyone enters my territory, I put up placards. Critical distance is a relation based on matters of perception. It is a question of keeping at a distance the forces of chaos knocking at the door.

GILLES DELEUZE & FÉLIX GUATTARI, A THOUSAND PLATEAUS (1987)

TIME

Time must be brought into light—and genuinely conceived—as the horizon for all understanding of Being and for any way of interpreting it. In order for us to discern this, time needs to be *explicated primordially as the horizon for the understanding of Being, and in terms of temporality as the Being of Dasein, which understands Being.*

MARTIN HEIDEGGER, BEING AND TIME (1927/1962)

Indeed, nothing dies, everything exists always; no force can extinguish what once was. Every action, every word, every form, every thought fallen into the universal ocean of things sets circles off, that ripple out into eternity. Material figuration disappears only for vulgar eyes, and the phantoms that detach themselves inhabit the infinity. Paris continues to kidnap Helen in some unknown region in space.

THEOPHILE GAUTIER, ARRIA MARCELLA (1852) TRANS. VOLUPTAS

TRAIT

The word *trait* has a range of meanings not covered by any single word in English. Literally, it refers to a graphic drawing, and to the act of drawing a line. Abstractly, it is the purely graphic element. Figuratively, it is an identifying mark (a feature, or trait in the English sense), or any act constituting a mark or sign. In linguistics, “distinctive features” (*traits distinctifs* or *traits pertinents*) are the elementary units of language that combine to form a phoneme. *Trait* also refers to a projectile, especially an arrow, and to the act of throwing a projectile.

GILLES DELEUZE & FÉLIX GUATTARI, *A THOUSAND PLATEAUS* (1987)
(NOTES ON THE TRANSLATION AND ACKNOWLEDGMENTS)

TYPE

[...] not only will the portrait of a woman by a great artist not seek in the least to give satisfaction to various demands on the woman’s part... It will, on the contrary, emphasize those very blemishes which she seeks to hide, and which (as for instance a sickly, almost greenish complexion) are all the more tempting to him since they show “character” [...] Fallen now, situated outside her own type in which she sat unassailably enthroned, she is now just an ordinary woman, in the legend of whose superiority we lost all faith. We are so accustomed to incorporating in this type not only the beauty of an Odette but her personality, her identity, the standing before the portrait that has thus stripped her of it we are inclined to protest not simply “How plain he has made her” but “Why, it isn’t the least bit like her!” And yet there is a person there on the canvas whom we are quite conscious of having seen

before. But that person is not Odette; the face of the person, her body, her general appearance seems familiar. They recall to us not this particular woman who never held herself like that, whose natural pose never formed any such strange and teasing arabesque, but other women, all the women whom Eltsir has never painted, women, whom invariably, however they may differ from one another, he has chose to plant thus, in full face, [...] a large round hat in one hand, symmetrically corresponding, at the level of the knee which it covers, to that other disc, higher up in the picture, the face.

MARCEL PROUST, *À L'OMBRE DES JEUNES FILLES EN FLEUR* (1919)

UTILITY

U

CYRANO *He raises his sword.*

What say you? It is useless? Ay, I know!

But who fights ever hoping for success?

I fought for lost cause, and for fruitless quest!

EDMOND ROSTAND, *CYRANO DE BERGERAC, ACT V, SCENE 6* (1897)
TRANS. VOLUPTAS

VALUE

V

Nowadays people know the price of everything, and the value of nothing.

OSCAR WILDE, *THE PICTURE OF DORIAN GRAY* (1891)

But the true travellers are those who go
Only to get away: hearts like balloons
Unballasted, with their own fate aglow,
Who know not why they fly with the monsoons:

Those whose desires are shaped like clouds.
And dream, as raw recruits of shot and shell,
Of mighty raptures in strange, transient crowds
Of which no human soul the name can tell.

ARISTOTLE, NICOMACHEAN ETHICS
(~340 BC)

PETER ATKINS, CONJURING THE
UNIVERSE (2018)

JEAN BAUDRILLARD, THE ILLUSION
OF THE END (1994)

JOACHIM BAUER, DAS GEDÄCHTNIS
DES KÖRPERS (2004)

HENRI BERGSON, CREATIVE EVOLUTION
(1911)

HORST BREDEKAMP, SANKT PETER
IN ROM UND DAS PRINZIP DER
PRODUKTIVEN ZERSTÖRUNG (2008)

EDMUND BURKE, A PHILOSOPHICAL
ENQUIRY ON OUR IDEAS OF THE
SUBLIME AND THE BEAUTIFUL (1757)

DAVID CASS & KARL SHELL,
DO SUNSPOTS MATTER (1983)

MICHEL CHION, GUIDE TO SOUND
OBJECTS, PIERRE SCHAEFFER AND
MUSICAL RESEARCH (1972)

GILLES DELEUZE & FÉLIX GUATTARI,
THOUSAND PLATEAUS (1980)

RICHARD FEYNMAN, THE FEYNMAN
LECTURES ON PHYSICS (1964)

MICHEL FOUCAULT, THE ORDER OF
DISCOURSE (1971)

MICHEL FOUCAULT, THE ORDER OF
THINGS (1966)

GEORGE GREENSTEIN, QUANTUM
STRANGENESS (2019)

YUVAL NOAH HARARI, SAPIENS (2015)

DAVID HUME, A TREATISE OF HUMAN
NATURE (1738–40)

REM KOOLHAAS, DELIRIOUS NEW YORK
(1976)

ROSALIND KRAUSS, GRIDS (1979)

GEORGE PEREC, AN ATTEMPT AT
EXHAUSTING A PLACE IN PARIS (1975)

TOM F. PETES, AN AMERICAN CULTURE
OF CONSTRUCTION (1989)

MARCEL PROUST, CITIES OF THE PLAIN
(REMEMBRANCE OF THINGS PAST)
(1906–22)

HELEN ROSENAU, THE IDEAL CITY (1959)

CARLO ROVELLI, THE ORDER OF TIME
(2017)

COLIN ROWE, THE MATHEMATICS OF
THE IDEAL VILLA (1976)

SAINT AUGUSTINE, DE MUSICA
(~387–391)

TOMÁŠ SEDLÁČEK, ECONOMICS OF
GOOD AND EVIL (2011)

TZVETAN TODOROV, POETICS OF PROSE
(1977)

OSCAR WILDE, THE PICTURE OF DORIAN
GRAY (1890)

VIRGINIA WOOLF, THE WAVES (1931)

WOODY ALLEN, ZELIG (1993)

ROBERT ALTMAN, SHORT CUTS (1993)

THOM ANDERSEN, LOS ANGELES PLAYS ITSELF (2003)

PAUL AUSTER & WAYNE WANG, SMOKE (1995)

SAMUEL BECKETT, BECKETT DIRECTS BECKETT: WAITING FOR GODOT (1985)

PETER COLLISON, THE ITALIAN JOB (1969)

RICHARD FLEISCHER, SOYLENT GREEN (1973)

JEAN-LUC GODARD, 2 OU 3 CHOSES QUE JE SAIS D'ELLE (1967)

GEORGE ROY HILL, THE STING (1973)

JOHN HUGHES, THE BREAKFAST CLUB (1985)

ALEJANDRO GONZALEZ INARRITU, AMORES PERROS (2000)

JIM JARMUSCH, NIGHT ON EARTH (1991)

OTOMO KATSUHIRO, AKIRA (1988)

FRITZ LANG, METROPOLIS (1927)

DAVID LYNCH, LOST HIGHWAY (1997)

TERRENCE MALICK, THE THIN RED LINE (1998)

CHRIS MARKER, LA JETÉE (1962)

GEORGE MILLER, MAD MAX: FURY ROAD (2015)

ADAM MCKAY, THE BIG SHORT (2015)

HAROLD RAMIS, GROUNDHOG DAY (1993)

ALAIN RESNAIS, MON ONCLE D'AMERIQUE (1980)

ALAIN RESNAIS, L'ANNÉE DERNIÈRE À MARIENBAD (1961)

TOM TYKWER, LOLA RENNT (1998)

LUCHINO VISCONTI, IL GATTOPARDO (1963)

ORSON WELLES, F FOR FAKE (1973)



FRANZ VON STUCK, *DIE SÜNDE* (1883)

ELEGY MADE IN 2018

Lament for an architectural project

Elegy derives from the book *Histoire(s) du cinéma*, published by Gallimard in 1998 after the completion of Jean-Luc Godard's eight-part video project (1988–98), which met with controversial critical acclaim. Composed almost entirely of visual, textual and auditory quotes, *Histoire(s) du cinéma* poetically assimilates the course of the twentieth century to the history of the movie industry, merging fiction and documentary in a speculative and intricate allegory.

The following content effects a deliberate selection of sonnets and stages an opportunistic *détournement* of the original: it therefore claims no authorship as all aphoristic sources have been intentionally chosen to serve a reducing purpose in a specific field, namely that of the architectural project. As a result, quotes have been accordingly redistributed in a new purposeful sequence, partly edited or augmented in order to promote a less cryptic content, yet without withholding the poetic motives of the original text.

don't show
every side of things

allow yourself
a margin of indefiniteness

cities of desires
and people would see
that the world is there
a world still almost without a history
yet a world that tells stories

but instead of uncertainty
in order to establish idea and sensation
the two great stories were
form and function

stories of beauty and performance
architecture is not part of
the communication industry
or entertainment
as a silent margin of life
it is part of cosmetics
a minor branch of the industry of lies

the city
like christianity
is not founded
on historical truth
it supplies us with a story
and says
now believe

don't have faith
in this story
as you do in History
but believe
come what may

all these stories
now mine
how can I tell them
show them perhaps

and norm
was invented
a minor mafia
accountant had
to put some order
in the brainwaves of
architects

l'Esprit Nouveau
Ozenfant
gave the idea to
Le Corbusier
the project fell
under the guillotine
of reason
and never got back up

night
has come
another world rises
purposeless
as if one had suppressed
the perspective
the vanishing point

if an image
separately looked upon
clearly expresses something
and involves interpretation
if it does not exceed significance
it will not be transformed
on contact with other images
other images
will have no authority over it
neither action
nor reaction
no insight
sight avails

an image
is not strong
because it is brutal
or fantastic
but because
the association of ideas
is distant
distant and just
or simply
if it still
involved a text
but was not about
determining texts
on a word
but an idea
or an intention
or a movement
or a usage
or a relationship

who needs understanding
this is
what I like
in architecture
a saturation of
magnificent signs
bathing
in the light
of their absence
of explanation

one needs a day
to tell
the history of a second
one needs a year
to tell
the history of a minute
one needs a life
to tell
the history of an hour
one needs an eternity
to tell
the history of a day
one can do everything
except the history of
what one is doing

we live
in a system
in which everything
can be done
except the history of
what is being done
everything can be
completed
except the history of
this completion
the product
as only end
the captive process

somewhere else
men fight for a society
in which
they would not be
slave to money
you can't understand
living
not to make money
listening to sirens of our time
I begin to understand
but this obsessiveness

ever think of anything else
of love
no never
if property was
the original sin of capitalism
to have and not to be
reason is the original misdeed
of Western architecture
summer 1989 its redeemer
when I admire a project
I am told
it is nice
but it is not architecture

design dessein
draft dessin
design is now dessin
mystification

equality
and fraternity
between the real
and the fictional

who is out of work
some times has
too many hands
and too few hearts
yes times without heart
but not without work
when an era is sick
and lacks work
for all hands
it addresses us a new exhortation
the exhortation
to work with our hearts
instead of
using our hands
I know no era
that lacked work
for all
its hearts

this is the worry of the people
it is not material
at first
it is a concern
of heart and spirit
born of the defiance of the other
I do not believe in answers
but in the plea of questions
let us consider the time
the places we live in
our precise locations
and their resulting call
and then
let us judge

a world divided in two
those with possibilities
but not knowing what to do
with their freedom
and those who have
undergone revolution
and have freedom of opinion
that is
the right to complain
but without deep-felt passion
where misery is at the door
and all one can do
is wait
ugly winners
magnificent losers

strangest of all
the living dead of this world
are constructed
on the former world
their reflections
and sensations
are from before

the Incredulity
of Saint Thomas
who needs
to touch
to believe
gazing in the distance
has he lost sight
blasphemy to the miracle
Caravaggio had warned us
we are now left
with incredulous apostles
misery

misery
last argument
ultimate basis of modern community
the backdrop of all our
dramas
thoughts
and actions
and even our utopias
the essential is not
what the despotism
of an opinionated majority
dictates
it is not material necessity
it is a higher truth
at the level of man
and I might add
within man's reach

it is time that thought
becomes
what it truly is
dangerous for the thinker
and able to transform
reality
“Where I create
is where I am true”
wrote Rilke

some think
others act
but man's true condition
is to think with his hands

I will not denigrate
our tools
but I would like them
to be usable
if it is true
that the threat is not in our tools
but in the cowardice
of our hearts
a thought which abandons itself
to the rythm of its own mechanisms
proletarianizes itself

such a thought
no longer lives
of its own creation
man is formed by others
who are the others
they are the laws
born of
the abandonment of
thought
who is responsible
not the parties
not the classes
not the governments
it is men
one by one

so
 the project
 you see now
 what to say about it
 life is the subject
 speed
 and trajectory
 its attributes
 if we are broad-minded
 then time its territory
 life a beginning of life
 like Euclid's parallel lines
 is a beginning of
 geometry
 the life itself
 one would like to blow out
 of proportions
 to make it admired
 or reduced
 to its basic elements
 for earth dwellers
 the life itself
 one would hold prisoner

I am
 the fugitive enemy of
 our times
 the mechanically applied
 totalitarianism of
 the present
 every day more oppressive
 on a planetary scale
 this faceless tyranny
 that erases all desires
 for the systematic organization of
 the unified time of
 the moment
 this global
 abstract
 tyranny
 which I try
 to oppose
 from
 my fleeting
 point of view



US AIR FORCE, SPECTATORS TO DOG TEST IN OPERATION GREENHOUSE (1995)

To chase a never-reached mirage
Across the hot, white sand,
And choke and die, while gazing on
Its green and watered strand.

JAMES WELDON JOHNSON, VOLUPTAS (1917)

VOLUPTAS

**PROFESSUR
CHARBONNET
HEIZ**

ETHZ

VOLUPTAS	7
PROLOGUE	21
CONSTANTS VARIABLES	129
AGENTS	247
GLOSSARY	327
EPILOGUE	359

COVER: CINDY SHERMAN, UNTITLED #479 (1975)

ETHZ D-ARCH FS2019/SS2020 VOLUPTAS PROFESSUR CHARBONNET/HEIZ
OFFICE: HIT H 41.3, WOLFGANG-PAULI-STR. 27, CH-8093 ZURICH STUDIO: PAVILION HIP
CHARBONNET-HEIZ@ARCH.ETHZ.CH +41 44 633 49 41 DISCLAIMER: THIS READER IS FOR
NON-PROFIT EDUCATIONAL PURPOSES ONLY. IT IS USED AS AN INSTRUCTIONAL TOOL
IN THE DESIGN STUDIO OF THE CHAIR. TEAM: DOMINIK ARNI, FRANÇOIS CHARBONNET,
MARINE DE DARDEL, PEDRO GUEDES, STEFFEN HÄGELE, PATRICK HEIZ, MARINA MONTRESOR,
FRANCISCO MOURA VEIGA WWW.CHARBONNET-HEIZ.ARCH.ETHZ.CH



SIR LAWRENCE ALMA-TADEMA, EXPECTATIONS (1885)

Voluptas is the euphoric daughter of its time – the intoxicating offspring of measure and spirit. Amending the millenary Vitruvian ordinances of *firmitas*, *utilitas* and *venustas*, Voluptas initiates a transversal investigation on contemporary issues and sets combinatorial dynamics as the channel of proliferating singularities. Its looping trajectory toward a saturation of problem settings aims at the empirical emanation of an alternative view of the urban condition. Enforcing *desire* as its prevalent agent, Voluptas is the elegiac display of residual energy.

It can be quite a thing, Bernard.
To build an entire world.
And then watch it end.

JONATHAN NOLAN & LISA JOY, WESTWORLD (2016)

ROBERT LONGO, UNTITLED "NEPTUNE AND TRITON" (2006)

- S1** **COSMOGONY**
A GENESIS
2018–2022
- S2** **ONTOGENY**
A GROWTH
2022–2026
- S3** **ORBIT**
AN EQUILIBRIUM
2026–2030
- S4** **DECADENCE**
AN ATROPHY
2030–2034
- S5** **TWILIGHT**
AN APOCALYPSE
2034–2038

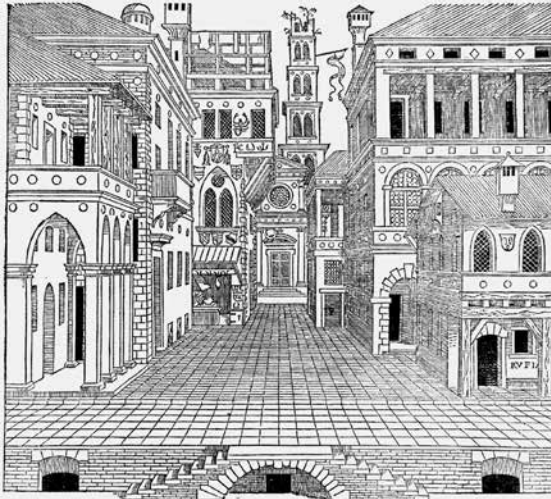


ABRAHAM BOSSE, FRONTISPIECE OF THOMAS HOBBS' LEVIATHAN (1651)

In the chapter XVI of his *Leviathan—Of Persons, Authors and Things Personated* (1651), Thomas Hobbes defines the person as he “whose words and actions are considered, either as his own or as representing the words and actions of another man [...]” accordingly delineating two subcategories: that of the natural person—when the words are his own—and that of the artificial person—when these are representing the words and actions of another; he further states: “Of persons artificial, some have their words and actions ‘owned’ by those whom they represent. And then the person is the ‘actor’, and he that owns his words and actions is the ‘author’, in which case the actor acts by authority—but is not the author [...]. So that by authority is always understood a right of doing any act, and ‘done by authority’, done by commission or license from him whose right it is.”

The distinction between authorship and actorship expediently polarizes the paramount questions of the content and of the form. The point is not to apply a literary notion to some emulative acceptance of its content, but rather to hypothetically submit a conceptual intendment to its potential adequation in the field of architecture; and as such, Hobbes’ axiomatic statement informs us on the condition of the architect, whose authority is fundamentally a licensed and commissioned one.

As a tributary of given programmatic, economic and legal prerequisites and impelled through exogeneous necessities, architecture resolutely assigns its agent to performing a given act in the name and interest of (x): the architect is a political actor.



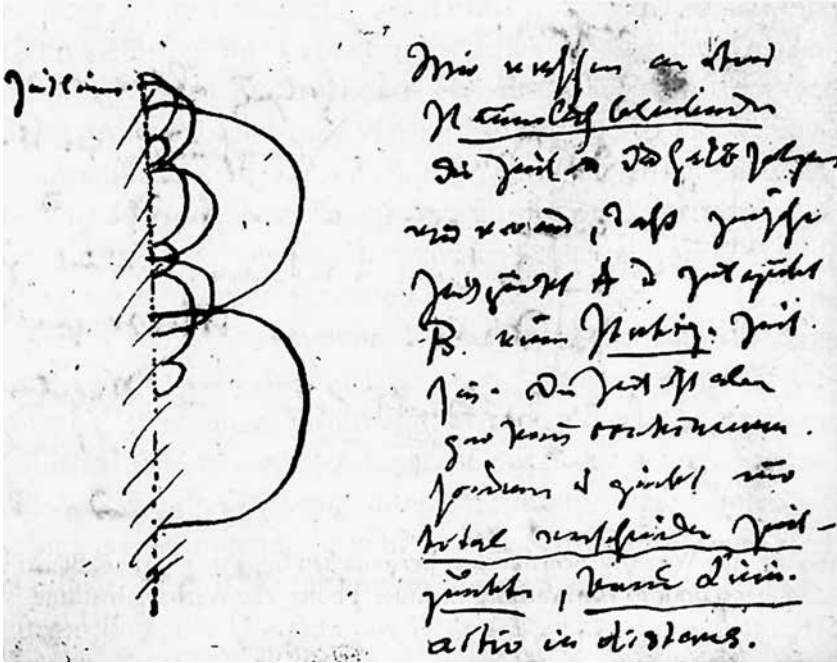
SEBASTIANO SERLIO, TRAGIC & COMIC SCENERIES (1545)

In the second book of Serlio's *Regole Generali di Architettura* (1545), the tragic scenery shows a series of court buildings, war memorials, civil monuments settled along the rigid axis of a central perspective and punctuated by a memorial threshold opening onto an unobstructed vanishing point; rigorously subordinated to the spinal street, the laminary lineup is ordered such as ingresses are staged perpendicular to the street avoiding frontal views of the representative entablatures. Corroborating the prevalence of the public over the private, a pair of outward orientated stairs lead to the set.

The comic stage setting on the other hand displays a turbulent sequence of doorways, storefronts and arcades disjointedly eroding the central political void; no convergence point here, but the richly ornamented porch of a religious shrine as the absolving sign to a collection of artifacts striving for attention. Converging steps to the stage achieve to portrair the manifest surrender of the public realm to the sphere of the intimate.

As a result of the transversal capitalist conformity, of its economical horizon and its inferent individualism, the city has long capitulated under the assaults of private interests; the ascendancy of the *oikos* over the *polis*, respectively of the *product* over the *process*, has disrated the urban content to a long accumulative array of equivocal signs.

Bowing under the conceited laughs of licentious opportunism and its compulsion for visibility, the contemporary city has deserted the tragedy: comic scenery is now its only stage.



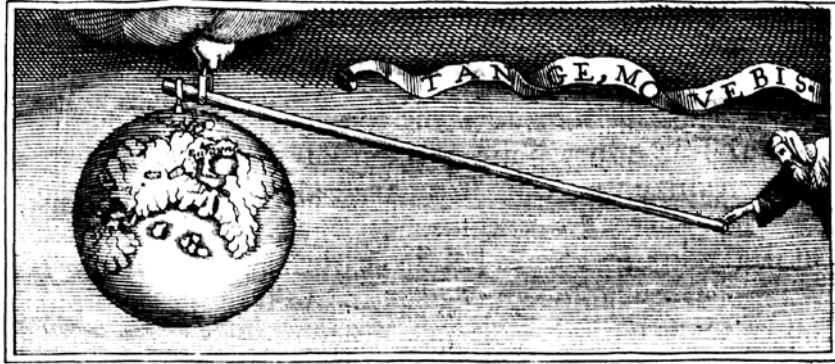
FRIEDRICH NIETZSCHE, DYNAMISCHES SCHEMA DER ZEIT (1873)

A byproduct of the pervasive theatricality of the metropole is its relentless need for the new, therein not only complying with the essence of its outcome, the product—which is to be consumed and therefore ever renewed—but also with the quickly evolving rules of comic features; whereas Aristophanes’ rhetorics hardly trigger any hilarity anymore, we are still moved by Antigone’s tragic audacity.

By indulging in an often irrelevant alterity, metropolitan actors seem to have made any meaningful difference hardly legible: however legitimate discordances may be, they are bound to the prerequisite of repetition as the dominant marker of singularities.

Derived from the late latin *repertorium*—storehouse—a repertory is the entire assortment of things available in a field or of a kind; inasmuch as the manifold identities of a repertoire account for its protean expertise—its range so to speak—yet its most essential attribute lies in its availability: a repertory is a potential to be constantly re-activated.

In its search for a dynamic consideration of time, withstanding the contemplative view of collective memory and its sententious unfolding of events, manner advocates for a deflective handling of history, of its canons as much as of its failures, and generates an exact figures—rigorously inexact, that is “inexact by essence and not by accident”—Gilles Deleuze & Félix Guattari in: *Mille Plateaux* (1980). History is a beat.



ARCHIMEDES, LEVERAGE, IN: VARIGNON, PROJET D'UNE NOUVELLE MÉCANIQUE (1687)

“Give me a place to stand and I will move the Earth”: in a time of relentless information where an undiscerning allegiance of the scientific proficiency to accumulative datas and a so called ‘economy of attention’ dictate the legitimacy of a vast majority of decisions, Archimedes’ remark quoted by Pappus of Alexandria (*in: Collection or Synagoge, Book VIII, c. AD 340*) suggests an alternative stand; echoing the metaphorical telescopic device of Marcel Proust’s *A la recherche du temps perdu*, the admonition invites to deliberately distantiate the observer from its subject to stimulate greater leverage: now set on the fringe of its field of expertise, contemplating the invigorating complexity of phenomena, the observer records signs of transversal mutations.

As the blessed child of clashing progenitors – economy, environment, society, program, vanity – the condition of architecture not only stifles its product to a paradoxical figure, that of a radical consensus but also confines its agent to an imperative ductility to critically address conflicting demands; yet, the improbable fragmentation of competences and the persistent bias prevalence of *homo faber* over *homo sapiens* have disrated any non-utilitarian determinations to trivial scrutiny.

Driven by exogenous and contradictory requirements and at the converging point of manifold ruling interests, the architect’s expertise is protean by necessity rather than by inclination; aware of the trans-generational nature of the urban environment and accordingly resisting to the most immediate fervours of its time, the architect is the last generalist.



TWILIGHT OF THE IDOLS FRIEDRICH NIETZSCHE	23	DELIRIOUS NEW YORK REM KOOLHAAS	43
ANTI-ŒDIPUS GILLES DELEUZE FÉLIX GUATTARI	31	ESSAYS CRITICAL AND CLINICAL GILLES DELEUZE	47
THE ELECTRONIC REVOLUTION WILLIAM S. BURROUGHS	37		



PIPILOTTI RIST, EVER IS OVER ALL (2005)

TWILIGHT OF THE IDOLS, OR, HOW TO PHILOSOPHIZE WITH THE HAMMER

23

FRIEDRICH NIETZSCHE

1889

Foreword

It's no small trick to preserve your cheerfulness in the midst of a gloomy matter which is loaded with inordinate responsibility. Yet what could be more necessary than cheerfulness? Nothing goes right unless exuberance plays a part in it. Overabundance of strength is the only proof of strength. *A revaluation of all values*, this question mark so black, so monstrous that it casts a shadow on the one who poses it—such a fateful task forces one to run out into the sun at every moment, to shake off a heavy seriousness that has become all too heavy. Every means is right for this, every “case” is a lucky break. Above all, *war*. War has always been the great cleverness of all spirits who have become too inward, too deep; even wounds can have the power to heal. A saying whose source I withhold from scholarly curiosity has long been my motto:

increscunt animi, virescit vulnere virtus.

Another way to recover, which under certain circumstances I like even better, is *sounding out idols*... There are more idols than realities in the world: that's my “evil eye”

on this world, and my “evil ear” too... To pose questions here with a *hammer* for once, and maybe to hear in reply that well-known hollow tone which tells of bloated innards – how delightfull for one who has ears even behind his ears – for me the old psychologist and pied piper, in whose presence precisely what would like to stay quiet *has to speak up*...

This book too – the title gives it away – is above all a recovery, a sunny spot, a sidestep into a psychologist’s idleness. Maybe a new war as well? And are new idols sounded out?... This little book is a *great declaration of war*, and as for sounding out idols, this time they are not just idols of the age, but *eternal* idols that are touched here with the hammer as with a tuning fork – there aren’t any older idols at all, none more assured, none more inflated... And none more hollow... That doesn’t stop them from being the ones that are *believed* in the most – and, especially in the most prominent case, they aren’t called idols at all...

Turin, September 30, 1888, on the day when the first book of the *Revaluation of All Values* was finished. [...]

“Reason” in Philosophy

[...] 6

You will be thankful to me if I condense such an essential and new insight into four theses: I thus make it easier to understand, and I dare you to contradict it.

First proposition The grounds on which “this” world has been called apparent are instead grounds for its reality – another kind of reality is absolutely indemonstrable.

Second proposition The distinguishing marks which have been given to the “true being” of things are the distinguishing marks of nonbeing, of *nothingness* – the “true world” has been constructed by contradicting the actual world: this “true world” is in fact an apparent world, insofar as it is just a *moral-optical* illusion.

Third proposition It makes no sense whatsoever to tell fictional stories about “another” world than this one, as long as the instinct to slander, trivialize, and look down upon life is not powerful within us: in that case, we *revenge* ourselves on life with the phantasmagoria of “another,” “better” life.

Fourth proposition Dividing the world into a “true” and an “apparent” world, whether in the style of Christianity or in the style of Kant (a *sneaky* Christian to the end), is merely a move inspired by *décadence* – a symptom of *declining* life... The fact that the artist prizes appearance over reality is no objection to this proposition. For “appearance” here means reality *once again*, but in the form of a selection, an emphasis, a correction... Tragic artists are *not* pessimists – in fact, they say *yes* to everything questionable and terrible itself, they are *Dionysian*... [...]

The Four Great Errors

[...] 4

Error of imaginary causes.—I'll begin with dreams: a particular sensation, for instance, a sensation due to a distant cannon shot, has a cause imputed to it afterwards (often a whole little novel in which precisely the dreamer is the protagonist). In the meantime, the sensation persists in a kind of resonance: it waits, as it were, until the drive to find causes allows it to come into the foreground—not as an accident anymore, but as “meaning”. The cannon shot shows up in a *causal* way, and time seems to flow backwards. What comes later, the motivation, is experienced first, often with a hundred details that flash by like lightning; the shot *follows*... What has happened? The representations *generated* by a certain state of affairs were misunderstood as the cause of this state of affairs.—In fact, we do just the same thing when we're awake. Most of our general feelings—every sort of inhibition, pressure, tension, explosion in the play and counter play of the organs, and in particular the state of the *nervus sympathicus* (sympathetic nervous system)—arouse our drive to find causes: we want to have a *reason* for feeling that we're in *such and such* a state—a bad state or a good state. It's never enough for us just to determine the mere fact *that* we find ourselves in such and such a state: we admit this fact—become *conscious* of it—only if we've given it some kind of motivation.—Memory, which comes into play in such cases without our knowing it, calls up earlier states of the same kind, and the causal interpretations that are rooted in them—but *not* their causation. Of course, memory also calls up the belief that the representations, the accompanying occurrences in consciousness, were the causes. In this way there arises a *habituation* to a particular interpretation of causes that actually inhibits and even excludes an *investigation* of the cause.

5

A psychological explanation of this error.—Tracing something unfamiliar back to something familiar alleviates us, calms us, pacifies us, and in addition provides a feeling of power. The unfamiliar brings with it danger, unrest, and care—our first instinct is to *do away* with these painful conditions. First principle: some explanation is better than none. Since at bottom all we want is to free ourselves from oppressive representations, we aren't exactly strict about the means of freeing ourselves from them: the first representation that serves to explain the unfamiliar as familiar is so beneficial that we “take it to be true”. Proof of *pleasure* (“strength”) as criterion of truth.—Thus, the drive to find causes is conditioned and aroused by the feeling of fear. Whenever possible, the “why?” should not so much provide the cause for its own sake, but instead provide a *type of cause*—a relaxing, liberating, alleviating cause. The fact that something already *familiar*, something we have experienced, something inscribed in memory is posited as the cause, is the first consequence of this requirement. The new, the unexperienced, the alien, is excluded as a cause.—So we not only look for some type of explanation as the cause, but we *single out* and *favor* a certain type of explanation, the type that eliminates the feeling of the alien, new, and unexperienced, as fast and as often as possible—the most *customary* explanations.—Consequence: one kind of cause-positing becomes more and more prevalent, concentrates itself into a system, and finally comes to the fore as *dominant*, that is, as simply *excluding* any *other* causes and explanations.—The banker thinks right away about “business”, the Christian about “sin”, the girl about her love. [...]

What the Germans Are Missing

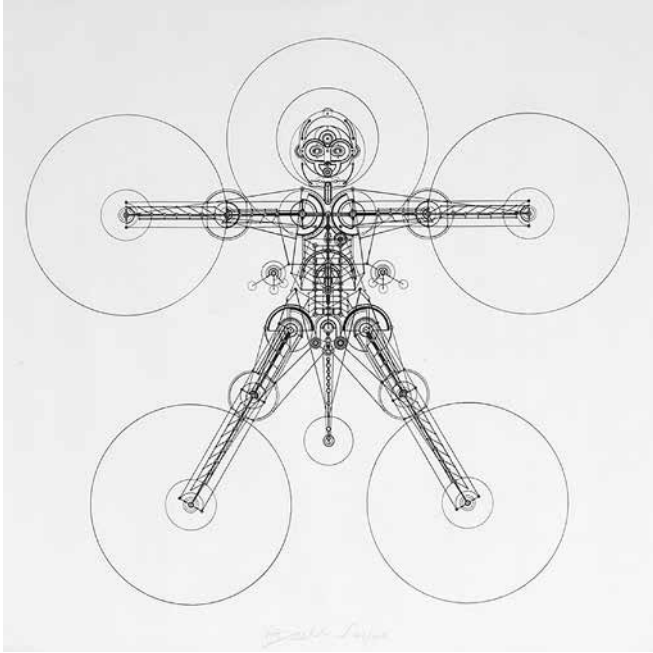
[...] 6

– In order not to be untrue to my type, which is a *yes-saying* type and deals in contradictions and criticism only indirectly, only unwillingly, I will set forth right away the three tasks for which educators are required. One must learn to *see*, one must learn to *think*, one must learn to *speak* and *write*. The goal of all three tasks is a noble culture. – To learn to *see* – to accustom the eye to composure, to patience, to letting things come to it; to put off judgment, to learn to walk around all sides of the individual case and comprehend it from all sides. That is the *first* preliminary schooling in spirituality: *not* to react to a stimulus right away, but to keep in check the instinct to restrict and exclude. Learning to *see*, as I understand it, is almost what is unphilosophically termed will-power: what is essential here is precisely *not* to “will”, to be *able* to put off a decision. All unspirituality, all commonness is based on the inability to resist a stimulus – one *has* to react, one follows every impulse. In many cases, such a compulsion is already sickliness, decline, a symptom of exhaustion – almost everything that unphilosophical coarseness calls vice is simply this physiological inability *not* to react. – A useful application of having learned to *see*: one will have become, as a *learner* in general, slow, suspicious, and resistant. It will be with a hostile composure that one will let strange *new* things of every sort make their initial approach – one will draw one’s hand back from them. Leaving all one’s doors open, submissively flopping belly-down before every little fact, a constant readiness to jump in and interfere, to *plunge into* other people and other things, in short, the celebrated “objectivity” of modern times is bad taste, is *ignoble* par excellence. – [...]

Raids of an Untimely Man

[...] 8

Towards a psychology of the artist – For there to be art, for there to be any aesthetic activity and observation, one physiological prerequisite is indispensable: *intoxication*. Intoxication must already have heightened the sensitivity of the whole machine: otherwise, no art will be forthcoming. All kinds of intoxication, as different as their causes may be, have this power: above all, the intoxication of sexual excitement, that oldest and most primordial form of intoxication. Likewise, the intoxication that follows all great cravings, all strong emotions; the intoxication of the festival, of the competition, of daredevilry, of victory, of every extreme commotion; the intoxication of cruelty; the intoxication of destruction; intoxication due to certain meteorological influences, such as the intoxication of spring; or under the influence of narcotics; finally, the intoxication of the will, the intoxication of an overloaded and swollen will. – What is essential in intoxication is the feeling of increased strength and fullness. This feeling leads us to donate to things, to *make* them take from us, to force ourselves on them – this process is called *idealizing*. Let’s get rid of a prejudice at this point: idealizing does *not* consist, as is commonly thought, in taking away or subtracting what is small and incidental. Instead, what is decisive is an immense drive to *bring out* the principal traits, so that the others disappear in the process. [...]



FRANÇOIS DALLEGRET, COSMIC OPERA SUIT (1966)

ANTI-ŒDIPUS

31

GILLES DELEUZE FÉLIX GUATTARI

1972

Desiring Machines

To a certain degree, the traditional logic of desire is all wrong from the very outset: from the very first step that the Platonic logic of desire forces us to take, making us choose between production and acquisition. From the moment that we place desire on the side of acquisition, we make desire an idealistic (dialectical, nihilistic) conception, which causes us to look upon it as primarily a lack: a lack of an object, a lack of the real object. It is true that the other side, the “production” side, has not been entirely ignored. Kant, for instance, must be credited with effecting a critical revolution as regards the theory of desire, by attributing to it “the faculty of being, through its representations, the cause of the reality of the objects of these representations.” But it is not by chance that Kant chooses superstitious beliefs, hallucinations, and fantasies as illustrations of this definition of desire: as Kant would have it, we are well aware that the real object can be produced only by an external causality and external mechanisms; nonetheless this knowledge does not prevent us from believing in the intrinsic power of desire to create its own object—if only in an unreal, hallucinatory, or delirious form—or from representing this causality as stemming from within desire itself. The reality of the object, insofar as it is produced by desire, is thus a psychic reality. Hence it can be said that Kant’s critical revolution changes

nothing essential: this way of conceiving of productivity does not question the validity of the classical conception of desire as a lack; rather, it uses this conception as a support and a buttress, and merely examines its implications more carefully. In point of fact, if desire is the lack of the real object, its very nature as a real entity depends upon an “essence of lack” that produces the fantasized object. Desire thus conceived of as production, though merely the production of fantasies, has been explained perfectly by psychoanalysis. On the very lowest level of interpretation, this means that the real object that desire lacks is related to an extrinsic natural or social production, whereas desire intrinsically produces an imaginary object that functions as a double of reality, as though there were a “dreamed-of object behind every real object,” or a mental production behind all real productions. This conception does not necessarily compel psychoanalysis to engage in a study of gadgets and markets, in the form of an utterly dreary and dull psychoanalysis of the object: psychoanalytic studies of packages of noodles, cars, or “thingumajigs.” But even when the fantasy is interpreted in depth, not simply as an object, but as a specific machine that brings desire itself front and center, this machine is merely theatrical, and the complementarity of what it sets apart still remains: it is now need that is defined in terms of a relative lack and determined by its own object, whereas desire is regarded as what produces the fantasy and produces itself by detaching itself from the object, though at the same time it intensifies the lack by making it absolute: an “incurable insufficiency of being,” an “inability-to-be that is life itself.” Hence the presentation of desire as something supported by needs, while these needs, and their relationship to the object as something that is lacking or missing, continue to be the basis of the productivity of desire (theory of an

underlying support). In a word, when the theoretician reduces desiring-production to a production of fantasy, he is content to exploit to the fullest the idealist principle that defines desire as a lack, rather than a process of production, of “industrial” production. Clement Rosset puts it very well: every time the emphasis is put on a lack that desire supposedly suffers from as a way of defining its object, “the world acquires as its double some other sort of world, in accordance with the following line of argument: there is an object that desire feels the lack of; hence the world does not contain each and every object that exists; there is at least one object missing, the one that desire feels the lack of; hence there exists some other place that contains the key to desire (missing in this world).”

If desire produces, its product is real. If desire is productive, it can be productive only in the real world and can produce only reality. Desire is the set of passive syntheses that engineer partial objects, flows, and bodies, and that function as units of production. The real is the end product, the result of the passive syntheses of desire as autoproduction of the unconscious. Desire does not lack anything; it does not lack its object. It is, rather, the subject that is missing in desire, or desire that lacks a fixed subject; there is no fixed subject unless there is repression. Desire and its object are one and the same thing: the machine, as a machine of a machine. Desire is a machine, and the object of desire is another machine connected to it. Hence the product is something removed or deducted from the process of producing: between the act of producing and the product, something becomes detached, thus giving the vagabond, nomad subject a residuum. The objective being of desire is the Real in and of itself. There is no particular form of existence that can be labeled “psychic reality.” As Marx notes, what exists in fact is not lack, but passion, as a “natural and

sensuous object.” Desire is not bolstered by needs, but rather the contrary; needs are derived from desire: they are counter products within the real that desire produces. Lack is a countereffect of desire; it is deposited, distributed, vacuolized within a real that is natural and social. Desire always remains in close touch with the conditions of objective existence; it embraces them and follows them, shifts when they shift, and does not outlive them. For that reason, it so often becomes the desire to die, whereas need is a measure of the withdrawal of a subject that has lost its desire at the same time that it loses the passive syntheses of these conditions. This is precisely the significance of need as a search in a void: hunting about, trying to capture or become a parasite of passive syntheses in whatever vague world they may happen to exist in. It is no use saying: We are not green plants; we have long since been unable to synthesize chlorophyll, so it’s necessary to eat... Desire then becomes this abject fear of lacking something. But it should be noted that this is not a phrase uttered by the poor or the dispossessed. On the contrary, such people know that they are close to grass, almost akin to it, and that desire “needs” very few things—not those leftovers that chance to come their way, but the very things that are continually taken from them—and that what is missing is not things a subject feels the lack of somewhere deep down inside himself, but rather the objectivity of man, the objective being of man, for whom to desire is to produce, to produce within the realm of the real. The real is not impossible; on the contrary, within the real everything is possible, everything becomes possible. Desire does not express a molar lack within the subject; rather, the molar organization deprives desire of its objective being. Revolutionaries, artists, and seers are content to be objective, merely objective: they know that desire clasps life in its powerfully productive embrace and reproduces it

in a way that is all the more intense because it has few needs. And never mind those who believe that this is very easy to say, or that it is the sort of idea to be found in books. “From the little reading I had done I had observed that the men who were most in life, who were molding life, who were life itself, ate little, slept little, owned little or nothing. They had no illusions about duty, or the perpetuation of their kith and kin, or the preservation of the State... The phantasmal world is the world which has never been fully conquered over. It is the world of the past, never of the future. To move forward clinging to the past is like dragging a ball and chain.” The true visionary is a Spinoza in the garb of a Neapolitan revolutionary. We know very well where lack—and its subjective correlative—come from. Lack (*manque*) is created, planned, and organized in and through social production. It is counter produced as a result of the pressure of antiproduction; the latter falls back on (*se rabat sur*) the forces of production and appropriates them. It is never primary; production is never organized on the basis of a pre-existing need or lack (*manque*). It is lack that infiltrates itself, creates empty spaces or vacuoles, and propagates itself in accordance with the organization of an already existing organization of production. The deliberate creation of lack as a function of market economy is the art of a dominant class. This involves deliberately organizing wants and needs (*manque*) amid an abundance of production; making all of desire teeter and fall victim to the great fear of not having one’s needs satisfied; and making the object dependent upon a real production that is supposedly exterior to desire (the demands of rationality), while at the same time the production of desire is categorized as fantasy and nothing but fantasy.



EGYPTIAN HIEROGLYPHICS (3000 BC)

THE ELECTRONIC REVOLUTION

37

WILLIAM S. BURROUGHS

1970

[...] The *is of identity*. You are an animal. You are a body. Now whatever you may be you are not an *animal*, you are not a *body*, because these are verbal labels. The *is* of identity always carries the assignment of permanent condition. To stay that way. All name calling presupposes the *is* of identity. This concept is unnecessary in a hieroglyphic language like ancient Egyptian and in fact frequently omitted. No need to say that the sun *is* in the sky, sun in sky suffices. The verb *to be* can easily be omitted from any languages and the followers of Count Korzybski have done this, eliminating the verb *to be* in English. However, it is difficult to tidy up the English language by arbitrary exclusion of concepts which remain in force so long as the unchanged language is spoken.

The *definite article the*. *The* contains the implication of one and only: *the* God, *the* universe, *the* way, *the* right, *the* wrong; if there is another, then *that* universe, *that* way is no longer *the* universe, *the* way. The definite article *the* will be deleted and the indefinite article *a* will take its place.

The whole concept of *either/or*. Right or wrong, physical or mental, true or false, the whole concept of *or* will be deleted from the language and replaced by juxtaposition, by *and*. This is done to some extent in any pictorial language where two concepts stand literally side by side. These falsifications inherent in the English and other western alphabetical languages given the reactive mind commands their overwhelming force in these languages.

Consider the *is* of identity. When I say to be me, to be you, to be myself, to be others—whatever I may be called upon to be or to say that I am—I am not the verbal label *myself*. The word *be* in the English language contains, as a virus contains, its precoded message of damage, the categorical imperative of permanent condition. To be a body, to be an animal. If you see the relation of a pilot to his ship, you see crippling forces of the reactive mind command to be a body. Tell the pilot to be the plane, then who will pilot the plane?

The *is* of identity, assigning a rigid and permanent status was greatly reinforced by the customs and passport control that came in after World War I. Whatever you may be, you are not the verbal labels in your passport any more than you are the word *self*. So you must be prepared to prove at all times that you are what you are not. Much of the falsification inherent in the categorical definite *the*: *the* now, *the* past, *the* time, *the* space, *the* energy, *the* matter, *the* universe. The definite article *the* contains the implications of no other. *The* universe locks you in *the* and denies the possibility of any other. If other universes are possible, then the universe is no longer *the*; it becomes *a*. The definite article *the* is deleted and replaced by *a*. Many of the RM commands are in point of fact contradictory commands and a contradictory command gains its force from the Aristotelian concept of *either/or*. To do everything, to do nothing, to have everything, to have nothing, to do it all, to do not any, to stay up, to stay down, to stay in, to stay out, to stay present, to stay absent. These are in point of fact *either/or* propositions. To do nothing *or* everything, to have it all, *or* not any, to stay present *or* to stay absent. *Either/or* is more difficult to formulate in a written language where both alternatives are pictorially represented and can be deleted entirely from the spoken

language. The whole reactive mind can be in fact reduced to three little words—to be *the*. That is to be what you are not, verbal formulations.

I have frequently spoken of word and image as viruses or as acting as viruses and this is not an allegorical comparison. It will be seen that the falsifications of syllabic western languages are in point of fact actual virus mechanisms. The *is* of identity, the purpose of a virus is to *survive*. To survive at any expense to the host invaded. To be an animal, to be a body. To be an animal body that the virus can invade. To be animals, to be bodies. To be more animal bodies, so that the virus can move from one body to another. To stay present as an animal body, to stay absent as antibody or resistance to the body invasion.

The categorical *the* is also a virus mechanism, locking you in *the* virus universe. *Either/or* is another virus formula. It is always you *or* the virus. *Either/or*. This is in point of fact the conflict formula which is seen to be an archetypal virus mechanism. The proposed language will delete these virus mechanisms and make them impossible of formulation in the language. This language will be a tonal language like Chinese, it will also have a hieroglyphic script as pictorial as possible without being too cumbersome or difficult to write. The language will give one option of silence. When not talking, the user of this language can take in the silent images of the written, pictorial and symbol languages.

I have described here a number of weapons and tactics in the war game. Weapons that change consciousness could call the war game in question. All games are hostile. Basically there is only one game from here to eternity. Mr. Hubbard says that scientology is a game where everybody wins. There are no games where everybody wins. That's what games are all about, winning and

losing... The Versailles Treaty... Hitler the occupation Jig... War criminals hang at Nuremberg... It is a rule of this game that there can be no final victory since this means the end of the war game. Yet every player must believe in final victory and strive for it with all his power. Face by the nightmare of the final defeat, he has no alternative. So, all technologies with escalating efficiency produce more and more total weapons until we have the atom bomb which could end the game by destroying all players. Now mock up a miracle. The so stupid players decide to save the game. They sit down around a big table and draw up a plan for the immediate deactivation and eventual destruction of all atomic weapons. Why stop there? Conventional bombs are unnecessarily destructive if nobody has them, hein? Let's turn back the war clock to 1917:

Keep the home fires burning
Through the hearts are yearning
There's a long, long trail winding...
Back to the American Civil War...

"He has loosed the fatal lightning of this terrible swift sword".
His fatal lightning didn't cost as much in those days. Save a lot on the defense budget this way on, back to flintlocks, matchlocks, swords, armors, lances, bows and arrows, spears, stone axes and clubs. Why stop there? Why not grow teeth and claws, poison fangs, stingers, spines, quills, beaks and suckers and stink glands and fight in out in the muck hein?

That is what this revolution is about. End of game. New games? There are no new games from here to eternity.
End of the war game.



CHRIS MARKER, *LA JETÉE* (1962)

DELIRIOUS NEW YORK 43

REM KOOLHAAS

1978

Europeans: Biuer!
Dali and Le Corbusier conquer New York

[...] Method

“I believe that the moment is at hand when by a paranoid and active advance of the mind, it will be possible to systematize confusion and thus help to discredit completely the world of reality”:³ in the late twenties Salvador Dali injects his Paranoid Critical Method into the bloodstream of Surrealism.

“It was in 1929 that Salvador Dali turned his attention to the internal mechanism of paranoid phenomena, envisaging the possibility of an experimental method based on the power that dominates the systematic associations peculiar to paranoia; subsequently this method was to become the frenzied critical synthesis that bears the name of ‘paranoid critical activity.’”

The motto of the Paranoid-Critical Method (PCM) IS “*The Conquest of the Irrational.*”

Instead of the passive and deliberately uncritical surrender to the subconscious of the early Surrealist automatism in Writing, painting, sculpture, Dali proposes a second-phase Surrealism: the conscious exploitation of the unconscious through the PCM.

The PCM is defined by Dali mostly in tantalizing formulas: “the spontaneous method of irrational knowledge based on the critical and systematic objectifications of delirious associations and interpretations...”⁴

It is easiest to explain the PCM by describing its exact opposite.

In the sixties two American behaviorists—Ayllon and Azrin—invent a “reinforcement therapy” which they call *Token Economy*. Through the generous distribution of colored plastic tokens, inmates of a particular insane asylum are encouraged to behave like normal people whenever possible.

The two experimenters “posted a list of desired behaviors on the wall and then gave bonus points (tokens) to those patients who made their beds, swept their rooms, worked in the kitchen, etc. These tokens were redeemable for canteen items or for amenities such as a color TV, staying up later at night or a private room. These incentives proved very effective in motivating the patients to look after themselves and take care of the ward.”⁵

The hope that underlies such therapy is that, sooner or later, such systematic simulation of normality will turn into real normality, that the sick mind will insinuate itself successfully into some form of sanity like a hermit crab into an empty shell.

1 Salvador Dalí, “New York Salutes Me!”, *Spain*, May 23, 1941 2 Le Corbusier, as quoted in *New York Herald Tribune*, October 22, 1935 3 Salvador Dalí, *La femme visible* (Paris: Editions Surréalistes, 1930) 4 Salvador Dalí, “The Conquest of the irrational”, appendix of *Conversations with Dalí* (New York: Dutton, 1969), p.115 5 This “theory” was actually put into practice, as described in Robert Sommer, *The End of Imprisonment* (New York: Oxford University Press, 1976), p. 127

CHRIS MARKER, *LA JÉTÉE* (1962)

ESSAYS CRITICAL AND CLINICAL

47

GILLES DELEUZE

1997

Bartleby; or, the Formula

The Confidence-Man (much as one says the *Medicine-Man*) is sprinkled with Melville's reflections on the novel. The first of these reflections consists in claiming the rights of a superior irrationalism. Why should the novelist believe he is obligated to explain the behaviors of his characters, and to supply them with reasons, whereas life for its part never explains anything and leaves in its creatures so many indeterminate, obscure, indiscernible zones that defy any attempt at clarification? It is life that justifies; it has no need of being justified. The English novel, and even more so the French novel, feels the need to rationalize, even if only in the final pages, and psychology is no doubt the last form of rationalism; the Western reader awaits the final word. In this regard, psychoanalysis has revived the claims of reason. [...] The founding act of the American novel, like that of the Russian novel, was to take the novel far from the order of reasons, and to give birth to characters who exist in nothingness, survive only in the void, defy logic and psychology and keep their mystery until the end. Even their soul, says Melville, is "an immense and terrifying void", and Ahab's body is an "empty shell". If they have a formula, it is certainly not explanatory. *I prefer not to* remains just as much a cabalistic formula as that of the Underground Man, who cannot keep two and two from making four, but who will not *resign* himself to it either (*he prefers that two and two not make four*). What counts for a great novelist—Melville,

Dostoyevsky, Kafka, or Musil—is that things remain enigmatic yet nonarbitrary: in short, a new logic, definitely a logic, but one that grasps the innermost depths of life and death without leading us back to reason. The novelist has the eye of a prophet, not the gaze of a psychologist. For Melville, the three great categories of characters belong to this new logic, just as much as this logic belongs to them. Once it has reached that sought-after zone, the hyperborean zone, far from the temperate regions, the novel, like life, needs no justification. And in truth, there is no such thing as reason; it exists only in bits and pieces. In *Billy Budd*, Melville defines monomaniacs as the Masters of reason, which is why they are so difficult to surprise; but this is because theirs is a delirium of action, because they make use of reason, make it serve their own sovereign ends, which in truth are highly unreasonable. Hypochondriacs are the Outcasts of reason, without us being able to know if they have excluded themselves from it in order to obtain something reason cannot give them—the indiscernible, the unnameable with which they will be able to merge. In the end, even prophets are only the Castaways of reason: if Vere, Ishmael, or the attorney clings so tightly to the debris of reason, whose integrity they try so hard to restore, it is because they have *seen* so much, and because what they have seen has marked them forever.

But a second remark by Melville introduces an essential distinction between the characters in a novel, Melville says that we must above all avoid confusing true Originals with characters that are simply remarkable or singular, particular. This is because the particulars, who tend to be quite populous in a novel, have characteristics that determine their form, properties that make up their image; they are influenced by their milieu and by each other, so that their actions and reactions are governed by general laws, though in each case they retain a particular

value. Similarly, the sentences they utter are their own, but they are nonetheless governed by the general laws of language. By contrast, we do not even know if an original exists in an absolute sense, apart from the primordial God, and it is really something extraordinary when we encounter one. Melville admits that it is difficult to imagine how a novel might include several of them. Each original is a powerful, solitary Figure that exceeds any explicable form: it projects flamboyant traits of expression that mark the stubbornness of a thought without image, a question without response, an extreme and nonrational logic. Figures of life and knowledge, they know something inexpressible, live something unfathomable. They have nothing general about them, and are not particular—they escape knowledge, defy psychology. Even the words they utter surpass the general laws of language (presuppositions) as well as the simple particularities of speech, since they are like the vestiges or projections of a unique, original language. (*langue*), and bring all of language (*langage*) to the limit of silence and music. There is nothing particular or general about Bartleby: he is an Original.

Originals are beings of Primary Nature, but they are inseparable from the world or from secondary nature, where they exert their effect: they reveal its emptiness, the imperfection of its laws, the mediocrity of particular creatures... the world as masquerade (this is what Musil, for his part, will call “parallel action”). The role of prophets, who are not originals, is to be the only ones who can recognize the wake that originals leave in the world, and the unspeakable confusion and trouble they cause in it. The original, says Melville, is not subject to the influence of his milieu; on the contrary, he throws a livid white light on his surroundings, much like the light that “accompanies the beginning of things in Genesis”.





ABSOLUTE



SILVIO ORLANDO

JAVIER CAMARA

SCOTT SHEPHERD



ABUNDANCE

ACCELERATION



ACCIDENT

AFTER MATH

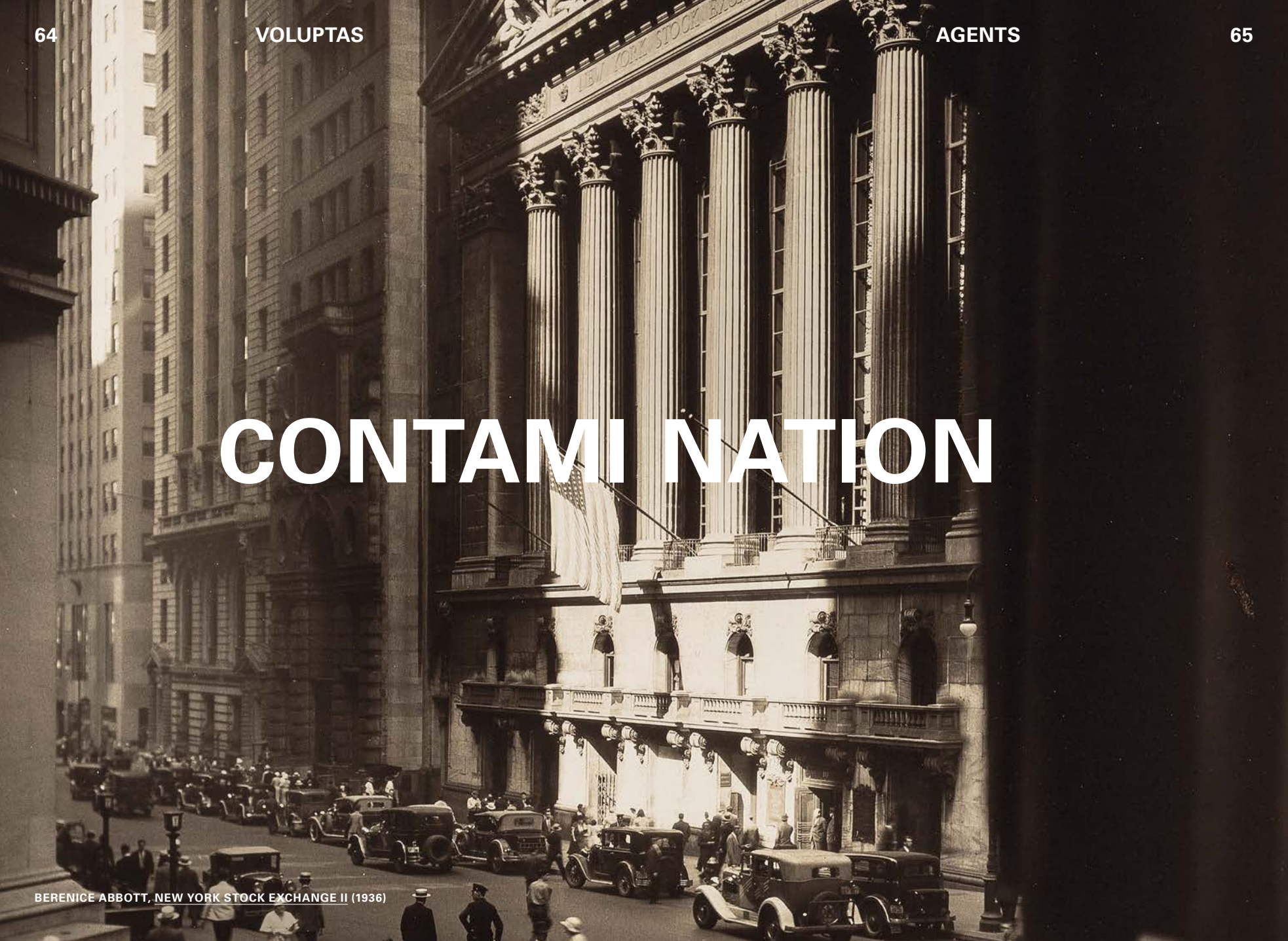


CHAOS

A photograph of a film set on a rooftop. Several professional cameras on tripods are positioned around the area. Crew members are visible, some standing and some adjusting equipment. The background is a chain-link fence and a very hazy, overcast sky. The word "CHAOS" is overlaid in large white letters in the center of the image.

CONTAMINATION

BERENICE ABBOTT, NEW YORK STOCK EXCHANGE II (1936)





CO PY



CORRUPTION



DE CAY



DECONSTRUCTION

DERIV ATIVES



DIFFERENCE

chair (châr), n. [OF. *chaize* (F. *chaire*), < L. *cathedra* (see *catechra*)] A seat with a back, and often arms, usually for one person; a seat of office or authority, or the office itself; the person occupying the seat or office, esp. the chairman of a meeting; a sedan-chair; a *chaioet*, a metal block or clutch to support and secure a rail in a railroad.

DOMINATION



EXPEN DABLE



EXTI MACY



HA BIT

HARM ONY





LEIS URE



LIM IT



LUNACY

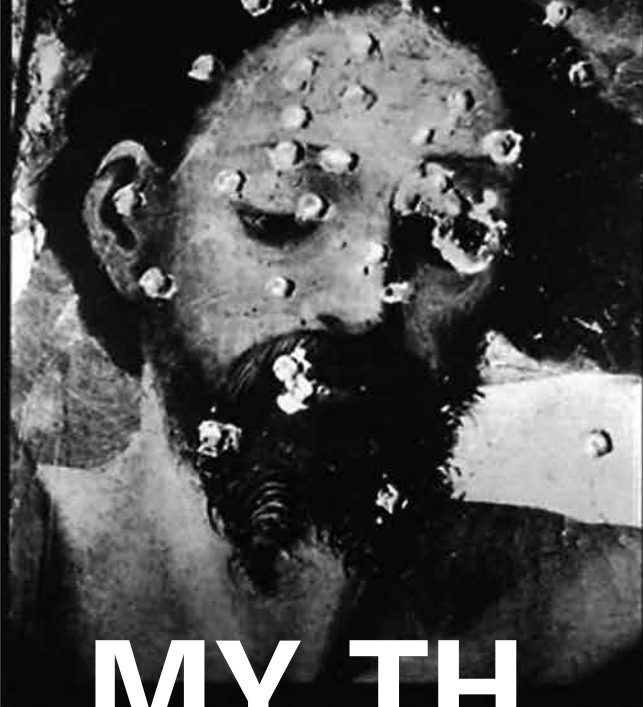
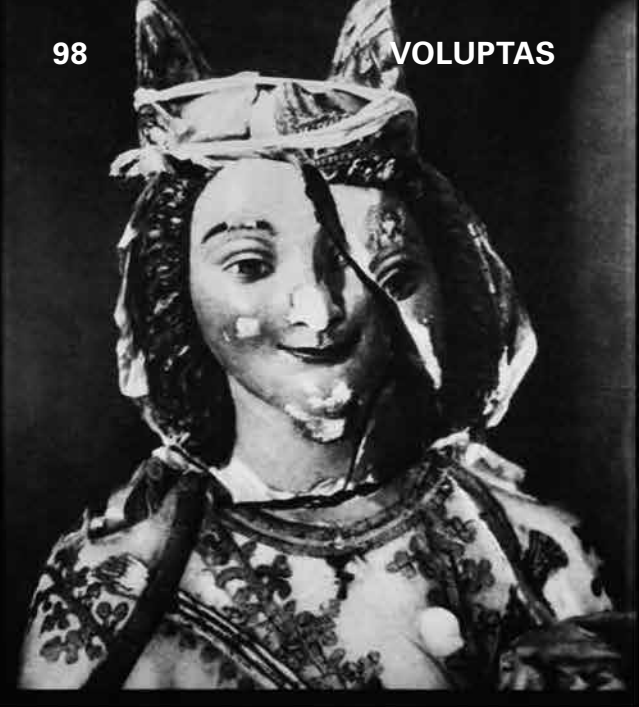




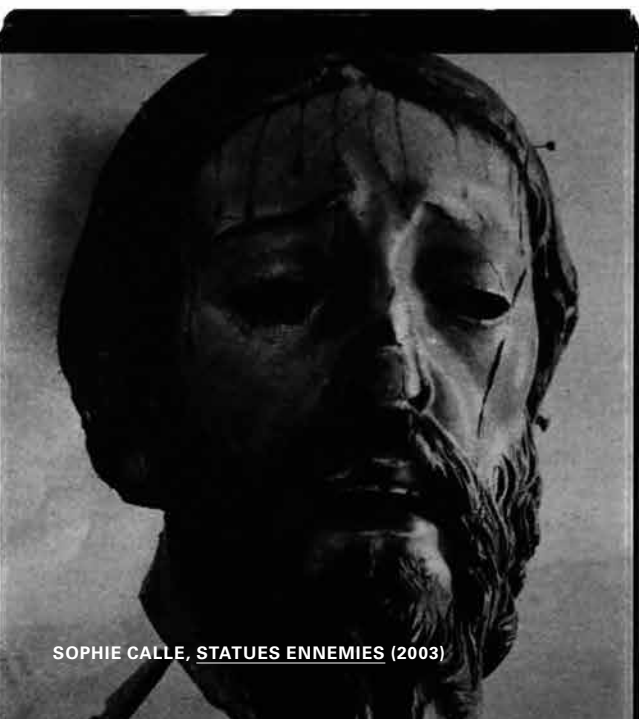
MEMORY



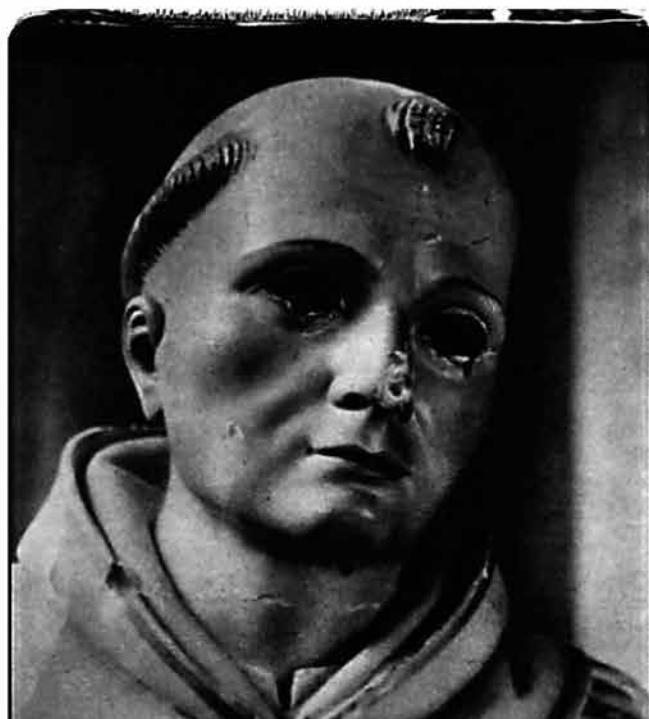
MONITORING



MY TH



SOPHIE CALLE, STATUES ENNEMIES (2003)



NECESSITY



THOMAS ROWLANDSON, LLOYD'S SUBSCRIPTION ROOM (1809)

NOISE

LEE KRASNER, NIGHT CREATURES (1965)



A large, dark-colored inflatable sculpture of a character with a round head, closed eyes, and large, white-gloved hands. The sculpture is floating in the ocean and is being towed by a boat in the distance. The text "NO MAD" is overlaid in white on the sculpture's head.

NO MAD

OR DER

A photograph of a family of four in 1950s-style clothing. A man in a white shirt and tie, a woman in a pink top and white skirt, and a young girl in a yellow patterned dress are embracing each other. They are standing in front of a dark classic car. The background shows a large white house and trees. The word "PARODY" is overlaid in large white letters across the center of the image.

PARODY

RELATIVITY





REPETITION

REVOLUTION



SCAR CITY



SEDENTARY

SPEED



MARK TANSEY, ACTION PAINTING II (1984)

SUBORDINATION



THEFT





VIRUS

CONSTANTS/ VARIABLES

129

ON MUSIC SAINT AUGUSTINE	133	CONJURING THE UNIVERSE PETER ATKINS	221
THE WAVES VIRGINIA WOOLF	173		
A THOUSAND PLATEAUS GILLES DELEUZE FÉLIX GUATTARI	189		

CONSTANTS/VARIABLES



ANDREAS GURSKY, BAHRAIN I (2005)

Devoid of any axiomatic premises, architectural constants are chimerical essences. All historical attempts have fundamentally failed at providing with an unequivocal and permanent contingency. Forever erratic under the evasive tenure of difference and repetition, we are left with variables and doomed to articulate adequacies and performances as transient conditions: architecture is a swamp of solid conjectures.

Constants/Variables investigate fixed designations as hypothetical regimes of ordinances and aims at deliberately precipitating provisional hyper-contexts of the urban environment. As a set of unyielding speculative injunctions, it is the condensing cradle of licensed conformities.

Constant [kon-*stuh*nt]

A theoretical or experimental quantity, condition, or factor that does not vary in specified circumstances.

Variable [vair-*ee-uh-buhl*]

A quantity or function that may assume any given value or set of values.

DICTIONARY.COM (2019)

ON MUSIC

SAINT AUGUSTINE

1491

Book Six

Chapter 6

16 *M.* Let's get back to the problem proposed, and tell me, of the three kinds of numbers, one in the memory, the other in sensing, and another in sound, which of these seems to you the most excellent.

D. I put sound after these other two, both in the soul and in some sense living. But of these last two I am uncertain which I consider superior. But, perhaps, since we said those in action are to be preferred to those in the memory only because the ones are active and the others are caused by them, so for the same reason it is proper to prefer also those in the soul while we are listening to those in the memory caused by them. That's the way it seemed to me before.

M. I don't think your reply absurd. But since it has been argued those numbers in sensing are also operations of the soul, how do you distinguish them from those we see to be in act even when the soul in silence and not remembering performs something harmonious through intervals of time? Or do the ones belong to the soul moving itself with respect to its body, while those others inhering belong to the soul moving itself with respect to the body's passions?

D. I accept this distinction.

M. Well, do you think it acceptable those relative to the body be judged superior to those relative to the body's passions?

D. Those existing in silence seem to me to be freer than those exerted not only on the body but also on the body's passions.

M. It seems we have distinguished five kinds of numbers and ordered them in some sort of scale of merits. And if you will, we shall impose names proper to them, to avoid in the rest of our discourse using more words than things.

D. Very willingly.

M. Then let the first be named judicial, the second advancing (*progressores*), the third reacting (*occursores*), the fourth memorial, the fifth sounding.

D. I understand and I am glad to use these names.

Chapter 7

17 *M.* Come now, tell me, which of these seems to you undying, or do you think they all fall in their time and die?

D. I think the judicial alone are undying. For the others, I see, either pass away when they are made or are stricken out of the memory by forgetfulness.

M. You are just as certain, then, of the immortality of the first as you are of the destruction of the others? Or is it proper to inquire more diligently whether they are undying?

D. Let's look into the matter thoroughly.

M. Say, then, when I pronounce a verse sometimes longer, sometimes shorter, provided I comply with the law of times putting feet in a one-two ratio, I don't offend the judgment of your senses with any kind of hitch or fraud, do I?

D. Not at all.

M. Well, but that sound, given out in shorter and, you might say, faster syllables, it can't occupy more time than it sounds, can it?

D. How can it?

M. Then, if those judicial numbers are time-bound in just the interval the sounding numbers were disposed in, can they hope to judge those other sounds based on the same iambic law, but slower?

D. In no way.

M. Then it appears those judicial numbers are not confined to a span of time.

D. It certainly appears so.

18 *M.* You are right in agreeing. But if they are confined to no interval, then no matter how slowly I should emit iambic sounds in regular intervals, they could still be used for judging. But now, if I should say a syllable of such a stretch as three steps in walking (to make it small), and another syllable double that, and if I should order the succeeding iambs at such a pace, then the law of one to two would nevertheless be preserved. And yet we couldn't apply that natural judgment to confirming these measurements, could we?

D. I can't deny you seem right, for my opinion of the matter is very simple.

M. Then the judicial numbers are also confined to certain limits of time-spans they cannot exceed in their judgments. And whatever exceeds these intervals, they find no way to judge. And if they should be confined in this way, I do not see how they are immortal.

D. And I don't see what I can say to that. Although now I shall be less forward in presuming on their immortality, yet I do not understand how they are in this way proved mortal. For it is possible whatever intervals they can judge they can always judge, since I cannot say they are destroyed as the others by forgetfulness, or their length of time is so long as a sound's movement, or of such a stretch as reacting

numbers, or as the numbers we have called advancing, impelled in time and prolonged in length. For each of these pass away with the time of its operation. But the judicial remain certainly in the nature of man, whether also in the soul I do not know, to pass judgment on things given even if varied within certain lengths, by approving harmonies in them and rejecting discords.

19 *M.* At least you concede some men are more quickly offended by discordant numbers, some more slowly, and most judge them defective only by the comparison with sound ones on hearing them agree and disagree.

D. I agree to that.

M. Well, what do you think this difference arises from, if not from nature or practice or both?

D. That's true.

M. Then, I want to know if someone at some time could pass judgment on and approve longer intervals than another could.

D. I believe that's possible.

M. Well, anyone who can't, if he should practice properly and should not be really dull, could, couldn't he?

D. Certainly he could.

M. But he couldn't go so far as to judge even longer intervals, comprehending in that judicial sense intervals in the ratio of one to two hours or days or months or years (for they'd at least be hindered by sleep) and approving them as iambs of motion.

D. They can't.

M. Why can't they do so? Unless it's because to each living thing in its proper kind and in its proportion with the universe is given a sense of places and times, so that even as its body is so much in proportion to the body of the universe whose part it is, and its age so much in propor-

tion to the age of the universe whose part it is, so its sensing complies with the action it pursues in proportion to the movement of the universe whose part it is? So this world, often called in Sacred Scriptures by the name of heaven and earth, is great by containing all things whose parts being all diminished in proportion it remains just as large, or increased in proportion it still remains just as large. For nothing is large of itself in space and time-stretches, but with respect to something shorter; and again nothing is small of itself, but with respect to something larger. And so, if there is attributed to human nature for the actions of carnal life a sense such that it cannot pass judgment on greater stretches of times than the intervals pertaining to the use of such a life demand, then, since this nature of man is mortal, so I think also this sense is mortal. For it is not for nothing custom is called a sort of second and fitted-on nature. But we see new senses in the judging of this kind of corporeal things, built up by custom, by another custom disappear.

Chapter 8

20 But whatever kind of thing these judicial numbers may be, they are certainly superior to any other in this, that we doubt and with difficulty find out if they are mortal. But of the other four kinds there is no question they are mortal. And although they do not embrace some members of these four classes because they have been extended beyond their laws, yet they appropriate the kinds themselves for their very consideration. For even the advancing numbers, when they seek a certain harmonious operation in the body, are modified by the secret will of the judicial numbers. For whatever restrains and keeps us

from walking with unequal steps, or from beating out in unequal intervals, or from eating or drinking with uneven motions of the jaw, and from scratching with unequal motions of the nails, or to be brief, from unequal movements in any application of ourselves to doing something with our bodily members, and tacitly demands a certain equality, that very thing is something judicial, I don't know what, introducing God the builder of the animal, properly believed to be the author of all fittingness and agreement.

21 And these reacting numbers, brought forth certainly not according to their own will, but in virtue of the body's passions, in so far as the memory can keep their intervals, just so far they given over to the judgment of the judicial are numbers and are judged. For the number consisting in time-intervals can in no way be judged by us unless we are aided in the judging by memory. For any syllable, no matter how short, since it begins and stops, has its beginning at one time and its ending at another. Then it is stretched over some little interval of time and stretches from its beginning through its middle to an end. So reason finds spatial as well as temporal intervals have an infinite division and so no syllable's end is heard with its beginning. And so, even in hearing the shortest syllable, unless memory helped us have in the soul that motion made when the beginning sounded, at the very moment when no longer the beginning but the end of the syllable is sounding, then we cannot say we have heard anything. And from this it often comes about, being occupied with another thought, we do not in conversation seem to have heard even ourselves. This is not because the soul does not at that time put in motion those reacting numbers, since certainly the sound reaches the ears, and the soul cannot be idle at its body's passion and since it cannot move differ-

ently than if that passion of the body should occur, but because the impetus of the motion is immediately blotted out by the attention (*intentio*) on something else, an impetus which, if it remained, would remain in the memory so we would also know and feel what we had heard. But if a rather slow mind follows not too easily what reason discovers in the case of a short syllable, in the case of two syllables there's certainly no doubt no soul can hear both at the same time. For the second does not sound unless the first stops. For how can what cannot sound together be heard together? Then, as the diffusion of rays shining out into the open from tiny pupils of the eye, and belonging therefore to our body, in such a way that, although the things we see are placed at a distance, they are yet quickened by the soul, so, just as we are helped by their effusion in comprehending place-spans, the memory too, because it is somehow the light of time-spans, so far comprehends these time-spans as in its own way it too can be projected. But when a sound beats a longer time on the ears, in no way articulated and again another, double it, or equal it, is added on from some stopping place or another, then that motion of the mind, created by its attention on the past and finished sound in its transition, is repressed by its attention on the continuously succeeding sound, and so it does not remain in the memory. And so mustn't these judicial numbers be thought of as extended in a certain interval of time? For they can't judge the numbers situated in the time-spans unless the memory should come to their assistance, with the exception of the advancing numbers whose very advance they regulate. But there intervene the time-spans where we forget or remember what they judge. And so we cannot judge round or square or any other solid definite things in those bodily forms which are properly objects of the eyes, unless we turn them around to the eyes. But when one part

is seen, if for that reason it should blot out what is seen in another, then the attention of the person judging would be in vain, because it, too, is accomplished in a certain time-span. And it is up to memory to see to this diversity.

22 But it is much more evident we judge memorial numbers by judicial when the memory itself presents them. For, if reacting numbers are judged in so far as they are presented by it, much more are those found to live in the memory itself which are brought back by memory itself as if they had been stored up by other applications of our attention. For what else do we do when we recall to memory except examine somehow what we've stored up? But a motion of the mind, not destroyed, runs back into our cogitation on the occasion of similar ones, and it is this that is called remembering. And so, either in thought alone or also in the movement of our members, we enact numbers we have already enacted sometime or other. But for that reason we know they haven't just come, but come back into our cogitation, because whenever they were being committed to memory, they were repeated with difficulty, and we needed prior practice in order to follow through. And with this difficulty overcome, when the numbers offer themselves without trouble and at will, conformably to the times and in their proper order, so easily, indeed, those inhering more forcibly come forth as if of their own will even while we are thinking of something else, we then feel they are not new. There is also another thing, I think, giving us to feel the present motion of the mind has already existed at some time: that is, to recognize when we compare by an interior light of some sort the recent, and certainly more lively, movements of the action we are in the midst of when we remember, with the now more composed memorial numbers. And such knowledge is recognition

and remembering. Then the memorial numbers are also judged by these judicial numbers, never alone, but along with active or reacting numbers or with both, bringing them from their hiding-places to the light, and recalling these numbers, lost before and now brought to life again. So, since the reacting numbers are judged in so far as the memory presents them to those judging, in turn the memorial numbers can be judged as the reacting numbers exhibit them. So this is the difference: for the reacting numbers to be judged, the memory presents what might be called recent traces of their flight, but when we hear and judge the memorial numbers, the same traces relive with the passage of the reacting numbers. Now, why do we need to say anything further about the sounding numbers, since, if they are heard, they are judged in the reacting numbers? But if they sound where they can't be heard, who doubts they can't be judged by us? And just as in sounds with the ears as instruments, so in dancing and other visible motions, we judge, by means of these same judicial numbers with the help of the memory, whatever pertains to temporal numbers.

Chapter 9

23 Since things are so, let us try if we can and transcend those judicial numbers and see if there are any superior to them. Although in the case of these judicial numbers we now see a minimum of time-spans, yet they are only applied for judging those things in a time-span, and not even all such, but only those articulated memory-wise. Do you object to this?

D. The force and power of these judicial numbers moves me to the utmost. For it seems to me it is to them the func-

tions of all the senses are referred. And so, I don't know whether among numbers anything more excellent than these can be found.

M. There is nothing lost in our looking more carefully. For, either we shall find in the human soul superior ones, or, if it should be clear there are none in it higher, we shall confirm these to be the highest in it. For it is one thing not to be, and another not to be capable of being found either by us or any man. But I think when that verse *Deus creator omnium* we quoted is sung, we hear it through reacting numbers, recognize it through memorial numbers, pronounce it through advancing numbers, are delighted through judicial numbers, and appraise it by still others, and in accordance with these more hidden numbers we bring another judgment on this delight, a kind of judgment on the judicial numbers. Do you think it's the same thing to be delighted by sense and to appraise by reason?

D. I admit they are different. But I am disturbed first by the name. Why aren't those called judicial numbers where reason rather than where delight resides? Second, I fear this appraisal of reason is only a more diligent judgment of judicial numbers concerning themselves. Not one kind of number in delight and another in reason, but one and the same kind of number judges at one time those produced in the body when memory presents them as we just proved, and at the other times of themselves, in a purer manner and more remote from the body.

24 *M.* Don't worry about names; the thing is in the meaning (*potestas*). Names are imposed by convention, not by nature. But you are thinking them the same and not wishing to accept them as two kinds of number—the same soul's doing both, I guess, wrings that out of you. But you must notice in advancing numbers the same soul moves

the body or moves to the body, and in reacting numbers the same soul goes to meet its passions, and in memorial numbers it fluctuates in motions, you might say, until they somehow subside. And so we see the motions and affections of one nature, that is, the soul, in these kinds which are necessarily enumerated and distinguished. And, therefore, if, as it is one thing to be moved to those things the body is passive to, and this is done in sensing; another, to move oneself to the body, and this is done in operating; another, to hold in the soul what is gotten from these motions, and that is to remember; so it is one thing to accept or reject these motions either when they are first produced or when revived by the memory, and this is done in the delight at the fitness or in the distaste at the absurdity of such movements or affections; and another thing to appraise whether they delight rightly or not, and this is done by reasoning—if all this is true, then we must admit these last are of two kinds just as the first are of three kinds. And, if we have been right in our judgment, the very sense of delight could not have been favorable to equal intervals and rejected perturbed ones, unless it itself were imbued with numbers; then, too, the reason laid upon this delight cannot at all judge of the numbers it has under it, without more powerful numbers. And, if these things are true, it appears five kinds of numbers have been found in the soul, and, when you add to these those corporeal numbers we have called sounding, you will see six kinds of numbers in rank and order. And now, if you will, let those that tried to take first place be called sensuous, and those found to be more excellent receive the name of judicial numbers, since that is more honorable. And again I think the name of sounding numbers ought to be changed, since, if they should be called corporeal, they will also evidently signify those involved in dancing and in any other visible

motion. Do you approve, then, of what's been said?

D. I do. For it seems to me both true and evident. And I am willing to accept your corrections in vocabulary.

Chapter 10

25 *M.* Well, now examine the force and power of reason in so far as we can examine it in its works. For reason itself, to mention the most extraordinary thing it attains in its operation, first has considered what is good mensuration, and seen it to be in a free movement, and directed it to the end of its own beauty. Then it saw there was something in the movements of bodies varying in the brevity and length of time, in so far as it was greater or less in time, and something else varying in the beat of spatial intervals in certain degrees of swiftness and slowness. After this division, it articulated into different numbers whatever was in a time-stretch by means of moderate intervals convenient to the human senses, and followed through their kinds and order to the measurements of verses. Lastly, it turned its attention to what the soul it's the head of would do in the measuring, operating, sensing, and retaining of these things. And it separated all these numbers of the soul from bodies. And it saw itself could not notice, distinguish or rightly enumerate all these things without certain numbers of its own, and it set them above the others as of an inferior order, by means of a kind of judicial appraisal.

26 And now of its own delight, that looks so closely into the balancings of times and shows its decisions in measuring these numbers, it asks this question: 'What is it we love in sensible harmony?' Nothing but a sort of equality and equally measured intervals, isn't it so? Does

the pyrrhic foot or spondaic or anapestic or dactylic or proceleusmatic or dispondaic delight us for any other reason than its comparing the one of its parts to the other by an equal division of itself? And what beauty does the iamb, trochee, or tribrach have if not the division of their greater part into two such as their lesser? And, too, do the six-time feet sound more smooth and gay except through their division according to either law: that is, either into two equal parts with three times each, or into one part single and the other double; that is, so the greater part is twice the less and is in this way divided equally by it, since the four times are measured off and cut in two by the two times? What about the five and seven-time feet? How is it they seem more adapted to prose than to verse, if not because their smaller part does not divide their larger in two? And yet, whence are they themselves admitted in the order of their own kind to the numberliness of times, if not because the smaller part also in the five-time foot has two such sub-parts as the greater has three, and in seven-time feet the smaller three such as the greater four? So in all feet, no measuring net marks off any least part others as many as possible are not equal to.

27 Consider in the case of feet joined together, whether this conjoining be continued on as far as one wishes as in rhythms, or whether it be restrained by some definite end as in meters, or whether it be divided into two members symmetrical to one another by some law as in verses—by what now other than equality is one foot in accord with another? And how is it the molossus' and ionic's middle syllable, a long one, can be divided, not by division, but by the will of the person reciting and beating time, into two equal moments, so even the whole foot is in harmony with each three-time part when it is added to

others divided in the same way? Isn't it only because the law of equality dominates, that is, because it's equal to its sides, each of two times, and it itself is of two times? Why can't the same thing be done in the case of the amphibrach when it is added to other four-time feet, if it isn't because an equality of this sort isn't found there, the middle syllable being double and the sides single? Why in rests isn't our sense offended by a deficiency, if not because what is due that same law of equality, although not in sound, is yet made up in spread of time? Why, too, is a short syllable taken for a long one when followed by a rest—and not by convention, but by natural consideration directing the ears—if not because by the same law of equality we are prevented, in a longer time-span, from forcing the sound into a shorter time? And so the nature of hearing and passing over in silence allows the lengthening of a syllable beyond two times: so what is also filled with rest can be filled with sound. But for a syllable to occupy less than two times, with a span left and rests at will, is a sort of deception of equality, because there can be no equality in less than two. And finally in the case of that equality of members, the circuits the Greeks call *períodoi* are varied by and verses are formed by, how is a return made somehow to the same equality unless the members joined together as unequals be found to have a force of equality so that in the circuit the shorter member harmonize in beat with the greater by equal feet, and in the verse by a more subtle consideration of numbers?

28 And so reason wonders and asks the sensuous delight of the soul which reserves to itself the judicial role whether, when an equality in the number of time-spans pleases it, any two short syllables one hears are really equal, or could it be one of them is pronounced longer, not to the

long syllable's measure, but a little under, yet enough to exceed its like. You can't deny this is possible, can you, when the soul's delight does not sense these differences, but delights in unequals as equals? And what is worse than this error and inequality? And so we are advised to turn away from the enjoyment of things imitating equality. For we cannot perceive whether they perfectly fill out their time, although we can perhaps perceive they do not perfectly do so. And yet in so far as they imitate we cannot deny they are beautiful in their kind and order.

Chapter 11

29 Let's not, then, be envious of things inferior to ourselves, and let us, our Lord and God helping, order ourselves between those below us and those above us, so we are not troubled by lower, and take delight only in higher things. For delight is a kind of weight in the soul. Therefore, delight orders the soul. "For where your treasure is, there will your heart be also." Where delight, there the treasure; where the heart, there happiness or misery. But what are the higher things, if not those where the highest unchangeable undisturbed and eternal equality resides? Where there is no time, because there is no change, and from where times are made and ordered and changed, imitating eternity as they do when the turn of the heavens comes back to the same state, and the heavenly bodies to the same place, and in days and months and years and centuries and other revolutions of the stars obey the laws of equality, unity, and order. So terrestrial things are subject to celestial, and their time circuits join together in harmonious succession for a poem of the universe.

30 And so many of these things seem to us disordered and perturbed, because we have been sewn into their order according to our merits, not knowing what beautiful thing Divine Providence purposes for us. For, if someone should be put as a statue in an angle of the most spacious and beautiful building, he could not perceive the beauty of the building he himself is a part of. Nor can the soldier in the front line of battle get the order of the whole army. And in a poem, if syllables should live and perceive only so long as they sound, the harmony and beauty of the connected work would in no way please them. For they could not see or approve the whole, since it would be fashioned and perfected by the very passing away of these singulars. So God has ordered the man who sins as vicious, but not viciously. For he has been made vicious by will, thus losing the whole he who obeyed God's precepts possessed, and has been ordered in part so who did not will to fulfill the law has been fulfilled by the law. But whatever is fulfilled by the law is also fulfilled justly; and whatever justly is not fulfilled viciously, because God's precepts possessed, and has been ordered in part so he far as he is man is something good. But whatever is unchaste in so far as it is unchaste is a bad work. But man for the most part is born of unchastity, that is to say, from man's bad work, God's good work.

31 And so, to return to the subject all this was said for, these numbers are pre-eminent by virtue of the beauty of ratio. And if we were absolutely separated from them, then whenever we should be disposed to the body, the advancing numbers would not alter the sensuous numbers. But by moving bodies they produce the sensible beauties of times. And so reacting numbers are also made opposed to sounding numbers. And the same soul receiving all its

own motions multiplies, you might say, in itself, and makes them subject to recall. And this force it has is called memory, a great help in the everyday business of this life.

32 Then whatever this memory contains from the motions of the mind brought to bear on the passions of the body are called *phantastai* in Greek. And I don't find in Latin anything I should rather call them. And the life of opinion consists in having them instead of things known and things perceived, and such a life is at the very entrance of error. But when these motions react with each other, and boil up, you might say, with various and conflicting winds of purpose, they generate one motion from another; not indeed those impressed from the senses and gotten from the reactions to the body's passions, but like images of images, to which we give the name phantasms. For my father I have often seen I know, in one way, and my grandfather I have never seen, another way. The first of these is a phantasia, the other phantasm. The first I find in my memory, the last in that motion of my mind born of those the memory has. But it is difficult both to find out and to explain how they are born. Yet, I think, if I had never seen human bodies, I could nowise imagine them by thinking with a visible form. But what I make from what I've seen, I make by memory. Yet it's one thing to find a phantasia in the memory and another to make a phantasm out of the memory. And a power of the soul can do all these things. But it is the greatest error to hold even true phantasms for things known, although in both kinds there is that we say, not absurdly, we know, that is, we have sensed such and such things, or imagined them. After all, I am not afraid to say I had a father and a grandfather. But I should be mad to say it is they themselves my mind holds in the phantasia or phantasm. But some follow their phantasms so head-

long the only ground for all false opinions is to hold phantasias or phantasms for things known, known by the senses. And so let us resist them as much as we can, nor so fit our mind to them that, while our thinking is on them, we believe we see them with the understanding.

33 And this is why, if numbers of this kind, coming to be in a soul given over to temporal things, have a beauty of their own, yet, even though they continually effect it by passing away, this beauty is grudged by a Divine Providence born of our punishable mortality merited by God's most just law, where yet He has not so forsaken us we may not turn back and be fetched again from the delight of the carnal senses, under the spread of His merciful hands. For such a delight strongly fixes in the memory what it brings from the slippery senses. And this habit of the soul made with flesh, through carnal affection, in the Holy Scriptures is called the flesh. And it is struggling with such a mind in that apostolic sentence: "In mind I serve the law of God, but in flesh the law of sin." But when the mind is raised to spiritual things and remains fixed there, the push of this habit is broken, too, and, being little by little repressed, is destroyed. For it was greater when we followed along with it; not altogether nothing, but certainly less when we check it. And so with a determined retreat from every wanton movement where lies the fault of the soul's essence, and with a restored delight in reason's numbers, our whole life is turned to God, giving numbers of health to the body, not taking pleasure from it; which happens when the exterior man is corrupt, even when there is a change for the better.

Chapter 12

34 But the memory not only takes in the carnal motions of the mind, and we have already spoken of these numbers, but also the spiritual motions I shall now speak of briefly. For in so far as they are simpler, they demand fewer words, and the greatest possible serenity of mind. That equality we could not find sure and fixed in sensible numbers, but yet we knew shadowed and fleeting, the mind could never indeed desire unless it were known somewhere. But this could be nowhere in the spans of places and times; for those swell up and these pass away. Where, then, do you think, tell me, if possible. For you don't think it's in the forms of bodies, and you'll never dare say they are equal by pure experiment; nor in intervals of times where we do not know whether they are insensibly longer or shorter than they should be. I want to know where you think that equality is on seeing which we desire certain bodies or motions of bodies to be equal, and on more careful consideration we dare not trust them.

D. There, I think, where it is more excellent than bodies, but whether it is in the soul itself or above the soul I do not know.

35 *M.* If, then, we look for that rhythmical or metrical art we use for making verses, do you think it possesses the numbers verses are made by?

D. I can't suppose anything else.

M. Whatever these numbers are, do they seem to you to pass away with the verses or to remain?

D. To remain, certainly.

M. Therefore, it must be agreed some things that pass away are made from some numbers that remain?

D. Reason forces me to agree.

M. Well, you don't think this art is other than some affection of the artisan's minds, do you?

D. So I believe.

M. Do you believe this affection also to be in one unskilled in this art?

D. Nowise.

M. And in the one having forgotten it?

D. Not even in the one himself unskilled even though he has been skilled at some time or other.

M. Well, if anyone reminds him by questioning, do you think those numbers return to him from the persons questioning, or he moves himself to something within his own mind whence returns to him what he had lost?

D. I think he does it within himself.

M. You don't think, by questioning, he could also be forcibly reminded which syllable is short or which is long if he has forgotten completely, do you? Since by an old agreement and custom of man, to some syllables a lesser, to others a greater stretch is given. For indeed if it were by nature or by discipline fixed and stable, then the learned men of our time would not have lengthened some syllables the ancients shortened, nor shortened some they lengthened.

D. I believe this can be so, since however much is forgotten can again be brought to memory by a remindful questioning.

M. I can't believe you think anyone by questioning could get you to remember what you ate a year ago.

D. I confess I couldn't, and I don't think now I could be reminded about syllables whose spans were completely forgotten.

M. Why so, except because, in the noun *Italia*, the first syllable by the will of certain men is shortened, and now by the will of others lengthened? But that one and two should not be three and that two should not be the double

of one, none of the dead or living or of those to be can bring it about.

D. Evidently not.

M. What, then, if we asked very clearly all the other things pertaining to numbers the way we have with one and two, and if one were questioned, unskilled, not by forgetting, but because he had never learned? Don't you think then he could likewise know this art except for the syllables?

D. How doubt it?

M. How, then, do you think he would move himself so these numbers may be impressed on his mind, and make that affection called art? Or will the questioner give them to him?

D. I think he does it within himself this way that he understands the things asked to be true and replies.

36 *M.* Come, tell me now whether these numbers under discussion seem to you to be changeable?

D. Nowise.

M. Then you don't deny they're eternal.

D. I admit it.

M. Well, is there no lingering fear some inequality won't spoil them?

D. Nothing at all is surer for me than their equality.

M. From where, then, must we believe what is eternal and unchangeable to be given the soul if not from the eternal and unchangeable God?

D. I don't see what else to believe.

M. Well, then, isn't it evident he, who under another's questioning moves himself within to God to know the unchangeable truth, cannot be reminded by any outside warning to see that truth, unless his memory hold his own same movement?

D. It's evident.

Chapter 13

37 *M.* I wonder, then, how he falls away from the contemplation of these things to need another's recalling it to his memory. Or must the mind even when intent on it be thought to require such a return?

D. I think so.

M. Let us see, if you will, what this could be could so incite to turn away from the contemplation of the highest and unchangeable equality. For I only see three kinds. For the mind is either intent upon something equal when it is turned away or something higher or lower.

D. There is need only to discuss two of them, for I see nothing superior to eternal equality.

M. Then, do you see anything could be equal to it and yet other?

D. I don't.

M. It only remains, then, to inquire what the lower is. But don't you think first of the soul avowing that equality to be certainly unchangeable, but knowing it itself changes from its intuiting at one time this equality and at another time something else and so following the variety of time, not found in eternal and unchangeable things, works this and that?

D. I agree.

M. Then this affection or motion of the soul by which it understands eternal things and counts temporal things below them even within itself and knows these higher things are rather to be desired than those lower, don't you think that's prudence?

D. I certainly do.

38 *M.* Well, then, don't you think it worth pondering, at once there's not in the soul the inhering in eternal things,

there's yet in it the knowing they should be inhered in?
D. I want us very much to ponder this, and I want to know how it comes about.

M. You will easily see, if you notice the things we direct the mind to most, and have the greatest care for. For I think they're those we very much love, isn't that so?

D. No others.

M. Say, then, we can only love beautiful things, can't we? For, although some people seem to love ugly things, those the Greeks commonly call *saprophiloi*, it is yet a matter of how much less beautiful they are than those things pleasing most people. For, clearly, no one loves those things whose foulness his sense is offended by.

D. It's as you say.

M. These beautiful things, then, please by number, where we have shown equality is sought. For this is found not only in that beauty belonging to the ears or in the motion of bodies, but also in the very visible forms where beauty is more usually said to be. Don't you think it's only equality when equal numbers reply to equal numbers in twos, but in ones, when they have a mean place so equal intervals are kept for them on each side?

D. I certainly do.

M. What is it in light itself holding the origin of all colors (for color also delights us in the forms of bodies), what is it in light and colors we seek if not what suits the eye? For we turn away from too great a flare, and we are unwilling to face things too dark, just as also in sounds we shrink from things too loud, and do not like whispering things. And this is not in the time-intervals, but in the sound itself, the light, you might say, of such numbers, whose contrary is silence, as darkness to colors. When, then, we seek things suitable for the way of our nature and reject things unsuitable we yet know are suitable to other living things,

aren't we here, too, rejoicing in some law of equality when we recognize equals allotted in more subtle ways? This can be seen in smells and tastes and in the sense of touch – and for this a long time to follow out more clearly but very easy to explore. For there's not one of these sensibles doesn't please us from equality or likeness. But where equality and likeness, there numberliness (*numerositas*). In fact, nothing is so equal or like as one and one, isn't that so?

D. I agree completely.

39 M. Well, didn't we persuade ourselves a while ago the soul effects these things in bodies, and doesn't suffer from bodies?

D. We did.

M. Then the love of acting on the stream of its bodily passions turns the soul away from the contemplation of eternal things, diverting its attention with the care of sensible pleasure; it does this with reacting numbers. But the love of operating on bodies also turns it away, and makes it restless; this it does with advancing numbers. The phantasias and phantasms turn it away; these it does with memorial numbers. Finally, the love of the vainest knowledge of such things turns it away; this it does with sensible numbers where lie rules of an art, as if glad in their imitation. And from these is born curiosity by its very care an enemy of peace, and in its vanity impotent over truth.

40 But the general love of action turning away from the true arises from pride by which vice the soul has preferred imitating God to serving God. And so it is rightly written in Holy Scripture: "The beginning of man's pride is to fall from God," and "The beginning of all sin is pride." What pride is could not have been better shown than where it is said: "What does earth and ashes take pride

in, since in its own life it gives up its inmost things?" For since the soul is nothing through itself – for it would not otherwise be changeable and suffer a flight from essence – since then through itself it is nothing, but whatever it is is from God, staying in its order, it is quickened in mind and conscience by the presence of God Himself. And so it has this good inmost. And so to puff with pride is to go forth to the outermost and, we might say, to become empty, that is to be less and less. But to go forth into the outermost what is that but giving up the inmost things, that is, putting yourself away from God, not in the span of places, but in affect of mind?

41 But that appetite of the soul is to have under it other souls; not of beasts as conceded by divine law, but rational ones, that is, your neighbors, fellows and companions under the same law. But the proud soul desires to operate on them, and as much as every soul is better than everybody, just so much does the action on them seem more excellent than on bodies. But God alone can operate on rational souls, not through a body, but through Himself. But such is the state of sin that souls are allowed to act upon souls moving them by signifying by one or the other body, or by natural signs as look or nod, or by conventional signs as words. For they act with signs by commanding or persuading, and if there is any other way besides command and persuasion, souls act with or upon souls. But by rights it has come about those souls wishing to be over others command their own parts and bodies with difficulty and pain, in part being foolish in themselves, in part, oppressed by mortal members. And so with these numbers and motions souls set upon souls by, with the desire of honor and praise they are turned away from the sight of that pure and entire truth. For God alone

honors the soul making it blessed in secret when it lives justly and piously before Him.

42 The motions the soul thrusts upon those cleaving to it and servant to it, then, are like the advancing ones, for it acts as if on its own body. But those motions it thrusts out, wishing to attach some to itself or to enslave, are counted as reacting motions. For it acts as if in the senses forcing a thing moving up outside to become one with it, and a thing not able to do so to be kept out. And the memory takes in both these motions, and makes them memorial, likewise boiling up in tumultuous fashion with the phantasias and phantasms of these acts. Nor are there lacking the corresponding judicial numbers seeing what moves suitably and unsuitably in these acts, not wrongly to be called sensible, for it is by sensible signs souls act toward souls. What wonder if the soul wound up in so many and great concerns is turned away from the contemplation of the truth? And it sees it in so far as it breathes free of them. But, because it has not yet turned them out, it cannot remain there. And so it is the soul has not at once the knowledge of where it ought to be and the power to be there. Do you agree?

D. Nothing, I daresay, to the contrary.

Chapter 14

43 *M.* What's left, then? Since we have considered as far as possible the stain and oppression of the soul, isn't it to see what action is divinely commanded it for its return, after purgation and forgiveness, to peace, and for its entry into the joy of its Master?

D. Yes.

M. And what more do you think there's for me to say when Holy Scripture, in so many volumes endowed with such authority and holiness, exhorts us only to love our God and Lord with all our heart, with all our soul, and with all our mind, and to love our neighbor as ourself? If, then, we refer all those motions and numbers of human action to this end, we shall certainly be cleansed. Isn't it so?

D. It certainly is, but how short this is to hear, and how hard and arduous to do.

44 *M.* What, then, is easy? To love colors and voices and sweets and roses and soft bodies? Is it then easy for the soul to love these things where it only desires equality and likeness, yet, considering a little more carefully, knows hardly the last shadow and trace of them? And is it difficult for the soul to love God thinking upon whom, as thoughts till then upon mean and sickly things allow, it finds these nothing unequal, nothing unlike, nothing divided in places, nothing changed in time? Or is there rather delight in throwing up a vast extent of building and passing the time in works of this kind where if the numbers please—there's nothing else—what can there be called equal and like, the discipline's reason would not laugh to scorn? And if this is so, why then does it sink from the truest height of equality to these things, and build up earthly machines in its own ruins? Was this not promised by Him who knows not to deceive? “For my yoke,” He says, “is light.” The love of this world is more wearisome. For, what the soul seeks in it, constancy and eternity, it does not find, since the lowest beauty is finished out with the passage of things, and what there imitates constancy is thrown through the soul by the highest God. For the form (*species*) changeable only in time is prior to that changeable both in time and place. And just as souls have been told by the

Lord what to love, so they are told through the Apostle John what not to love. “Do not love this world,” he says; “because all things in the world are concupiscence of the flesh, concupiscence of the eyes, and secular ambition.”

45 But what manner of man do you think this is, referring all those numbers from the body and over against the body’s passions and held from them by memory, not to carnal pleasure, but only to the body’s health? A man referring all those numbers operating on souls bound to him or those numbers put out to bind them, and therefore sticking within the memory, not to his own proud excelling, but to the usefulness of those souls themselves? A man also using those numbers in either kind as directing, in the role of moderators and examiners of things passing in the senses, not for an idle or harmful curiosity but for a necessary approval or disapproval? Doesn’t such a man work all these numbers and yet not get caught in them? For he only chooses the body’s health not to be hindered, and refers all those actions to the good of that neighbor he has been bidden to love as himself in the natural tie of common right. *D.* You talk of a great and very manlike man.

46 *M.* It’s not those numbers below reason and beautiful in their kind do soil the soul, then, but the love of lower beauty. And whenever the soul finds to love in it not only equality, concerning which we have said enough for this work, but also order, it has lost its own order. Nor yet does it depart from the order of things even at this point, and so it is whenever and however a thing is, it is highly ordered. For it is one thing to keep order and another to be kept by order. That soul keeps order that, with its whole self, loves Him above itself, that is, God and fellow souls as itself. In virtue of this love it orders lower things and

suffers no disorder from them. And what degrades it is not evil, for the body also is a creature of God and is adorned in its own beauty, although of the lowest kind, but in view of the soul’s dignity is lightly esteemed, just as the value of gold is degraded by a mixture with the finest silver. And so whatever numbers result from our criminal mortality, we shall not except them from the making of Divine Providence, since they are beautiful in their own kind, but let us not love them to become happy in their enjoyment. For we shall keep free of them since they are temporal, by using them well, as with a board in a flood by not throwing them aside as burdensome and not grasping them as stable. But the love of our neighbor commanded us is our most certain ascent to inhere in God and not so much to be kept by His ordering as to keep our own order firm and sure.

47 Or perhaps the soul does not love order as even those sensible numbers attest? But how, then, is the first foot a pyrrhic, the second an iamb, the third a trochee, and so on? But in this law you will have rather told the following of reason, not of sense. Well, isn’t this so of sensible numbers that when say eight long syllables take up as much time as sixteen short ones, yet the shorts look rather to be mixed with the longs? And when reason judges of sense and for it proceleusmatic feet are declared equal to the spondaic, it finds here only the power of ordering, because long syllables are only long in comparison with short syllables, and again short syllables are only short in comparison with long. And so the iambic verse, no matter how long it’s pronounced, if it does not lose the rule of one and two, does not lose its name. But that verse consisting of pyrrhic feet with the gradual lengthening of its enunciation becomes suddenly spondaic, if you consult not grammar with music. But if it is dactylic or anapestic, since

longs arc perceived by comparison with shorts mixed in, no matter how long its enunciation, it keeps its name. Why are additions of half feet not to be kept with the same law, in the beginning as at the end; nor all used, although fitting the same beat? Why the sometime placing of two shorts rather than one long at the end? Aren't they measured off by sense itself? Nor in these is there found an equality-number, suffering no change, but only a bond of order. It would take too long to go over all the other things like this having to do with the numbers of times. But even the senses reject visible forms, either leaning the wrong way or upside down, and like things, where it's not the inequality—for the equality of the parts remains—but the perverseness that's condemned. And finally in all our senses and works when we familiarize many unusual and therefore unpleasing things by gradual steps to our taste, we first accept them with a kind of toleration and then gladly, haven't we kept our pleasure with order, and don't we turn from them unless the first are harmoniously bound with the middle, and the middle with the last?

48 And so, let us put our joy neither in carnal pleasure, nor in the honors and praises of men, nor in the exploring of things touching the body from without, having God within where all we love is sure and unchangeable. And in this way it comes to be, when temporal things are present, yet are we not involved in them, and those things outside the body can be absent without sense of pain, and the body itself taken away with little or no sense of pain and brought back transformed by the death of its nature. For the soul's attention in the direction of the body contracts endless business, and the love of some special work to the neglect of universal law, a work yet inseparable from the universe of God's rule. And so who loves not the law is subject to the law.

Chapter 15

49 For if, for the most part, thinking intently on things incorporeal and being always what they are, we meanwhile effect temporal numbers in some bodily movement, easy and useful, by walking or singing, then they pass straight through us unnoticed, although they would not be were we not acting. And then, if, when we are occupied in our empty phantasms, likewise these, too, pass by as we act without feeling, how much more and more constantly “when this corruptible has put on incorruption, and this mortal has put on immortality,” that is, to speak plainly, when God has vivified our mortal bodies, as the Apostle says, “for the spirit remaining in us.” How much more, then, intent on one God and manifest truth, face to face, as it's said, shall we feel with no unquietness and rejoice in the numbers we move bodies by. Unless perhaps one is to believe the soul, although it can rejoice in things good through it, cannot rejoice in the things its good from.

50 But this action the soul, its God and Master willing, extracts itself from the love of an inferior beauty by fighting and downing its own habit that wars against it; on that point of victory within itself over the powers of this alloy from whose envious desire to entangle it, it soars to God—its support and station—isn't such an action for you called the virtue temperance?

D. I see and understand.

M. Well, when it advances along this way, now divining eternal joys nor quite grasping them, no loss of temporal things nor any death can deter it from saying to weaker fellows, can it: “It is good I be dissolved and be with Christ; but for your sakes it is necessary to remain in the flesh”?

D. So I think.

M. And this disposition where it fears neither adversity nor death, that can only be called fortitude, can't it?

D. I see that.

M. Now, this ordering itself, according to which it serves only one God, desires to be co-equal to only the purest souls and to have dominion only over animal and corporeal nature, what virtue do you think that is?

D. Who doesn't know that's justice?

M. Right.

Chapter 16

51 But now I want to know, when we decided a while ago among ourselves prudence to be the virtue the soul knows its proper station by, its ascent to it being through temperance, that is, conversion of love to God called charity, and aversion from this world attended by fortitude and justice, I want to know whether you think when it will have come to the fruit of its delight and zeal by perfect sanctification, by that perfect vivification, too, of its body, and, the swarm of phantasms wiped from its memory, will have begun to live with God Himself for God alone, when will have been fulfilled that divinely promised us in these words: "Beloved, now we are sons of God, and it has not yet appeared what we shall be. We know when He will have appeared we shall be like Him, since we shall see Him as He is,"—I want to know then whether you think these virtues we've recalled will then be there too.

D. I don't see, when those things the fight's about have passed by, how either prudence can be there, only choosing what to follow in opposition, or temperance, only turning love from things opposed, or fortitude, only bearing up under things opposed, or justice, only desiring to be equal

to the most blessed souls and to master its lower nature in opposition, that is, not yet in possession of that it desires.

52 *M.* Your reply is not absurd so far. And I don't deny it has seemed this way to certain learned men. But I, on consulting the books whose authority none surpasses, found this said, "Taste and see, since the Lord is sweet." The Apostle Peter also puts it this way: "If yet you have tasted, since the Lord is sweet." I think this is what is effected in those virtues purging the soul by conversion. For the love of temporal things could only be dislodged by some sweetness of eternal things. But when it has come to what is sung, "But the sons of men will hope under the cover of your wings; they will be drunk of the abundance of your house, and you will give them to drink in a torrent of pleasure; for in you is the fountain of life," it does not say the Lord will be sweet to taste, but you see what a flood and flow is said of the eternal fountain; even a drunkenness follows on it. And by this name is wonderfully signified, it seems to me, that forgetfulness of secular vanities and phantasms. Then the rest follows, and it says, "In your light we shall see light. Stretch forth your mercy to those knowing you." "In light" is to be taken as in Christ, who is the Wisdom of God, and is often called light. When therefore it is said "We see," and "knowing you," it can't be denied there'll be prudence there. Or do you think the true good of the soul can be known where there's no prudence?

D. I now understand.

53 *M.* Well, can there be those right in heart without justice?

D. I know justice is very often signified by this name.

M. Then isn't it that the same prophet later says when he sings, "And your justice to those who are of right heart'?"

D. Evidently.

M. Come, then, recall if you will we have already sufficiently expounded the soul lapses by pride into certain actions of its own power, and neglecting universal law has fallen into doing certain things private to itself, and this is called turning away from God.

D. I remember, certainly.

M. When, therefore, it acts, so this never again delights it, doesn't it seem to you to fix its love in God and to live most temperately and chastely and securely away from all filth?

D. It seems to be.

M. See, then, too, how the prophet goes on saying, "Let not the foot of pride come upon me." For, saying "foot" he signifies the distraction or fall, and in freedom from this the soul inheres in God and lives eternally.

D. I agree and follow.

54 *M.* Then fortitude remains. But as temperance against the lapse in the free will, so fortitude avails against the force anyone can be broken by if less strong in the face of attackers or if wretchedly lying down. And this force is usually well signified in the Scriptures by the name of hand. Then who besides sinners try to apply this force? Well, in so far as the soul is barricaded through this very thing and secured by God's support so nothing befalls it from anywhere, it sustains an enduring and you might say impassible power called fortitude; and I think this is said when it is added, "Nor let the hand of sinners disturb me."

55 But whether this or something else is to be understood by these words, will you deny the soul fixed in that perfection and blessedness sees the truth, remains unspotted, suffers no harm, is subject to the one God, and rises above other natures?

D. I don't see how it can otherwise be absolutely perfect and blessed.

M. Then, either this contemplation, sanctification, impassibility, and ordering of it are those four virtues perfected and consummated, or, not to split hairs over names when the things fit, instead of these virtues the soul in labor uses, some such powers are to be hoped for it in eternal life.

Chapter 17

56 We have only recalled what belongs most to this present discussion, that all this is done by God's Providence He has created and rules all things through, so even the sinful and miserable soul may be moved by numbers and set numbers moving even to the lowest corruption of the flesh. And these numbers can be less and less beautiful, but they can't lack beauty entirely. But God, most good and most just, grudges no beauty whether fashioned by the soul's damnation, retreat, or perseverance. But number also begins from one, and is beautiful in equality and likeness, and bound by order. And so, whoever confesses there's no nature of any kind, but desires unity, and tries as much as it can to be like itself, and holds its salvation as a proper order in place or time or weight of body, must confess all things whatever and of any size are made from one beginning through a form equal to it and like to the riches of His goodness, by which they are joined together in charity as one and one gift from one.

57 And so that verse proposed by us, "*Deus creator omnium*," sounds with the harmony of number not only to the ears, but even more is most pleasing in truth and wholeness to the soul's sentiment. Unless, perhaps, you are

moved by the stupidity, to speak mildly, of those denying anything can be made from nothing, even though God Almighty be said to have made it. Or is it rather the artisan can operate the sensible numbers of his habit by the reasonable numbers of his art, and by sensible numbers those advancing numbers, his numbers in their operation move by, and time-spans belong to; and from these again he can fashion visible forms in wood numbered with place-spans; and the nature of things serving God's will cannot make this wood from earth and other elements; and could not even make these final things from nothing? In fact the time-numbers of a tree must precede its place-numbers. For there's no stem does not in fixed time-measures spring up to replace its seed, germinate, break out into the air, unfold its leaves, become strong, and bring back either fruit or, by very subtle numbers of the wood itself, the force of the seed. And how much more the bodies of animals where the placing of the members presents a much more numbered equalness to sight. Can these be made of the elements and these elements not have been made of nothing? For which among them is more ordinary and lowly than earth. Yet first it has the general form of body where a unity and numbers and order are clearly shown to be. For any part of it, no matter how small, must be extended from an indivisible point in length, third takes on breadth, and fourth height, to fill the body. From where, then, is the measure of this progression of one to four? And from where, too, the equality of the parts found in length, breadth, and height? From where a corrationality (for so I have chosen to call proportion), so the ratio length has to the indivisible point, breadth has to length, and height to breadth? Where, I ask, do these things come from, if not from the highest and eternal rule of numbers, likeness, equality, and order? And if you abstract these

things from earth, it will be nothing. And therefore God Almighty has made earth, and earth is made from nothing.

58 Then, too, this form earth is differentiated from the other elements by, doesn't it present something one in so far as it has received it, and no part of it is unlike the whole? And doesn't it have the soundest final ground in its kind by the connection and agreement of the same parts? And the nature of water extends above it, itself abounding in unity, more beautiful and more pellucid because of the greater likeness of its parts, keeping the place of order and its own soundness. And what shall I say of the nature of air, sweeping to unity with a greater reach and as much more beautiful than water is than earth, and so much higher in worth. And what about the supreme circuit of the heavens where the whole universe of visible bodies ends, the highest beauty in its kind, and the soundest excellence of place? Now all these things we've enumerated with the help of the carnal senses, and all things in them, can only receive and hold local numbers seemingly in a kind of rest, if temporal numbers, in motion, precede within and in silence. Likewise, a vital movement measures off and precedes these as they move in time-spans, a vital movement serving the Master of all things, having in its numbers no temporal spans divided out, but with a power providing times. And above this power, the rational and intellectual numbers of the blessed and saintly souls transmit the very law of God no leaf-fall breaks and our hairs are numbered by, to the judgments of earth and hell, without toll from any nature between.

59 I in my littleness have gathered with you what I could and as I could on such great matters. But, if any read this talk of ours committed to writing, they must know

these things have been written by persons much weaker than those who, having followed the authority of the two Testaments, by believing, hoping, and loving, venerate and worship the consubstantial and unchangeable Trinity of the one highest God from whom, through whom, and in whom are all things. For they are purified, not by flashing human reasoning, but by the effective and burning fire of charity. And while we do not think those the heretics deceive with the promises of reason and false science ought to be neglected, yet, in the consideration of the ways themselves, we go more slowly than holy men who deign not to wait in their flying ascent. And yet we should dare not do this if we did not see that many pious sons of that best of mothers, the Catholic Church, who in their youthful studies have sufficiently developed the faculty of speaking and arguing, have, for the confuting of heretics, done this same thing.

LARS VON TRIER/PER KIRKEBY, *BREAKING THE WAVES* (1996)

THE WAVES

VIRGINIA WOOLF

1931

The sun had not yet risen. The sea was indistinguishable from the sky, except that the sea was slightly creased as if a cloth had wrinkles in it. Gradually as the sky whitened a dark line lay on the horizon dividing the sea from the sky and the grey cloth became barred with thick strokes moving, one after another, beneath the surface, following each other, pursuing each other, perpetually.

As they neared the shore each bar rose, heaped itself, broke and swept a thin veil of white water across the sand. The wave paused, and then drew out again, sighing like a sleeper whose breath comes and goes unconsciously. Gradually the dark bar on the horizon became clear as if the sediment in an old wine-bottle had sunk and left the glass green. Behind it, too, the sky cleared as if the white sediment there had sunk, or as if the arm of a woman couched beneath the horizon had raised a lamp and flat bars of white, green and yellow spread across the sky like the blades of a fan. Then she raised her lamp higher and the air seemed to become fibrous and to tear away from the green surface flickering and flaming in red and yellow fibres like the smoky fire that roars from a bonfire. Gradually the fibres of the burning bonfire were fused into one haze, one incandescence which lifted the weight of the woollen grey sky on top of it and turned it to a million atoms of soft blue. The surface of the sea slowly became transparent and lay rippling and sparkling until the dark stripes were almost rubbed out. Slowly the arm that held the lamp raised it higher and then higher until a broad flame became visible; an arc of fire burnt on the rim of the horizon, and all round it the sea blazed gold.

The light struck upon the trees in the garden, making one leaf transparent and then another. One bird chirped high up; there was a pause; another chirped lower down. The sun sharpened the walls of the house, and rested like the tip of a fan upon a white blind and made a blue finger-print of shadow under the leaf by the bedroom window. The blind stirred slightly, but all within was dim and unsubstantial. The birds sang their blank melody outside.

[...]

The sun rose higher. Blue waves, green waves swept a quick fan over the beach, circling the spike of sea-holly and leaving shallow pools of light here and there on the sand. A faint black rim was left behind them. The rocks which had been misty and soft hardened and were marked with red clefts.

Sharp stripes of shadow lay on the grass, and the dew dancing on the tips of the flowers and leaves made the garden like a mosaic of single sparks not yet formed into one whole. The birds, whose breasts were specked canary and rose, now sang a strain or two together, wildly, like skaters rollicking arm-in-arm, and were suddenly silent, breaking asunder.

The sun laid broader blades upon the house. The light touched something green in the window corner and made it a lump of emerald, a cave of pure green like stoneless fruit. It sharpened the edges of chairs and tables and stitched white table-cloths with fine gold wires. As the light increased a bud here and there split asunder and shook out flowers, green veined and quivering, as if the effort of opening had set them rocking, and pealing a faint carillon as they beat their frail clappers against their white walls. Everything became softly amorphous, as if the china of

the plate flowed and the steel of the knife were liquid. Meanwhile the concussion of the waves breaking fell with muffled thuds, like logs falling, on the shore.

[...]

The sun rose. Bars of yellow and green fell on the shore, gilding the ribs of the eaten-out boat and making the sea-holly and its mailed leaves gleam blue as steel. Light almost pierced the thin swift waves as they raced fan-shaped over the beach. The girl who had shaken her head and made all the jewels, the topaz, the aquamarine, the water-coloured jewels with sparks of fire in them, dance, now bared her brows and with wide-opened eyes drove a straight pathway over the waves. Their quivering mackerel sparkling was darkened; they massed themselves; their green hollows deepened and darkened and might be traversed by shoals of wandering fish. As they splashed and drew back they left a black rim of twigs and cork on the shore and straws and sticks of wood, as if some light shallop had foundered and burst its sides and the sailor had swum to land and bounded up the cliff and left his frail cargo to be washed ashore.

In the garden the birds that had sung erratically and spasmodically in the dawn on that tree, on that bush, now sang together in chorus, shrill and sharp; now together, as if conscious of companionship, now alone as if to the pale blue sky. They swerved, all in one flight, when the black cat moved among the bushes, when the cook threw cinders on the ash heap and startled them. Fear was in their song, and apprehension of pain, and joy to be snatched quickly now at this instant. Also they sang emulously in the clear morning air, swerving high over the elm tree, singing together as they chased each other,

escaping, pursuing, pecking each other as they turned high in the air. And then tiring of pursuit and flight, lovelily they came descending, delicately declining, dropped down and sat silent on the tree, on the wall, with their bright eyes glancing, and their heads turned this way, that way; aware, awake; intensely conscious of one thing, one object in particular.

Perhaps it was a snail shell, rising in the grass like a grey cathedral, a swelling building burnt with dark rings and shadowed green by the grass. Or perhaps they saw the splendour of the flowers making a light of flowing purple over the beds, through which dark tunnels of purple shade were driven between the stalks. Or they fixed their gaze on the small bright apple leaves, dancing yet withheld, stiffly sparkling among the pink-tipped blossoms. Or they saw the rain drop on the hedge, pendent but not falling, with a whole house bent in it, and towering elms; or, gazing straight at the sun, their eyes became gold beads.

Now glancing this side, that side, they looked deeper, beneath the flowers, down the dark avenues into the unlit world where the leaf rots and the flower has fallen. Then one of them, beautifully darting, accurately alighting, spiked the soft, monstrous body of the defenceless worm, pecked again and yet again, and left it to fester. Down there among the roots where the flowers decayed, gusts of dead smells were wafted; drops formed on the bloated sides of swollen things. The skin of rotten fruit broke, and matter oozed too thick to run. Yellow excretions were exuded by slugs, and now and again an amorphous body with a head at either end swayed slowly from side to side. The gold-eyed birds darting in between the leaves observed that purulence, that wetness, quizzically. Now and then they plunged the tips of their beaks savagely into the sticky mixture.

Now, too, the rising sun came in at the window, touching the red-edged curtain, and began to bring out circles and lines. Now in the growing light its whiteness settled in the plate; the blade condensed its gleam. Chairs and cupboards loomed behind so that though each was separate they seemed inextricably involved. The looking-glass whitened its pool upon the wall. The real flower on the window-sill was attended by a phantom flower. Yet the phantom was part of the flower, for when a bud broke free the paler flower in the glass opened a bud too.

The wind rose. The waves drummed on the shore, like turbaned warriors, like turbaned men with poisoned assegais who, whirling their arms on high, advance upon the feeding flocks, the white sheep.

[..]

The sun, risen, no longer couched on a green mattress darting a fitful glance through watery jewels, bared its face and looked straight over the waves. They fell with a regular thud. They fell with the concussion of horses' hooves on the turf. Their spray rose like the tossing of lances and assegais over the riders' heads. They swept the beach with steel blue and diamond-tipped water. They drew in and out with the energy, the muscularity, of an engine which sweeps its force out and in again. The sun fell on corn-fields and woods, rivers became blue and many-plaited, lawns that sloped down to the water's edge became green as birds' feathers softly ruffling their plumes. The hills, curved and controlled, seemed bound back by thongs, as a limb is laced by muscles; and the woods which bristled proudly on their flanks were like the curt, clipped mane on the neck of a horse.

In the garden where the trees stood, thick over flowerbeds, ponds, and greenhouses the birds sang in the hot sunshine, each alone. One sang under the bedroom window; another on the topmost twig of the lilac bush; another on the edge of the wall. Each sang stridently, with passion, with vehemence, as if to let the song burst out of it, no matter if it shattered the song of another bird with harsh discord. Their round eyes bulged with brightness; their claws gripped the twig or rail. They sang, exposed without shelter, to the air and the sun, beautiful in their new plumage, shell-veined or brightly mailed, here barred with soft blues, here splashed with gold, or striped with one bright feather. They sang as if the song were urged out of them by the pressure of the morning. They sang as if the edge of being were sharpened and must cut, must split the softness of the blue-green light, the dampness of the wet earth; the fumes and steams of the greasy kitchen vapour; the hot breath of mutton and beef; the richness of pastry and fruit; the damp shreds and peelings thrown from the kitchen bucket, from which a slow steam oozed on the rubbish heap. On all the sodden, the damp-spotted, the curled with wetness, they descended, dry-beaked, ruthless, abrupt. They swooped suddenly from the lilac bough or the fence. They spied a snail and tapped the shell against a stone. They tapped furiously, methodically, until the shell broke and something slimy oozed from the crack. They swept and soared sharply in flights high into the air, twittering short, sharp notes, and perched in the upper branches of some tree, and looked down upon leaves and spires beneath, and the country white with blossom, flowing with grass, and the sea which beat like a drum that raises a regiment of plumed and turbaned soldiers. Now and again their songs ran together in swift scales like the interlacings of a mountain stream whose waters, meeting,

foam and then mix, and hasten quicker and quicker down the same channel, brushing the same broad leaves. But there is a rock; they sever.

The sun fell in sharp wedges inside the room. Whatever the light touched became dowered with a fanatical existence. A plate was like a white lake. A knife looked like a dagger of ice. Suddenly tumblers revealed themselves upheld by streaks of light. Tables and chairs rose to the surface as if they had been sunk under water and rose, filmed with red, orange, purple like the bloom on the skin of ripe fruit. The veins on the glaze of the china, the grain of the wood, the fibres of the matting became more and more finely engraved. Everything was without shadow. A jar was so green that the eye seemed sucked up through a funnel by its intensity and stuck to it like a limpet. Then shapes took on mass and edge. Here was the boss of a chair; here the bulk of a cupboard. And as the light increased, flocks of shadow were driven before it and conglomerated and hung in many-pleated folds in the background.

[..]

The sun had risen to its full height. It was no longer half seen and guessed at, from hints and gleams, as if a girl couched on her green-sea mattress tired her brows with water-globed jewels that sent lances of opal-tinted light falling and flashing in the uncertain air like the flanks of a dolphin leaping, or the flash of a falling blade. Now the sun burnt uncompromising, undeniable. It struck upon the hard sand, and the rocks became furnaces of red heat; it searched each pool and caught the minnow hiding in the cranny, and showed the rusty cartwheel, the white bone, or the boot without laces stuck, black as iron, in the sand. It gave to everything its exact measure of colour; to the

sandhills their innumerable glitter, to the wild grasses their glancing green; or it fell upon the arid waste of the desert, here wind-scourged into furrows, here swept into desolate cairns, here sprinkled with stunted dark-green jungle trees. It lit up the smooth gilt mosque, the frail pink-and-white card houses of the southern village, and the long-breasted, white-haired women who knelt in the river bed beating wrinkled cloths upon stones. Steamers thudding slowly over the sea were caught in the level stare of the sun, and it beat through the yellow awnings upon passengers who dozed or paced the deck, shading their eyes to look for the land, while day after day, compressed in its oily throbbing sides, the ship bore them on monotonously over the waters.

The sun beat on the crowded pinnacles of southern hills and glared into deep, stony river beds where the water was shrunk beneath the high slung bridge so that washer-women kneeling on hot stones could scarcely wet their linen; and lean mules went picking their way among the chattering grey stones with panniers slung across their narrow shoulders. At midday the heat of the sun made the hills grey as if shaved and singed in an explosion, while, further north, in cloudier and rainier countries hills smoothed into slabs as with the back of a spade had a light in them as if a warder, deep within, went from chamber to chamber carrying a green lamp. Through atoms of grey-blue air the sun struck at English fields and lit up marshes and pools, a white gull on a stake, the slow sail of shadows over blunt-headed woods and young corn and flowing hayfields. It beat on the orchard wall, and every pit and grain of the brick was silver pointed, purple, fiery as if soft to touch, as if touched it must melt into hot-baked grains of dust. The currants hung against the wall in ripples and cascades of polished red; plums swelled out their leaves, and all the blades of the grass were run together in one

fluent green blaze. The trees' shadow was sunk to a dark pool at the root. Light descending in floods dissolved the separate foliage into one green mound.

The birds sang passionate songs addressed to one ear only and then stopped. Bubbling and chuckling they carried little bits of straw and twig to the dark knots in the higher branches of the trees. Gilt and purpled they perched in the garden where cones of laburnum and purple shook down gold and lilac, for now at midday the garden was all blossom and profusion and even the tunnels under the plants were green and purple and tawny as the sun beat through the red petal, or the broad yellow petal, or was barred by some thickly furred green stalk.

The sun struck straight upon the house, making the white walls glare between the dark windows. Their panes, woven thickly with green branches, held circles of impenetrable darkness. Sharp-edged wedges of light lay upon the window-sill and showed inside the room plates with blue rings, cups with curved handles, the bulge of a great bowl, the crisscross pattern in the rug, and the formidable corners and lines of cabinets and bookcases. Behind their conglomeration hung a zone of shadow in which might be a further shape to be disencumbered of shadow or still denser depths of darkness.

The waves broke and spread their waters swiftly over the shore. One after another they massed themselves and fell; the spray tossed itself back with the energy of their fall. The waves were steeped deep-blue save for a pattern of diamond-pointed light on their backs which rippled as the backs of great horses ripple with muscles as they move. The waves fell; withdrew and fell again, like the thud of a great beast stamping.

[..]

The sun no longer stood in the middle of the sky. Its light slanted, falling obliquely. Here it caught on the edge of a cloud and burnt it into a slice of light, a blazing island on which no foot could rest. Then another cloud was caught in the light and another and another, so that the waves beneath were arrow-struck with fiery feathered darts that shot erratically across the quivering blue.

The topmost leaves of the tree were crisped in the sun. They rustled stiffly in the random breeze. The birds sat still save that they flicked their heads sharply from side to side. Now they paused in their song as if glutted with sound, as if the fullness of midday had gorged them. The dragon-fly poised motionless over a reed, then shot its blue stitch further through the air. The far hum in the distance seemed made of the broken tremor of fine wings dancing up and down on the horizon. The river water held the reeds now fixed as if glass had hardened round them; and then the glass wavered and the reeds swept low. Pondering, sunken headed, the cattle stood in the fields and cumbrously moved one foot and then another. In the bucket near the house the tap stopped dripping, as if the bucket were full, and then the tap dripped one, two, three separate drops in succession.

The windows showed erratically spots of burning fire, the elbow of one branch, and then some tranquil space of pure clarity. The blind hung red at the window's edge and within the room daggers of light fell upon chairs and tables making cracks across their lacquer and polish. The green pot bulged enormously, with its white window elongated in its side. Light driving darkness before it spilt itself profusely upon the corners and bosses; and yet heaped up darkness in mounds of unmoulded shape.

The waves massed themselves, curved their backs and crashed. Up spurted stones and shingle. They swept round the rocks, and the spray, leaping high, spattered the

walls of a cave that had been dry before, and left pools inland, where some fish stranded lashed its tail as the wave drew back.

[...]

The sun had now sunk lower in the sky. The islands of cloud had gained in density and drew themselves across the sun so that the rocks went suddenly black, and the trembling sea holly lost its blue and turned silver, and shadows were blown like grey cloths over the sea. The waves no longer visited the further pools or reached the dotted black line which lay irregularly upon the beach. The sand was pearl white, smoothed and shining. Birds swooped and circled high up in the air. Some raced in the furrows of the wind and turned and sliced through them as if they were one body cut into a thousand shreds. Birds fell like a net descending on the tree-tops. Here one bird taking its way alone made wing for the marsh and sat solitary on a white stake, opening its wings and shutting them.

Some petals had fallen in the garden. They lay shell-shaped on the earth. The dead leaf no longer stood upon its edge, but had been blown, now running, now pausing, against some stalk. Through all the flowers the same wave of light passed in a sudden flaunt and flash as if a fin cut the green glass of a lake. Now and again some level and masterly blast blew the multitudinous leaves up and down and then, as the wind flagged, each blade regained its identity. The flowers, burning their bright discs in the sun, flung aside the sunlight as the wind tossed them, and then some heads too heavy to rise again drooped slightly.

The afternoon sun warmed the fields, poured blue into the shadows and reddened the corn. A deep varnish was laid like a lacquer over the fields. A cart, a horse, a

flock of rooks — whatever moved in it was rolled round in gold. If a cow moved a leg it stirred ripples of red gold, and its horns seemed lined with light. Sprays of flaxen-haired corn lay on the hedges, brushed from the shaggy carts that came up from the meadows short legged and primeval looking. The round-headed clouds never dwindled as they bowled along, but kept every atom of their rotundity. Now, as they passed, they caught a whole village in the fling of their net and, passing, let it fly free again. Far away on the horizon, among the million grains of blue-grey dust, burnt one pane, or stood the single line of one steeple or one tree.

The red curtains and the white blinds blew in and out, flapping against the edge of the window, and the light which entered by flaps and breadths unequally had in it some brown tinge, and some abandonment as it blew through the blowing curtains in gusts. Here it browned a cabinet, there reddened a chair, here it made the window waver in the side of the green jar.

All for a moment wavered and bent in uncertainty and ambiguity, as if a great moth sailing through the room had shadowed the immense solidity of chairs and tables with floating wings.

[...]

The sun was sinking. The hard stone of the day was cracked and light poured through its splinters. Red and gold shot through the waves, in rapid running arrows, feathered with darkness. Erratically rays of light flashed and wandered, like signals from sunken islands, or darts shot through laurel groves by shameless, laughing boys. But the waves, as they neared the shore, were robbed of light, and fell in one long concussion, like a wall falling, a wall of grey stone, unpierced by any chink of light.

A breeze rose; a shiver ran through the leaves; and thus stirred they lost their brown density and became grey or white as the tree shifted its mass, winked and lost its domed uniformity. The hawk poised on the topmost branch flicked its eyelids and rose and sailed and soared far away. The wild plover cried in the marshes, evading, circling, and crying further off in loneliness. The smoke of trains and chimneys was stretched and torn and became part of the fleecy canopy that hung over the sea and the fields.

Now the corn was cut. Now only a brisk stubble was left of all its flowing and waving. Slowly a great owl launched itself from the elm tree and swung and rose, as if on a line that dipped, to the height of the cedar. On the hills the slow shadows now broadened, now shrank, as they passed over. The pool on the top of the moor looked blank. No furry face looked there, or hoof splashed, or hot muzzle seethed in the water. A bird, perched on an ash-coloured twig, sipped a beak full of cold water. There was no sound of cropping, and no sound of wheels, but only the sudden roar of the wind letting its sails fill and brushing the tops of the grasses. One bone lay rain-pocked and sun-bleached till it shone like a twig that the sea has polished. The tree, that had burnt foxy red in spring and in midsummer bent pliant leaves to the south wind, was now black as iron, and as bare.

The land was so distant that no shining roof or glittering window could be any longer seen. The tremendous weight of the shadowed earth had engulfed such frail fetters, such snail-shell encumbrances. Now there was only the liquid shadow of the cloud, the buffeting of the rain, a single darting spear of sunshine, or the sudden bruise of the rain-storm. Solitary trees marked distant hills like obelisks.

The evening sun, whose heat had gone out of it and whose burning spot of intensity had been diffused,

made chairs and tables mellow and inlaid them with lozenges of brown and yellow. Lined with shadows their weight seemed more ponderous, as if colour, tilted, had run to one side. Here lay knife, fork and glass, but lengthened, swollen, and made portentous. Rimmed in a gold circle the looking-glass held the scene immobile as if everlasting in its eye.

Meanwhile the shadows lengthened on the beach; the blackness deepened. The iron black boot became a pool of deep blue. The rocks lost their hardness. The water that stood round the old boat was dark as if mussels had been steeped in it. The foam had turned livid and left here and there a white gleam of pearl on the misty sand.

[...]

Now the sun had sunk. Sky and sea were indistinguishable. The waves breaking spread their white fans far out over the shore, sent white shadows into the recesses of sonorous caves and then rolled back sighing over the shingle.

The tree shook its branches and a scattering of leaves fell to the ground. There they settled with perfect composure on the precise spot where they would await dissolution. Black and grey were shot into the garden from the broken vessel that had once held red light. Dark shadows blackened the tunnels between the stalks. The thrush was silent and the worm sucked itself back into its narrow hole. Now and again a whitened and hollow straw was blown from an old nest and fell into the dark grasses among the rotten apples. The light had faded from the tool-house wall and the adder's skin hung from the nail empty. All the colours in the room had overflowed their banks. The precise brush stroke was swollen and lop-sided; cupboards and chairs melted their brown masses into one huge obscurity.

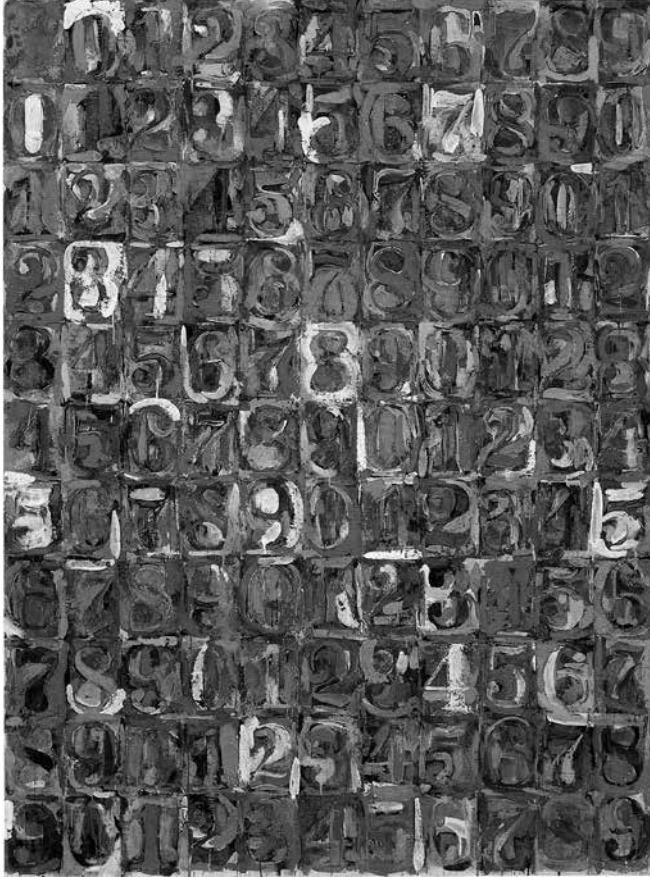
The height from floor to ceiling was hung with vast curtains of shaking darkness. The looking-glass was pale as the mouth of a cave shadowed by hanging creepers.

The substance had gone from the solidity of the hills. Travelling lights drove a plummy wedge among unseen and sunken roads, but no lights opened among the folded wings of the hills, and there was no sound save the cry of a bird seeking some lonelier tree. At the cliff's edge there was an equal murmur of air that had been brushed through forests, of water that had been cooled in a thousand glassy hollows of mid-ocean.

As if there were waves of darkness in the air, darkness moved on, covering houses, hills, trees, as waves of water wash round the sides of some sunken ship. Darkness washed down streets, eddying round single figures, engulfing them; blotting out couples clasped under the showery darkness of elm trees in full summer foliage. Darkness rolled its waves along grassy rides and over the wrinkled skin of the turf, enveloping the solitary thorn tree and the empty snail shells at its foot. Mounting higher, darkness blew along the bare upland slopes, and met the fretted and abraded pinnacles of the mountain where the snow lodges for ever on the hard rock even when the valleys are full of running streams and yellow vine leaves, and girls, sitting on verandahs, look up at the snow, shading their faces with their fans. Them, too, darkness covered.

[...]

The waves broke on the shore.



JASPER JOHNS, NUMBERS IN COLOR (1958–59)

A THOUSAND PLATEAUS CAPITALISM AND SCHIZOPHRENIA

GILLES DELEUZE
FÉLIX GUATTARI

1980

III. There Are Constants or Universals
of Language That Enable Us to Define It
as a Homogeneous System

The question of structural invariants—and the very idea of structure is inseparable from invariants, whether atomic or relational—is essential to linguistics. It is what allows linguistics to claim a basis in pure scientificity, to be nothing but science ... safe from any supposedly external or pragmatic factor. The question of invariants assumes several closely connected forms: (1) the constants of a language (phonological, by commutativity; syntactical, by transformativity; semantic, by generativity); (2) the universals of language (by decomposition of the phoneme into distinctive features; of syntax into fundamental constituents; of signification into minimal semantic elements); (3) trees linking constants to one another, with binary relations between trees (see Chomsky's linear arborescent method); (4) competence, in principle coextensive with language and defined by judgments of grammaticality; (5) homogeneity, bearing on elements and relations

as well as intuitive judgments; (6) synchrony, which erects an “in-itself” and a “for-itself” of language, perpetually moving from the objective system to the subjective consciousness that apprehends its principle (that of the linguist himself or herself).

One can juggle all of these factors, subtract some or even add new ones. They go together, however, because the essentials of all of them are present on the level of any one. For example, the distinction between speech and language is recapitulated in the distinction between competence and performance, but at the level of grammaticality. If it is objected that the distinction between competence and performance is entirely relative (a linguistic competence can be economic, religious, political, or aesthetic, etc.; the teaching competence of a grade school teacher may be only a performance in relation to the judgment of an inspector or government regulations), linguists respond that they are willing to multiply levels of competence, and even to introduce pragmatic values into the system. Brekle, for example, proposes adding an “idiosyncratic performatory competence” factor tied to a whole constellation of linguistic, psychological, or sociological factors. But what use is this injection of pragmatics if pragmatics is in turn considered to have constants or universals of its own? And in what way are expressions like “I,” “promise,” “know” more universal than “greet,” “name,” or “condemn”? Similarly, when efforts are made to make Chomsky’s trees bud and to shatter linear order, as long as the pragmatic components marking the ruptures are placed above the tree or effaced from the derivation nothing has really been accomplished, one has failed to constitute a rhizome. In truth, the nature of the abstract machine is the most general problem: there is no reason to tie the abstract to the universal or the constant, or to

efface the singularity of abstract machines insofar as they are built around variables and variations.

The debate between Chomsky and Labov will give us a better understanding of what the issue is. Every language is an essentially heterogeneous reality; linguists know this and say so. But this is a *factual* remark. Chomsky asks only that one carve from this aggregate a homogeneous or standard system as a basis for abstraction or idealization, making possible a scientific study of *principles*. Limiting oneself to standard English is thus not the issue, for even a linguist who studies Black English or the English of the ghettos is obliged to extract a standard system guaranteeing the constancy and homogeneity of the object under study (no science can operate any other way, they say). Thus Chomsky pretends to believe that by asserting his interest in the variable features of language, Labov is situating himself in a de facto pragmatics external to linguistics. Labov, however, has other ambitions. When he brings to light lines of *inherent variation*, he does not see them simply as “free variants” pertaining to pronunciation, style, or nonpertinent features that lie outside the system and leave the homogeneity of the system intact; neither does he see them as a de facto mix between two systems, each homogeneous in its own right, as if the speaker moved from one to the other. He refuses the alternative linguistics set up for itself: assigning variants to different systems, or relegating them to a place outside the structure. It is the variation itself that is systematic, in the sense in which musicians say that “the theme is the variation.” Labov sees variation as a de jure component affecting each system from within, sending it cascading or leaping on its own power and forbidding one to close it off, to make it homogeneous in principle. Labov does consider variables of all kinds, phonetic, phonological, syntactical,

semantic, stylistic. Yet it would seem difficult to accuse him of missing the distinction between the *de jure* and the *de facto*—or between linguistics and stylistics, or synchrony and diachrony, or pertinent and nonpertinent features, or competence and performance, or the grammaticality of language and the agrammaticality of speech. Although this may be hardening his positions, we would say rather that Labov proposes a different distribution of the *de facto* and the *de jure*, and especially a different conception of the *de jure* itself and of abstraction. He takes the example of a young black person who, in a very short series of phrases, seems to pass from the Black English system to the standard system eighteen times. Is it not the abstract distinction between the two systems that proves arbitrary and insufficient? For the majority of the forms belongs to one or the other only by virtue of the fortuities of a given sequence. Must it not be admitted that every system is in variation and is defined not by its constants and homogeneity but on the contrary by a variability whose characteristics are immanent, continuous, and regulated in a very specific mode (*variable or optional rules*)?

How can we conceptualize this continuous variation at work within a language, even if it means overstepping the limits Labov sets for himself as well as the conditions of scientificity invoked by linguistics? In the course of a single day, an individual repeatedly passes from language to language. He successively speaks as “father to son” and as a boss; to his lover, he speaks an infantilized language; while sleeping he is plunged into an oniric discourse, then abruptly returns to a professional language when the telephone rings. It will be objected that these variations are extrinsic, that it is still the same language. But that is to prejudge the question. First, it is not certain that the phonology is the same, nor the syntax, nor the

semantics. Second, the whole question is whether this supposedly identical language is defined by invariants or, on the contrary, by the line of continuous variation running through it. Some linguists have suggested that linguistic change occurs less by systemic rupture than by a gradual modification of frequency, by a coexistence and continuity of different usages. Take as an example the statement, “I swear!” It is a different statement depending on whether it is said by a child to his or her father, by a man in love to his loved one, or by a witness before the court. These are like three sequences. (Or Messiaen’s four “amen”s stretched over seven sequences.) Once again, there is no reason to say that the variables are merely situational, and that the statement remains constant in principle. Not only are there as many statements as there are effectuations, but all of the statements are present in the effectuation of one among them, so that the line of variation is virtual, in other words, real without being actual, and consequently continuous regardless of the leaps the statement makes. To place the statement in continuous variation is to send it through all the prosodic, semantic, syntactical, and phonological variables that can affect it in the shortest moment of time (the smallest interval). Build the *continuum* of “I swear!” with the corresponding transformations. This is the standpoint of pragmatics, but a pragmatics internal to language, immanent, including variations of linguistic elements of all kinds. For example, Kafka’s line of the three proceedings: the father’s proceedings in the family; the engagement proceedings at the hotel; and the court proceedings. There is a constant tendency to seek a “reduction”: everything is explained by the situation of the child in relation to its father, or of the man in relation to castration, or of the citizen in relation to the law. But this is to content oneself with extracting a pseudoconstant of content, which

is no better than extracting a pseudoconstant of expression. Placing-in-variation allows us to avoid these dangers, because it builds a continuum or medium without beginning or end. Continuous variation should not be confused with the continuous or discontinuous character of the variable itself: the order-word, a continuous variation for a discontinuous variable ... A variable can be continuous over a portion of its trajectory, then leap or skip, without that affecting its continuous variation; what this does is impose an absent development as an “alternative continuity” that is virtual yet real.

A constant or invariant is defined less by its permanence and duration than by its function as a center, if only relative. In the tonal or diatonic system of music, laws of resonance and attraction determine centers valid for all modes and endowed with stability and attractive power (*pouvoir*). These centers therefore organize distinct, distinctive, forms that are clearly established for a certain amount of time: a linear, codified, centered system of the arborescent type. It is true that the minor “mode” gives tonal music a decentered, runaway, fugitive character due to the nature of its intervals and the lesser stability of its chords. This mode thus has the ambiguity of undergoing operations that align it to a major model or standard at the same time as it continues to display a certain modal power (*puissance*) irreducible to tonality, as though music set out on a journey and garnered all resurgences, phantoms of the Orient, imaginary lands, traditions from all over. But temperament, tempered chromaticism has an even greater ambiguity: stretching the action of the center to the most distant tones, but also preparing the disaggregation of the central principle, replacing the centered forms of continuous development with a form that constantly dissolves and transforms itself. When development subordinates

form and spans the whole, as in Beethoven, variation begins to free itself and becomes identified with creation. But when chromaticism is unleashed, becomes a generalized chromaticism, turns back against temperament, affecting not only pitches but all sound components—durations, intensities, timbre, attacks—it becomes impossible to speak of a sound form organizing matter; it is no longer even possible to speak of a continuous development of form. Rather, it is a question of a highly complex and elaborate material making audible nonsonorous forces. The couple matter-form is replaced by the coupling material-forces. The synthesizer has taken the place of the old “a priori synthetic judgment,” and all functions change accordingly. By placing all its components in continuous variation, music itself becomes a superlinear system, a rhizome instead of a tree, and enters the service of a virtual cosmic continuum of which even holes, silences, ruptures, and breaks are a part. Thus, the important thing is certainly not to establish a pseudobreak between the tonal system and atonal music; the latter, on the contrary, in breaking away from the tonal system, only carried temperament to its ultimate conclusion (although no Viennese stopped there). The essential thing is almost the opposite movement: the ferment in the tonal system itself (during much of the nineteenth and twentieth centuries) that dissolved temperament and widened chromaticism while preserving a relative tonality, which reinvented new modalities, brought a new amalgamation of major and minor, and in each instance conquered realms of continuous variation for this variable or that. This ferment came to the forefront and made itself heard in its own right; and, through the molecular material thus wrought, it made audible the nonsonorous forces of the cosmos that have always agitated music—a bit of Time in the pure state, a grain of absolute

Intensity... The words “tonal,” “modal,” “atonal” do not mean much. Music is not alone in being art as cosmos and in drawing the virtual lines of an infinite variation.

Once again, the objection will be raised that music is not a language, that the components of sound are not pertinent features of language, that there is no correspondence between the two. We are not suggesting any correspondence. We keep asking that the issue be left open, that any presupposed distinction be rejected. This especially applies to the language-speech distinction, which is used to relegate all kinds of variables at work within expression and enunciation to a position outside language. The Voice-Music relation proposed by Jean-Jacques Rousseau, on the other hand, could have taken not only phonetics and prosody but all of linguistics in a different direction. The voice in music has always been a privileged axis of experimentation, playing simultaneously on language and sound. Music has linked the voice to instruments in various ways; but as long as the voice is song, its main role is to “hold” sound, it functions as a constant circumscribed on a note and *accompanied* by the instrument. Only when the voice is tied to timbre does it reveal a tessitura that renders it heterogeneous to itself and gives it a power of continuous variation: it is then no longer accompanied, but truly “machined,” it belongs to a musical machine that prolongs or superposes on a single plane parts that are spoken, sung, achieved by special effects, instrumental, or perhaps electronically generated. This is the sound plane of a generalized “glissando” implying the constitution of a statistical space in which each variable has, not an average value, but a probability of frequency that places it in continuous variation with the other variables. Luciano Berio’s *Visage* (Face) and Dieter Schnebel’s *Glossolalie* (Speaking in tongues) are typical examples of this. And despite what Berio himself

says, it is less a matter of using pseudoconstants to produce a simulacrum of language or a metaphor for the voice than of attaining that secret neuter language without constants and entirely in indirect discourse where the synthesizer and the instrument speak no less than the voice, and the voice plays no less than the instrument. It should not be thought that music has forgotten how to sing in a now mechanical and atomized world; rather, an immense coefficient of variation is affecting and carrying away all of the phatic, aphatic, linguistic, poetic, instrumental, or musical parts of a single sound assemblage—“a simple scream suffusing all degrees” (Thomas Mann). There are many procedures for placing the voice in variation, not only *Sprechgesang* (speech-song), which constantly leaves pitch behind by descent or ascent, but also circular breathing techniques and zones of resonance in which several voices seem to issue from the same mouth. Secret languages are very significant in this connection, in learned as well as popular music. Certain ethnomusicologists have found extraordinary cases (in Dahomey, for example) where a first, diatonic, vocal part is superseded by a chromatic descent into a secret language that slips from one sound to the next in a continuous fashion, modulating a sound continuum into smaller and smaller intervals until it becomes a “parlando” all of the intervals of which blur together—and then the diatonic part is itself transposed according to the chromatic levels of a terraced architecture, the song sometimes interrupted by a parlando, by a simple conversation lacking definite pitch. It is perhaps characteristic of secret languages, slangs, jargons, professional languages, nursery rhymes, merchants’ cries to stand out less for their lexical inventions or rhetorical figures than for the way in which they effect continuous variations of the common elements of language. They are chromatic

languages, close to a musical notation. A secret language does not merely have a hidden cipher or code still operating by constants and forming a subsystem; *it places the public language's system of variables in a state of variation.*

This is what we are getting at: a generalized chromaticism. Placing elements of any nature in continuous variation is an operation that will perhaps give rise to new distinctions, but takes none as final and has none in advance. On the contrary, this operation in principle bears on the voice, speech, language, and music simultaneously. There is no reason to make prior, principled distinctions. Linguistics in general is still in a kind of major mode, still has a sort of diatonic scale and a strange taste for dominants, constants, and universals. All languages, in the meantime, are in immanent continuous variation: neither synchrony nor diachrony, but asynchrony, chromaticism as a variable and continuous state of language. For a chromatic linguistics according pragmatism its intensities and values.

What is called a style can be the most natural thing in the world; it is nothing other than the procedure of a continuous variation. Of the dualisms established by linguistics, there are few with a more shaky foundation than the separation between linguistics and stylistics: Because a style is not an individual psychological creation but an assemblage of enunciation, it unavoidably produces a language within a language. Take an arbitrary list of authors we are fond of: Kafka once again, Beckett, Gherasim Luca, Jean-Luc Godard. It will be noted that they are all more or less in a bilingual situation: Kafka, the Czechoslovakian Jew writing in German; Beckett, the Irishman writing in English and French; Luca, originally from Romania; Godard and his will to be Swiss. But this is only circumstantial, an opportunity, and the opportunity can be found elsewhere. It will also be noted that many of them

are not only or not primarily writers (Beckett and theater and television, Godard and film and television, Luca and his audiovisual machines). The reason for this is that when one submits linguistic elements to a treatment producing continuous variation, when one introduces an internal pragmatics into language, one is necessarily led to treat nonlinguistic elements such as gestures and instruments in the same fashion, as if the two aspects of pragmatics joined on the same line of variation, in the same continuum. Moreover, the idea perhaps comes first from outside, with language following only later, as with the necessarily exterior sources of a style. But the essential thing is that each of these authors has his own procedure of variation, his own widened chromaticism, his own mad production of speeds and intervals. The creative stammering of Gherasim Luca, in the poem "Passionnement" (Passionately). Godard's is another kind of stammering. In theater: Robert Wilson's whispering, without definite pitch, and Carmelo Bene's ascending and descending variations. It's easy to stammer, but making language itself stammer is a different affair; it involves placing all linguistic, and even nonlinguistic, elements in variation, both variables of expression and variables of content. A new form of redundancy, AND ... AND ... AND ... There has always been a struggle in language between the verb *être* (to be) and the conjunction *et* (and) between *est* and *et* (is and and [which in French are identical in pronunciation—Trans.]) It is only in appearance that these two terms are in accord and combine, for the first acts in language as a constant and forms the diatonic scale of language, while the second places everything in variation, constituting the lines of a generalized chromaticism. From one to the other, everything shifts. Writers in British or American English have been more conscious than the French of this struggle and the

stakes involved, and of the valence of the “and.” It was Proust who said that “masterpieces are written in a kind of foreign language.” That is the same as stammering, making language stammer rather than stammering in speech. To be a foreigner, but in one’s own tongue, not only when speaking a language other than one’s own. To be bilingual, multilingual, but in one and the same language, without even a dialect or patois. To be a bastard, a half-breed, but through a purification of race. That is when style becomes a language. That is when language becomes intensive, a pure continuum of values and intensities. That is when all of language becomes secret, yet has nothing to hide, as opposed to when one carves out a secret subsystem within language. One attains this result only by sobriety, creative subtraction. Continuous variation has only ascetic lines, a touch of herb and pure water.

It is possible to take any linguistic variable and place it in variation following a necessarily virtual continuous line between two of its states. We are no longer in the situation of linguists who expect the constants of language to experience a kind of mutation or undergo the effects of changes accumulated in speech alone. Lines of change or creation are fully and directly a part of the abstract machine. Hjelmslev remarked that a language necessarily includes unexploited possibilities or potentialities and that the abstract machine must include these possibilities or potentialities. “Potential” and “virtual” are not at all in opposition to “real”; on the contrary, the reality of the creative, or the placing-in-continuous variation of variables, is in opposition only to the actual determination of their constant relations. Each time we draw a line of variation, the variables are of a particular nature (phonological, syntactical or grammatical, semantic, and so on), but the line itself is apertinent, asyntactic or agrammatical, asemantic. Agrammat-

icity, for example, is no longer a contingent characteristic of speech opposed to the grammaticality of language; rather, it is the ideal characteristic of a line placing grammatical variables in a state of continuous variation. Let us take Nicolas Ruwet’s examples of certain singular expressions of Cummings’s: “he danced his did,” or “they went their came.” It is possible to reconstitute the variations through which the grammatical variables pass in virtuality in order to end up as agrammatical expressions of this kind (“he did his dance,” “he danced his dance,” “he danced what he did,” ...; “they went as they came,” “they went their way,” ...). In spite of Ruwet’s structural interpretation, we should avoid taking the view that the atypical expression is produced by the successive correct forms. It is instead the atypical expression that produces the placing-in-variation of the correct forms, uprooting them from their state as constants. The atypical expression constitutes a cutting edge of deterritorialization of language, it plays the role of *tensor*; in other words, it causes language to tend toward the limit of its elements, forms, or notions, toward a near side or a beyond of language. The tensor effects a kind of transitivity of the phrase, causing the last term to react upon the preceding term, back through the entire chain. It assures an intensive and chromatic treatment of language. An expression as simple as AND ... can play the role of tensor for all of language. In this sense, AND is less a conjunction than the atypical expression of all of the possible conjunctions it places in continuous variation. The tensor, therefore, is not reducible either to a constant or a variable, but assures the variation of the variable by subtracting in each instance the value of the constant ($n - 1$). Tensors coincide with no linguistic category; nevertheless they are pragmatic values essential to both assemblages of enunciation and indirect discourses.

Some believe that these variations do not express the usual labor of creation in language and remain marginal, confined to poets, children, and lunatics. That is because they wish to define the abstract machine by constants that can be modified only secondarily, by a cumulative effect or syntagmatic mutation. But the abstract machine of language is not universal, or even general, but singular; it is not actual, but virtual-real; it has, not invariable or obligatory rules, but optional rules that ceaselessly vary with the variation itself, as in a game in which each move changes the rules. That is why abstract machines and assemblages of enunciation are complementary, and present in each other. The abstract machine is like the diagram of an assemblage. It draws lines of continuous variation, while the concrete assemblage treats variables and organized their highly diverse relations as a function of those lines. The assemblage negotiates variables at this or that level of variation, according to this or that degree of deterritorialization, and determines which variables will enter into constant relations or obey obligatory rules and which will serve instead as a fluid matter for variation. We should not conclude from this that the assemblage brings only a certain resistance or inertia to bear against the abstract machine; for even “constants” are essential to the determination of the virtualities through which the variation passes, they are themselves optionally chosen. There is indeed braking and resistance at a certain level, but at another level of the assemblage there is nothing but a come-and-go between different types of variables, and corridors of passage traveled in both directions: the variables effectuate the machine in unison, in the sum of their relations. There is therefore no basis for a distinction between a constant and collective language, and variable and individual speech acts. The abstract machine is always

singular, designated by the proper name of a group or individual, while the assemblage of enunciation is always collective, in the individual as in the group. The Lenin abstract machine, and the Bolshevik collective assemblage... The same goes for literature, for music. There is no primacy of the individual; there is instead an indissolubility of a singular Abstract and a collective Concrete. The abstract machine does not exist independently of the assemblage, any more than the assemblage functions independently of the machine.

IV. Language Can Be Scientifically Studied Only under the Conditions of a Standard or Major Language

Since everybody knows that language is a heterogeneous, variable reality, what is the meaning of the linguists' insistence on carving out a homogeneous system in order to make a scientific study possible? It is a question of extracting a set of constants from the variables, or of determining constant relations between variables (this is already evident in the phonologists' concept of commutativity). But the scientific model taking language as an object of study is one with the political model by which language is homogenized, centralized, standardized, becoming a language of power, a major or dominant language. Linguistics can claim all it wants to be science, nothing but pure science—it wouldn't be the first time that the order of pure science was used to secure the requirements of another order. What is grammaticality, and the sign S, the categorical symbol that dominates statements? It is a power marker before it is a syntactical marker, and Chomsky's trees establish constant relations between power variables.

Forming grammatically correct sentences is for the normal individual the prerequisite for any submission to social laws. No one is supposed to be ignorant of grammaticality; those who are belong in special institutions. The unity of language is fundamentally political. There is no mother tongue, only a power takeover by a dominant language that at times advances along a broad front, and at times swoops down on diverse centers simultaneously. We can conceive of several ways for a language to homogenize, centralize: the republican way is not necessarily the same as the royal way, and is not the least harsh. The scientific enterprise of extracting constants and constant relations is always coupled with the political enterprise of imposing them on speakers and transmitting order-words.

Speak white and loud
 yes what a wonderful language
 for hiring
 giving orders
 appointing the hour of death in the works
 and of the break that refreshes ...

Must a distinction then be made between two kinds of languages, “high” and “low,” major and minor? The first would be defined precisely by the power (*pouvoir*) of constants, the second by the power (*puissance*) of variation. We do not simply wish to make an opposition between the unity of a major language and the multiplicity of dialects. Rather, each dialect has a zone of transition and variation; or better, each minor language has a properly dialectical zone of variation. According to Malmberg, it is rare to find clear boundaries on dialect maps; instead, there are transitional and limitrophe zones, zones of indiscernibility. It is also said that “the Quebecois language is so rich in

modulations and variations of regional accents and in games with tonic accents that it sometimes seems, with no exaggeration, that it would be better preserved by musical notation than by any system of spelling.” The very notion of dialect is quite questionable. Moreover, it is relative because one needs to know in relation to what major language it exercises its function: for example, the Quebecois language must be evaluated not only in relation to standard French but also in relation to major English, from which it borrows all kinds of phonetic and syntactical elements, in order to set them in variation. The Bantu dialects must be evaluated not only in relation to the mother tongue but also in relation to Afrikaans as a major language, and English as a counter-major language preferred by blacks. In short, the notion of dialect does not elucidate that of minor language, but the other way around; it is the minor language that defines dialects through its own possibilities for variation. Should we identify major and minor languages on the basis of regional situations of bilingualism or multilingualism including at least one dominant language and one dominated language, or a world situation giving certain languages an imperialist power over others (for example, the role of American English today)?

At least two things prevent us from adopting this point of view. As Chomsky notes, a dialect, ghetto language, or minor language is not immune to the kind of treatment that draws a homogeneous system from it and extracts constants: Black English has its own grammar, which is not defined by a sum of mistakes or infractions against standard English; but that grammar can be studied only by applying to it the same rules of study that are applied to standard English. In this sense, the notions of major and minor seem to have no linguistic relevance. When

French lost its worldwide major function it lost nothing of its constancy and homogeneity, its centralization. Conversely, Afrikaans attained homogeneity when it was a locally minor language struggling against English. Even politically, especially politically, it is difficult to see how the upholders of a minor language can operate if not by giving it (if only by writing in it) a constancy and homogeneity making it a locally major language capable of forcing official recognition (hence the political role of writers who assert the rights of a minor language). But the opposite argument seems more compelling: the more a language has or acquires the characteristics of a major language, the more it is affected by continuous variations that transpose it into a “minor” language. It is futile to criticize the worldwide imperialism of a language by denouncing the corruptions it introduces into other languages (for example, the purists’ criticisms of English influences in French, the petit-bourgeois or academic denunciation of “Français”). For if a language such as British English or American English is major on a world scale, it is necessarily worked upon by all the minorities of the world, using very diverse procedures of variation. Take the way Gaelic and Irish English set English in variation. Or the way Black English and any number of “ghetto languages” set American English in variation, to the point that New York is virtually a city without a language. (Furthermore, American English could not have *constituted* itself without this linguistic labor of the minorities.) Or the linguistic situation in the old Austrian empire: German was a major language in relation to the minorities, but as such it could not avoid being treated by those minorities in a way that made it a minor language in relation to the German of the Germans. There is no language that does not have intralinguistic, endogenous, internal minorities.

So at the most general level of linguistics, Chomsky’s and Labov’s positions are constantly passing and converting into each other. Chomsky can say that even a minor, dialectical, or ghetto language cannot be studied unless invariants are extracted from it and “extrinsic or mixed” variables are eliminated; and Labov can respond that even a standard or major language cannot be studied independently of “inherent” variations, which are precisely neither mixed nor extrinsic. *You will never find a homogeneous system that is not still or already affected by a regulated, continuous, immanent process of variation* (why does Chomsky pretend not to understand this?).

There are not, therefore, two kinds of languages but two possible treatments of the same language. Either the variables are treated in such a way as to extract from them constants and constant relations or in such a way as to place them in continuous variation. We were wrong to give the impression at times that constants existed alongside variables, linguistic constants alongside variables of enunciation: that was only for convenience of presentation. For it is obvious that the constants are drawn from the variables themselves; universals in linguistics have no more existence in themselves than they do in economics and are always concluded from a universalization or a rendering-uniform involving variables. *Constant is not opposed to variable*; it is a treatment of the variable opposed to the other kind of treatment, or continuous variation. So-called obligatory rules correspond to the first kind of treatment, whereas optional rules concern the construction of a continuum of variation. Moreover, there are a certain number of categories or distinctions that cannot be invoked, that are inapplicable and useless as a basis for objections because they presuppose the first treatment and are entirely subordinated to the quest for constants:

for example, language as opposed to speech; synchrony as opposed to diachrony; competence as opposed to performance; distinctive features as opposed to nondistinctive (or secondarily distinctive) features. For nondistinctive features, whether prosodic, stylistic, or pragmatic, are not only omnipresent variables, in contrast to the presence or absence of a constant; they are not only superlinear and “suprasegmental” elements, in contrast to linear segmental elements; their very characteristics give them the power to place all the elements of language in a state of continuous variation—for example, the impact of tone on phonemes, accent on morphemes, or intonation on syntax. These are not secondary features but another treatment of language that no longer operates according to the preceding categories.

“Major” and “minor” do not qualify two different languages but rather two usages or functions of language. Bilingualism, of course, provides a good example, but once again we use it simply for the sake of convenience. Doubtless, in the Austrian empire Czech was a minor language in relation to German; but the German of Prague already functioned as a potentially minor language in relation to the German of Vienna or Berlin; and Kafka, a Czechoslovakian Jew writing in German, submits German to creative treatment as a minor language, constructing a continuum of variation, negotiating all of the variables both to constrict the constants and to expand the variables: make language stammer, or make it “wail,” stretch tensors through all of language, even written language, and draw from it cries, shouts, pitches, durations, timbres, accents, intensities. Two conjoined tendencies in so-called minor languages have often been noted: an impoverishment, a shedding of syntactical and lexical forms; but simultaneously a strange proliferation of shifting effects,

a taste for overload and paraphrase. This applies to the German of Prague, Black English, and Quebecois. But with rare exceptions, the interpretation of the linguists has been rather malevolent, invoking a consubstantial poverty and preciosity. The alleged poverty is in fact a restriction of constants and the overload an extension of variations functioning to deploy a continuum sweeping up all components. The poverty is not a lack but a void or ellipsis allowing one to sidestep a constant instead of tackling it head on, or to approach it from above or below instead of positioning oneself within it. And the overload is not a rhetorical figure, a metaphor, or symbolic structure; it is a mobile paraphrase bearing witness to the unlocalized presence of an indirect discourse at the heart of every statement. From both sides we see a rejection of reference points, a dissolution of constant form in favor of differences in dynamic. The closer a language gets to this state, the closer it comes not only to a system of musical notation, but also to music itself.

Subtract and place in variation, remove and place in variation: a single operation. Minor languages are characterized not by overload and poverty in relation to a standard or major language, but by a sobriety and variation that are like a minor treatment of the standard language, a becoming-minor of the major language. The problem is not the distinction between major and minor language; it is one of a becoming. It is a question not of reterritorializing oneself on a dialect or a patois but of deterritorializing the major language. Black Americans do not oppose Black to English, they transform the American English that is their own language into Black English. Minor languages do not exist in themselves: they exist only in relation to a major language and are also investments of that language for the purpose of making it minor.

One must find the minor language, the dialect or rather idiolect, on the basis of which one can make one's own major language minor. That is the strength of authors termed "minor," who are in fact the greatest, the only greats: having to conquer one's own language, in other words, to attain that sobriety in the use of a major language, in order to place it in a state of continuous variation (the opposite of regionalism). It is in one's own language that one is bilingual or multilingual. Conquer the major language in order to delineate in it as yet unknown minor languages. Use the minor language to send the *major language racing*. Minor authors are foreigners in their own tongue. If they are bastards, if they experience themselves as bastards, it is due not to a mixing or intermingling of languages but rather to a subtraction and variation of their own language achieved by stretching tensors through it.

The notion of *minority* is very complex, with musical, literary, linguistic, as well as juridical and political, references. The opposition between minority and majority is not simply quantitative. Majority implies a constant, of expression or content, serving as a standard measure by which to evaluate it. Let us suppose that the constant or standard is the average adult-white-heterosexual-European-male-speaking a standard language (Joyce's or Ezra Pound's Ulysses). It is obvious that "man" holds the majority, even if he is less numerous than mosquitoes, children, women, blacks, peasants, homosexuals, etc. That is because he appears twice, once in the constant and again in the variable from which the constant is extracted. Majority assumes a state of power and domination, not the other way around. It assumes the standard measure, not the other way around. Even Marxism "has almost always translated hegemony from the point of view of the national worker, qualified, male and over thirty-five." A determi-

nation different from that of the constant will therefore be considered minoritarian, by nature and regardless of number, in other words, a subsystem or an outsystem. This is evident in all the operations, electoral or otherwise, where you are given a choice, but on the condition that your choice conform to the limits of the constant ("you mustn't choose to change society..."). But at this point, everything is reversed. For the majority, insofar as it is analytically included in the abstract standard, is never anybody, it is always Nobody—Ulysses—whereas the minority is the becoming of everybody, one's potential becoming to the extent that one deviates from the model. There is a majoritarian "fact," but it is the analytic fact of Nobody, as opposed to the becoming-minoritarian of everybody. That is why we must distinguish between: the majoritarian as a constant and homogeneous system; minorities as subsystems; and the minoritarian as a potential, creative and created, becoming. The problem is never to acquire the majority, even in order to install a new constant. There is no becoming-majoritarian; majority is never becoming. All becoming is minoritarian. Women, regardless of their numbers, are a minority, definable as a state or subset; but they create only by making possible a becoming over which they do not have ownership, into which they themselves must enter; this is a becoming-woman affecting all of humankind, men and women both. The same goes for minor languages: they are not simply sublanguages, idiolects or dialects, but potential agents of the major language's entering into a becoming-minoritarian of all of its dimensions and elements. We should distinguish between minor languages, the major language, and the becoming minor of the major language. Minorities, of course, are objectively definable states, states of language, ethnicity, or sex with their own ghetto terri-

torialities, but they must also be thought of as seeds, crystals of becoming whose value is to trigger uncontrollable movements and deterritorializations of the mean or majority. That is why Pasolini demonstrated that the essential thing, precisely in free indirect discourse, is to be found neither in language A, nor in language B, but “in language X, which is none other than language A in the actual process of becoming language B.” There is a universal figure of minoritarian consciousness as the becoming of everybody, and that becoming is creation. One does not attain it by acquiring the majority. The figure to which we are referring is continuous variation, as an amplitude that continually oversteps the representative threshold of the majoritarian standard, by excess or default. In erecting the figure of a universal minoritarian consciousness, one addresses powers (*puissances*) of becoming that belong to a different realm from that of Power (*Pouvoir*) and Domination. Continuous variation constitutes the becoming-minoritarian of everybody, as opposed to the majoritarian Fact of Nobody. Becoming-minoritarian as the universal figure of consciousness is called autonomy. It is certainly not by using a minor language as a dialect, by regionalizing or ghettoizing, that one becomes revolutionary; rather, by using a number of minority elements, by connecting, conjugating them, one invents a specific, unforeseen, autonomous becoming.

The major and minor mode are two different treatments of language, one of which consists in extracting constants from it, the other in placing it in continuous variation. The order-word is the variable of enunciation that effectuates the condition of possibility of language and defines the usage of its elements according to one of the two treatments; we must therefore return to it as the only “metalanguage” capable of accounting for this double

direction, this double treatment of variables. The problem of the functions of language is in general poorly formulated because this order-word variable, which subsumes all possible functions, is overlooked. Following Canetti's suggestions, we may begin from the following pragmatic situation: the order-word is a death sentence; it always implies a death sentence, even if it has been considerably softened, becoming symbolic, initiatory, temporary, etc. Order-words bring immediate death to those who receive the order, or potential death if they do not obey, or a death they must themselves inflict, take elsewhere. A father's orders to his son, “You will do this,” “You will not do that,” cannot be separated from the little death sentence the son experiences on a point of his person. Death, death; it is the only judgment, and it is what makes judgment a system. The verdict. But the order-word is also something else, inseparably connected: it is like a warning cry or a message to flee. It would be oversimplifying to say that flight is a reaction against the order-word; rather, it is included in it, as its other face in a complex assemblage, its other component. Canetti is right to invoke the lion's roar, which enunciates flight and death simultaneously. The order-word has two tones. The prophet receives order-words just as much in taking flight as in longing for death: Jewish prophetism fused the wish to be dead and the flight impulse with the divine order-word.

Now if we consider the first aspect of the order-word, in other words, death as the expressed of the statement, it clearly meets the preceding requirements: even though death essentially concerns bodies, is attributed to bodies, its immediacy, its instantaneousness, lends it the authentic character of an incorporeal transformation. What precedes and follows it may be an extensive system of actions and passions, a slow labor of bodies; in itself, it

is neither action nor passion, but a pure act, a pure transformation that enunciation fuses with the statement, the sentence. That man is dead ... You are already dead when you receive the order-word ... In effect, death is everywhere, as that ideal, uncrossable boundary separating bodies, their forms, and states, and as the condition, even initiatory, even symbolic, through which a subject must pass in order to change its form or state. This is the sense in which Canetti speaks of “enantiomorphosis”: a regime that involves a hieratic and immutable Master who at every moment legislates by constants, prohibiting or strictly limiting metamorphoses, giving figures clear and stable contours, setting forms in opposition two by two and requiring subjects to die in order to pass from one form to the other. It is always by means of something incorporeal that a body separates and distinguishes itself from another. The figure, insofar as it is the extremity of a body, is the noncorporeal attribute that limits and completes that body: death is the Figure. It is through death that a body reaches completion not only in time but in space, and it is through death that its lines form or outline a shape. There are dead spaces just as there are dead times. “If [enantiomorphosis is] practiced often the whole world shrivels. ... Social prohibitions against metamorphosis are perhaps the most important of all. ... Death itself, the strictest of all boundaries, is what is interposed between classes.” In a regime of this kind, any new body requires the erection of an opposable form, as well as the formation of distinct subjects; death is the general incorporeal transformation attributed to all bodies from the standpoint of their forms and substances (for example, the body of the Party cannot come into its own without an operation of enantiomorphosis, and without the formation of new activists, which assumes the elimination of the first generation).

It is true that we are bringing in considerations of content as well as expression. For even at the moment when the two planes are most distinct, as the regime of bodies and the regime of signs in an assemblage, they are still in reciprocal presupposition. The incorporeal transformation is the expressed of order-words, but also the attribute of bodies. Not only do linguistic variables of expression enter into relations of formal opposition or distinction favorable to the extraction of constants; nonlinguistic variables of content do also. As Hjelmslev notes, an expression is divided, for example, into phonic units in the same way a content is divided into social, zoological, or physical units (“calf divides into young-bovine-male). The network of binarities, or arborescences, is applicable to both sides. There is, however, no analytic resemblance, correspondence, or conformity between the two planes. But their independence does not preclude isomorphism, in other words, the existence of the same kind of constant relations on both sides. It is by virtue of this type of relations that linguistic and nonlinguistic elements are inseparable from the start, despite their absence of correspondence. The elements of content give the interminglings of bodies clear contours at the same time as the elements of expression give the noncorporeal expresseds a power of sentencing or judgment. These elements are all abstract or deterritorialized to different degrees, but in each instance they effect a reterritorialization of the overall assemblage on certain order-words and contours. Indeed, the significance of the doctrine of synthetic judgment is to have demonstrated that there is an a priori link (isomorphism) between Sentence and Figure, form of expression and form of content. If we consider the other aspect of the order-word, flight rather than death, it appears that variables are in a new state, that of continuous variation. An incorporeal

transformation is still attributed to bodies, but it is now a passage to the limit: that is the only way, not to eliminate death, but to reduce it or make it a variation itself. This movement pushes language to its own limits, while bodies are simultaneously caught up in a movement of metamorphosis of their contents or a process of exhaustion causing them to reach or overstep the limit of their figures. This is an appropriate place to bring up the opposition between minor sciences and major sciences: for example, the tendency of the broken line to become a curve, a whole operative geometry of the trait and movement, a pragmatic science of placings-in-variation that operates in a different manner than the royal or major science of Euclid's invariants and travels a long history of suspicion and even repression (we will return to this question later). The smallest interval is always diabolical: the master of metamorphoses is opposed to the invariant hieratic king. It is as though an intense matter or a continuum of variation were freed, here in the internal tensors of language, there in the internal tensions of content. The idea of the smallest interval does not apply to figures of the same nature; it implies at least a curve and a straight line, a circle and a tangent. We witness a transformation of substances and a dissolution of forms, a passage to the limit or flight from contours in favor of fluid forces, flows, air, light, and matter, such that a body or a word does not end at a precise point. We witness the incorporeal power of that intense matter, the material power of that language. A matter more immediate, more fluid, and more ardent than bodies or words. In continuous variation the relevant distinction is no longer between a form of expression and a form of content but between two inseparable planes in reciprocal presupposition. The relativity of the distinction between them is now fully realized on the plane of consistency,

where the assemblage is swept up by a now absolute deterritorialization. Absolute, however, does not mean undifferentiated: differences, now "infinitely small," are constituted in a single matter serving both for expression as incorporeal power and for content as limitless corporeality. The relation of presupposition between variables of content and expression no longer requires two forms: the placing-in-variation of the variables instead draws the two forms together and effects the conjunction of cutting edges of deterritorialization on both sides; this occurs on the plane of a single liberated matter that contains no figures, is deliberately unformed, and retains in expression and in content of intensities conjugates or forms a rhizome throughout the entire assemblage the moment the assemblage is swept up by these vectors or tensions of flight. For the question was not how to elude the order-word but how to elude the death sentence it envelops, how to develop its power of escape, how to prevent escape from veering into the imaginary or falling into a black hole, how to maintain or draw out the revolutionary potentiality of the order-word. Hofmannsthal adopts the order-word, "Germany, Germany!," or the need to reterritorialize, even in a "melancholy mirror." But beneath this order-word he hears another, as if the old German "figures" were mere constants that were then effaced to uncover a relation with nature and life all the more profound for being variable. When should this relation to life be a hardening, when submission? At what moment is rebellion called for and at what moment surrender or impassibility? When is dry speech necessary and when exuberance or amusement? Whatever the breaks and ruptures, only continuous variation brings forth this virtual line, this virtual continuum of life, "the essential element of the real beneath the everyday." There is a

splendid statement in one of Herzog's films. The main character asks himself a question and then says, Who will answer this answer? Actually, there is no question, answers are all one ever answers. To the answer already contained in a question (cross-examination, competition, plebiscite, etc.) one should respond with questions from another answer. One should bring forth the order-word of the order-word. In the order-word, life must answer the answer of death, not by fleeing, but by making flight act and create. There are pass-words beneath order-words. Words that pass, words that are components of passage, whereas order-words mark stoppages or organized, stratified compositions. A single thing or word undoubtedly has this twofold nature: it is necessary to extract one from the other—to transform the compositions of order into components of passage.



BILL BRANDT, RAINSWEPT ROOFS (~1933)

CONJURING THE UNIVERSE THE ORIGINS OF THE LAWS OF NATURE

221

PETER ATKINS

2018

8. Measure for Measure

The origin of the fundamental constants

The fundamental constants, quantities like the speed of light ($c = 2.998 \times 10^8$ metres per second), Planck's constant ($h = 6.626 \times 10^{-34}$ joule-seconds), Boltzmann's constant ($k = 1.381 \times 10^{-23}$ joules per kelvin), and the fundamental electric charge ($e = 1.602 \times 10^{-19}$ coulombs), play an extraordinary role in the consequences of the laws of nature. The laws effectively issue orders about how to behave given various parameters such as mass and charge, and the fundamental constants determine the magnitudes of the resulting changes. For instance, the laws of nature we call special relativity imply that space and time become mingled the faster one travels; the speed of light establishes the extent of that mingling for a given speed of travel. The laws of electromagnetism imply that a charged particle is deflected by an electric field, and the fundamental charge determines the extent of that deviation for a given strength of field. The energy of an oscillator, like a mass on a spring or a pendulum, according to the laws of quantum mechanics, can step up a ladder of values, and Planck's constant tells us the separation of the rungs of this ladder:

if it were zero there would be no gaps between the rungs and the energy of the oscillator could be increased continuously; that Planck's constant is so small (note the 10^{-34}) implies that the rungs are so close that we don't detect the separation in everyday pendulums and wobbling springs. But it is there.

There has also been a great deal of discussion about the serendipity of the values we currently have, for even tiny deviations from their values, it is argued, would have catastrophic consequences for the emergence of life, of consciousness, and of the ability to wonder why they have those seemingly benign values. With even slightly different values, stars might not form, or if they did form might burn their fuel so fast that there was no time for life to evolve, and so on.

To my mind there are two classes of fundamental constants: those that don't exist and those that do. As might be suspected, the values of the ones that don't exist are much easier to explain than the values of the ones that do. The former are essentially a consequence of mankind making, over the course of its intellectual history, sensible but fundamentally inappropriate choices about how things should be measured and reported (for instance, length in metres and time in seconds). The latter, the constants that really do exist in a fundamental way, and thus which are the truly fundamental constants, are coupling constants that summarize the strength of the interaction between entities, such as the strength of the force between electric charges, the strength of the interaction of an electric charge with an electromagnetic field, and the strength of the nuclear forces that bind elementary particles together and into the structures we call atomic nuclei. They also include the gravitational constant ($G = 6.673 \times 10^{-11}$ joule-metres per square kilogram) for specifying the

strength of the gravitational field due to a massive body, and therefore which establishes the orbits of planets around their stars, contributes to the formation of galaxies, and determines the acceleration of an apple's fall.

Although tables of fundamental constants express them with units, such as the speed of light being so many metres per second, they shouldn't really have units. Put another way, the fundamental constants that don't exist all have the value 1 (so, $c = 1$, not $c = 2.998 \times 10^8$ metres per second), and the fundamental constants that do exist are best expressed in such a way that they too have no units. As I shall explain, instead of the fundamental charge having the value $e = 1.602 \times 10^{-19}$ coulomb, it is best expressed in a form that has the value $1/137$. The other actual fundamental constants are all best expressed similarly as various other pure numbers. As will become clear, I think I can explain the value 1 but not values like $1/137$. At present, we really have no idea where the numbers like $1/137$ come from, and I shall make no pretence of knowing any better than anyone else. That is a shame, because it is these numbers that govern our existence and the emergence of thought: had $1/137$ turned out to be $1/136$ or $1/138$ instead, we might not be here to know.

These remarks need to be elaborated so that you can see what I have in mind and why I think there are the two classes of constant. I shall not deal with all the fundamental constants (there are about a dozen important ones, and a number of combinations that are treated as though they are of the same rank). I shall just select a handful that I regard as truly fundamental and discuss their origins.

I'll begin with perhaps the most important fundamental constant of all, the speed of light, c (from *celeritas*). I consider it to have that rank because, even though it

doesn't exist, it governs the structure of spacetime, the arena of all action.

There is more to space than meets the eye. Isaac Newton (1642–1726), not to mention René Descartes (1596–1650) and that extraordinary mind of antiquity, Aristotle (384–322 BC), who both inspired and suffocated thought, and we ourselves all glance at space and see that it is three dimensional. Albert Einstein (1879–1955), standing on the shoulders of others, changed all that. His special relativity (of 1905, his *annus mirabilis* but with more glory still to come as “special” evolved into the even more extraordinary “general”) invites you to accept that space is entwined with time, and that what you thought of space and of time should not be regarded as each one separately but as components of a single arena, namely spacetime. That theory brings more discomfort and overthrow of the seemingly secure, for you then have to accept that what you regard as space and time are not what your neighbour might identify. If that neighbour is moving (most neighbours are, even if they are merely strolling, driving, or flashing past in a rocket), they have different perceptions of what component of spacetime is space and what is time.

It all depends on how fast you are moving. If you and I are not moving, then what you and I regard as space and time are exactly that: space and time. But suppose you are moving: you are walking, driving, or rocketing. Then you modify your perception in an extraordinary way: time rotates into space and space rotates into time. You are perfectly capable of asserting that something stationary is at a fixed location on a coordinate you regard as “space”. But I, as a neighbour walking past, perceive space and time differently, and I no longer agree with your allocation of space and time to the event. The faster I travel relative to

you the observer, the more my perception of time is rotated into my perception of space, and vice versa. Each of us, as we go about our daily activities, perceives space and time differently: your space is not mine, nor is your time mine (unless we are moving at exactly the same speed, including sitting still). The differences show up only if our relative speeds are very high, approaching the speed of light. That is merciful, for otherwise science and society would probably both be impossible. Nevertheless, it is the case that the fabric of reality is such that spacetime resolves differently for each of us and depends on our relative state of motion (hence “relativity”).

Now we can return to the role of the speed of light. It is sometimes thought of as a puzzle why there is a limiting speed for the propagation of information, with it being impossible according to special relativity to exceed c . Why is there such a limit? Could it be that there is a kind of viscous drag like that responsible for imposing a terminal velocity on a ball as it drops through a viscous medium? Is space viscous and the speed of light the terminal velocity for information as it drops through it? No: the explanation is much deeper and therefore simpler than that. The speed of light is simply the speed at which you have to travel for your perception of time to be rotated wholly into it appearing to be space. There is simply no further degree of rotation possible. There is no such thing as viscous drag on information passing through space: the limiting speed is a feature of our perception of space and time themselves.

But why does the speed of light have its particular value (of exactly 299'792'458 metres per second, about 670 million miles per hour)? The explanation lies in an artefact of human bureaucracy, boiling down to the fact that by convention we measure lengths in metres and not

seconds. Various suggestions were made when the metre was first defined (in 1790, with French revolutionary zeal for the rationalization of just about everything, including the aristocracy). An early suggestion was to define it as one tenmillionth of the distance from the North Pole to the equator along a meridian, chosen diplomatically rather than sensibly to lie more or less half way between Paris and Washington in their respective young republics, and therefore which unhelpfully both started and ended in the sea. Compromise was then cast aside and the choice of meridian was shifted to the one that runs through Paris. A metal rod was then cast to enable this ultimate standard to be publicized and used more widely with greater convenience.

Since then, bearing in mind that the Earth effectively breathes and consequently the fiducial distance is not constant, and in principle therefore nor is the metre, a more precise and unchanging definition has been accepted. The metre is now defined as $1/299'792'458$ of the distance that light travels (in a vacuum) in one second. Thus it is that all measurements of length are actually measurements of time. For instance, a person 1.7 metres tall could be recorded as being $1.7/299'792'458$ seconds, or 5.7 nanoseconds, tall. Although light travels $299'792'458$ metres in one second, that could be reported as $299'792'458/299'792'458$ seconds, or 1 second. So what is the speed of light? If it travels through 1 second in 1 second, its speed (distance divided by time) is 1. No units; just 1. If you are in a car travelling at 100 kilometres per hour (that is about 28 metres per second), you should be able to work out that your speed is actually merely $0.000'000'093$. At such a slow speed, it is obvious that you can ignore relativistic effects and be confident that your space hasn't been rotated into resembling time (compared

to my assessment, as you flash past) and we should have no argument, at least to within reasonable precision, about whether two events are simultaneous.

I hope you can now accept that $c=1$. That until now you thought it was expressed as a lot of metres per second turns out to be a historical accident: for perfectly understandable and sensible reasons, civil society measured distance and time in different units. Measure them in the same units, and a profoundly important fundamental constant effectively disappears. From now on, whenever I refer to a length L conventionally measured in metres, I shall denote it L^\dagger , the dagger signifying that the metres have been done to death and that henceforth it is to be reported in seconds. All speeds now lose their units and are pure numbers.

I suspect you might be wondering whether other rabbits can be pushed back into hats. What about probably the second most important fundamental constant, Planck's constant, h ? Just as the speed of light essentially introduced relativity into science, Planck's constant effectively introduced quantum mechanics, so culturally they are of similar potency. The vanished c pervades all the formulations of special relativity; could it be the case that h , which is present in all formulations of quantum theory, should disappear too simply because a property historically was reported in convenient but fundamentally inappropriate units?

The German physicist Max Planck (1858–1947) was the initiator of quantum mechanics in what he regarded as act of despair. That despair was directed at the failure of classical physics, which he rightly loved, to account for what was thought to be the elementary problem of the colour of light emitted by an incandescent body, essentially why red hot became white hot as the

temperature is raised. Classical physics had led to the erroneous conclusion that all objects should be white hot even when mildly warm. According to classical physics, there should be no darkness. Moreover, and worse, any object, even the merely warm, should devastate the countryside with gamma radiation. Planck's despair led him to suppose in 1900, or shortly before, that if something oscillated with a certain frequency, then it could exchange energy with the rest of the world only in packets, "quanta", of energy, with the size of the packet proportional to the frequency: low-frequency oscillating things could exchange little packets; high-frequency oscillating things could exchange only big packets. Classical physics had supposed that an oscillator of any frequency could exchange energy in any amount; Planck's hypothesis supposed that energy is "quantized", or exchanged in packets. That simple but revolutionary suggestion, which Planck seems to have hated as it was contrary to all his classical upbringing (Einstein had similar difficulties with quantum mechanics in general), accounted for the colour of hot objects, indeed the colour of objects at any temperature. We now know that it accounts for the colour of the Sun, at around 5772 K in the light-emitting surface regions, and of the entire universe, which has cooled to a miserly 2.7 K yet still glows with radiation characteristic of a body at that temperature.

In conventional physics, energy is reported in joules J. A joule is quite a small unit, but very suitable for everyday discourse. For instance, each beat of a human heart requires about 1 joule of energy. The battery of a currently typical smartphone stores around 50 kilojoules of energy. The joule is quite a recent introduction, replacing a ragbag of earlier units that included calories, ergs, and "British thermal units". In the nineteenth

century, as thermodynamics and the science of energy was emerging, heat was reported typically in calories and work was reported in ergs.

Here is an analogy to introduce an important point. There was once considerable interest in the efficiencies of steam engines, and therefore in the relation between calories of heat supplied and ergs of work produced. Elaborate experiments were performed to establish "the mechanical equivalent of heat", the conversion factor, then perceived as a rather lowly fundamental constant, that could be used to convert the measurements of one form of energy into another. However, although those experiments were an important component of our intellectual progress, they were in another sense a complete waste of time. Had the early investigators measured heat and work in the same units, both calories or both ergs, then the conversion factor, that particular fundamental constant, would have been 1. That is now the case (except in a few isolated archaic islands of activity, including everyday food science) with the joule being used to report both forms of energy. The "mechanical equivalent of heat" is now history or, to put it another way, 1.

I am sure you can see the parallels in this activity with the arguments I have been presenting about the real fundamental constants, or at least the ones that don't, or shouldn't, exist: choose the same units for related quantities, and conversion factors become 1. Planck's constant is a candidate for this treatment. It was introduced to relate the frequency of oscillation to the size of the corresponding energy packets, the minimum size of the quanta that can be transferred.

The way ahead should now be clear. Let's do away with joules and report energy as a frequency, in cycles per second. Whenever I want to report energy as a frequency,

I shall denote it E^\dagger and report it as so many cycles per second. There is no longer any need for a conversion factor between them, any more than there is a need to report and list the mechanical equivalent of heat or, having decided to report distance in seconds, for there to report and list the speed of light. Planck's constant has become 1. Joules, like calories and ergs, are now history. There might at first thought seem to be profound implications for quantum mechanics if $h=1$ rather than its conventional tiny value: but that is not the case, as I shall develop after swilling out a few more items littering the gutters of the Augean stable of conventional units.

A semi-final point in this connection is that with the shenanigans developed so far, Einstein's formula $E=mc^2$ becomes $E^\dagger=m^\dagger$ with both properties reported as frequencies. You are welcome to keep the form $E^\dagger=m^\dagger c^2$, but to do so you now have to accept that $c=1$, as I have already argued. A truly final point is that you can now see that because $E^\dagger=m^\dagger$, energy and mass are the same.

Just about everyone these days (except in the USA, in company with Burma and Liberia) expresses mass in kilograms and its fractions (grams) or multiples (tonnes, 1000 kilograms). The kilogram was originally defined (back in the 1790s) as the mass of a litre of water at a certain temperature. Like the metre, that definition was refined and replaced by a standard kilogram, the "International prototype of the kilogram" (IPK), a cylinder of platinum-iridium alloy maintained at the *Bureau International des Poids et Mesures* in Sèvres, on the outskirts of Paris, and with various secondary copies spread around the world. Unfortunately, even the IPK is not perfectly stable, for impurities evaporate from it, air diffuses into it, and minute scratches are caused when it is handled, so what is meant

by "a kilogram" is slowly changing. The current proposals are to define the kilogram in terms of Planck's constant, an eternal constant (as far as we know), so that the meaning of "a kilogram" is fixed for all time and anyone with access to the fundamental constants knows exactly what is meant. What does that mean for our current purposes?

Let's adopt the view that humanity, in its usual muddly way, made a collective but sensible mistake when it adopted the kilogram as a measure of mass. Instead of the kilogram, suppose it had adopted the second, or more precisely the "cycles per second", just like a frequency. With extraordinary prescience, it could have done that by reporting not m but $m^\dagger=mc^2/h$ and reporting mass in oscillations per second. A mass of 1 kilogram, for instance, would then be reported as 1.4×10^{50} cycles per second. If you think of yourself as a well-proportioned 70-kilogram person, from now on you should think of your mass as a breathtaking 9.5×10^{51} cycles per second by converting mass in kilograms into an energy in joules by multiplying by the square of the speed of light (that is, use $mc^2=E$), and then using Planck's constant to express that energy as a frequency in cycles per second. The unit "cycles per second" is becoming a little tedious to write and to read; it is actually the definition of the unit "hertz" (Hz), which is named after the regrettably short-lived pioneer of radio communication, Heinrich Hertz (1857–94), so 1 cycle per second is 1 hertz. By adopting this procedure of multiplying by c^2 and then dividing by h , your mass will turn out to be around 9.5×10^{51} hertz. That might seem a silly way to report mass, but that isn't the point. In everyday practice the kilogram is sensible and useful. I, though, am trying to get to the root of reporting data in the most consistent manner and in the processes bringing my typographical dagger to the throats of conventional units.

We can now see why setting $b = 1$ is of no consequence in the physical world, in the sense that it leaves quantum mechanics intact. One way to do that is to show that the Schrödinger equation (which I introduced in Chapter 3 as one of the principal components of quantum mechanics) remains unchanged apart from the interpretation of its symbols, but equations as complicated as his are confined to lurk in the shadows of this book, the Notes. Another way is to lead you into the foundations of his equations. That turns out to be possible, for foundations, even in science, are invariably simpler than the edifices they support.

If you are a commuter, you are already half way to understanding quantum mechanics. The term “commuter” stems from the common practice of selling a ticket for “there and back” for less than the sum of the individual “there” and “back” fares: the return fare is “commuted” (from the Latin *commutare*, “to change, to alter”). Put another way, the cost of the “back” fare is not the same as the “there” fare (provided you have already invested in the “there” fare). Quantum mechanics differs from classical mechanics in much the same way. The analogy is as follows. The fare for travel “there” becomes multiplication of linear momentum by position; the “back” fare becomes multiplication of position by linear momentum (note the opposite order). The two “fares” are not the same, and the difference is called the “commutator” of the position and linear momentum.

A railway company can adjust its fares for commuters at whim. Nature appears to have settled on a particular standard commutation, and the reduction in the round trip is equal to a minor (but farreaching) modification of Planck’s constant. That is, going “there” with linear momentum multiplied by position minus coming “back” with position multiplied by linear momentum, is propor-

tional to b . The whole of the deviation of the predictions of quantum mechanics from classical mechanics springs from that commutation of the “there and back” fare, and all quantitative aspects stem from the fact that Nature’s board of directors have allowed the commuter discount to be proportional to Planck’s constant.

In conventional units Planck’s constant is so tiny (but pregnant) that the board of directors of classical mechanics decided it wasn’t worth the administrative hassle of giving the commuters any discount. It is easy to see their point. It would be like getting a 1 penny discount on a fare of many trillions of pounds. From that perfectly reasonable decision, classical mechanics emerges.

Reasonable it might be, but wrong it is too. The actual board of directors of Nature insist on maintaining the discount. The most successful ever mathematical description of matter and radiation, quantum mechanics, differs from classical mechanics by the simple offer of a discount to commuters, yet has consequences of the profoundest implication. As I have indicated, Newton and his contemporaries and immediate successors had no inkling of the lack of commutation of position and momentum, and developed his and their wonderful cathedral of theoretical structure we call classical mechanics on this oversight. From it grew an understanding of the heavens, for who cares about such a tiny discount when bodies as big as planets are encircling the Sun? But when scientists turned their attention to electrons in atoms, when the “there” and “back” fares are themselves very tiny, then the commutation discount is tremendously significant. On a fare of one pound, the discount could be as much as 50 pence; it simply cannot be ignored.

How, then, is it possible to set b equal to 1 rather than to a miniscule 10^{-34} and still end up with classical

mechanics being appropriate for everyday objects? Wouldn't that mean that any everyday position and momentum qualifies for a significant commutator's discount? The weasel position is that I finessed the problem by leaving off the units of 10^{-34} .

The values of everyday positions and momenta, which might have quite ordinary everyday values in the old units of position in metres, mass in kilograms, and speed in metres per second, become enormous when expressed in the new units of position in seconds, mass as a frequency in cycles per second, and speed in no units at all. As a result, the product of position and momentum for an everyday object also becomes enormous in the new units, and far, far bigger than 1. In the old way of looking at things, position and momentum had everyday values and h was exceedingly small. In the new way, it is h that has an everyday value (of 1) and position and momentum are exceedingly large. The result, the discount being negligible, is effectively the same and the consequence of that negligibility is the same too: you don't need quantum mechanics for everyday objects.

I need to mention here that great clarifier of human thought, Heisenberg's uncertainty principle, which he formulated in 1927, for it stems from the lack of commutation of momentum and position. The principle states that it is not possible to know, with arbitrary precision, position and momentum simultaneously. Quantum mechanics, much to the discomfort of those brought up in the classical tradition (I include Bohr and Einstein), thereby reveals that we have to make a choice when seeking to specify the state of a system. It instructs us to choose a description in terms of position or choose a description in terms of momenta, either of which can be specified with arbitrary precision. If you insist, as a result of your clas-

sical conditioning, to speak in terms of both descriptions, believing that only then can your description of the world be complete, you are brought up short by the uncertainty principle, which implies that the two descriptions are intrinsically incompatible. If you cannot shake off your conditioning as a classical physicist, you are led to the view that quantum mechanics disallows a complete description of Nature. A much more positive view, however, is that what the practitioners of classical mechanics took to be "complete" was in fact unattainably over-complete. Quantum mechanics tells us that the use of both descriptions simultaneously is inconsistent. It is a bit like starting a sentence in one language and ending it in another. You have to choose your language, for otherwise your message will be incomprehensible and your interlocutor, in this case the universe, will look at you blankly. Quantum mechanics strips away this common-sense inspired error and accepts that completeness exists in one language or the other, in position or momentum, not both. When that is accepted, the description of the universe is simplified (but still not simple). That is why I regard the uncertainty principle as a great clarifier.

I have done away with c and with h , the hinges on which relativity and quantum mechanics swing. Is there room in the graveyard for other fundamental constants? If I were to identify the single most important fundamental constant that is in effect the hinge of thermodynamics, then I would choose Boltzmann's constant, k . It occurs in the all-important Boltzmann distribution that I lauded in Chapter 5, it is carved into Boltzmann's tombstone for his definition of entropy, and it occurs in disguise (among other entities, as the gas constant in the discussion of gases) subversively throughout thermodynamics. It is, however,

completely unnecessary and can be eliminated and buried by using arguments not unlike those that I have used to do away with c and b .

The mistake, once again a sensible, understandable, and laudable mistake, goes back to Celsius and Fahrenheit, whom I introduced in Chapter 4 as the inventors of early temperature scales, and was compounded by Kelvin's introduction of a seemingly more natural absolute scale. First, you need to recognize that all three were seduced by convention, with perhaps Celsius the least seduced. In our current world, the hotter the object the higher the temperature, on all three scales. As I have mentioned, Celsius originally had it going the opposite way, the hotter the lower on his original scale. I think he was, unknowingly, on the right track, for in a variety of ways I think "the hotter the lower" is more natural at a thermodynamically fundamental level, as I shall explain. But all three, in my view, got it wrong by introducing a new unit of measurement (the degree, and later the kelvin, K) to report temperature, just as introducing metres to measure length instead of using seconds also resulted in unnecessary confusion that became apparent as science matured. In the latter connection you have seen that had length been measured in seconds, then there would have been no need to introduce the fundamental constant c , the speed of light. In a similar vein, I shall argue that had temperature been reported in the same units as energy, then there would have been no need to introduce Boltzmann's constant.

There are obviously a number of matters that I need to explain. Boltzmann's constant, which is so many joules per kelvin, can be regarded as a way of converting kelvins to joules. If you have already agreed to report temperature in joules, then there would be no need to

convert it into those units. Moreover, if there is a uniform relation between temperature in kelvins and joules, then there is no ambiguity in the change of units. You might end up with some unfamiliar funny numbers, but unfamiliar funniness is not one of the criteria of acceptability in science (although it might be one in the pragmatic everyday world). For example, with the currently accepted value of Boltzmann's constant, a mild 20 °C (293 K) would be reported as an unfamiliar 4.0 zeptojoules (zepto is the perhaps unfamiliar but useful prefix denoting 10⁻²¹) and water would boil at 5.2 zeptojoules. If you agree to report temperatures in joules (or its submultiples, such as zeptojoules), then the gradations on our thermometers will have to be in joules or a submultiple of joules, and each degree on the current Celsius scale becomes 0.0138 zeptojoules. Once you have done that, there is no need ever again to invoke Boltzmann's constant in any expression. In effect, if you insist on using the equations you come across in current textbooks, then wherever k appears you should ascribe to it the value 1. Now k has gone the way of c and b . It is a superfluous fundamental constant that emerged simply because the early scientists were misled by sensible everyday practice into introducing a new but unnecessary unit for the measurement of temperature.

But what did I mean by Celsius originally being less in error than Fahrenheit and Kelvin, and it being better to think of temperatures unfamiliarly going down as things get hotter? Here I have in mind the fact that many expressions in thermodynamics, and in particular its cousin "statistical thermodynamics", which provides the link between the molecular and the bulk, between the individual and the crowd, are strikingly simpler if expressed as the inverse of temperature (that is, as $1/T$ rather than T , not simply reversed with 0 and 100 changing places).

The mathematics seems to be crying out to us that a natural temperature scale is one in which the scale should be not simply reversed but turned upside down. With temperature already in zeptojoules, its inverse would be reported in “per zeptojoules”. In this way (I leave the little arithmetic to you), the boiling point of water would be 0.19 per zeptojoule and its freezing point would be higher at 0.27 per zeptojoule.

From now on, I’ll express all temperatures upside down and converted, as so many “per zeptojoules”, and denote the newly defined temperature by the letter \mathcal{F} (tee-dash). As I have forbidden myself to quote any formulas except in the safe space of the Notes, to which I refer you, 6 you will have to accept my word that if you take any formula in statistical thermodynamics, then it looks, and is, simpler when T is replaced by \mathcal{F} . But there is more to that replacement than appearance.

Everyone (well, almost everyone) knows that you can’t reach the absolute zero of temperature. The third law of thermodynamics expresses that unattainability in more sophisticated, scientifically acceptable terms, adding “in a finite number of steps” and a bit more, but that is its general gist. It might seem odd that $T=0$, the bottom of the Kelvin scale, can’t be reached in a finite number of steps. But $T=0$ corresponds to $\mathcal{F}=\infty$, and there is probably little psychological rejection of the impossibility of reaching infinite \mathcal{F} in a finite number of steps.

A deeper simplification comes from the exploration of various equations of statistical thermodynamics. Although negative absolute temperatures (temperatures like -100 K) are meaningless in ordinary thermodynamics (they are like negative lengths: something can’t be -1 metre long), there is nothing wrong with fiddling about with the equations of statistical thermodynamics and seeing what

happens to various properties (for instance entropy) as the temperature is allowed to sink though zero and become negative, and even become negatively infinite. For instance, you could take any of the formulae in note 6 and see what happens when you insert a negative value of the temperature. Typically, nasty things happen when you do that, with the properties showing sharp jumps or squirting off to infinity as the temperature passes through zero. However, if the same properties are plotted against \mathcal{F} , then all these jumps and squirts disappear, and all the properties behave smoothly. This taming of the properties strongly suggests (it is no more than that) that \mathcal{F} is a more fundamental measure of temperature than T . But, I shall now argue that it is not quite fundamental enough: it hasn’t reached rock bottom in fundamentality.

I am sure that you are seeing a pattern emerging through these chapters, with everything becoming simplified by being expressed either in seconds (time and distance) or as a frequency in “per second” (energy). You have also seen that inverse temperature \mathcal{F} is an inverse energy in “per zeptojoules”. Now note that we can convert that inverse energy to inverse “per second”, which is simply seconds. Then 20°C becomes 0.16 picoseconds (pico is the prefix denoting 10^{-12}), water freezes at 0.18 picoseconds and boils at 0.13 picoseconds.

At this stage, the three fundamental constants of relativity, quantum mechanics, and thermodynamics, c , h , and k , have become redundant. Put another way, if you insist on using equations in which they appear (such as $E=mc^2$), and have chosen to express the properties (such as E and m) in related units (such as seconds or their variations), then you have to set each fundamental constant equal to 1 and there is no longer a mystery about their origin.

I now leave these non-existent fundamental constants which I can explain and turn to the ones that really exist and I cannot explain. There are just two that I shall mention, but others are lurking in this Pandora's box of the currently inexplicable. Both are coupling constants, governing the strengths of two varieties of interaction.

I have already mentioned the fundamental charge, e , which expresses the strength of electromagnetic interactions, such as the strength of the attraction between two charges and the strength of the interaction of an electron (which has charge $-e$) with an electric field, such as that in a radio wave. The size of this fundamental constant affects the strength of the interaction between electrons and nuclei in atoms, and therefore the sizes and properties of atoms, the strength of the bonds between atoms and therefore the formation of compounds, and the strength of the interactions of electrons in atoms and molecules and the electromagnetic field, so it also affects the colours of materials and the intensity of those colours. It plays a role within atomic nuclei, for the positively charged protons within nuclei are subject to intense mutual repulsions.

Once again it is best to detach the magnitude of the fundamental charge from human-inspired units and to express it as a pure number. Whenever you see units attached to a constant, you can't be sure that it is large or small: large or small compared to what? In its case, the fundamental charge is commonly wrapped in other fundamental constants to produce a dimensionless number, the "fine-structure constant", α (alpha), which is so-called because it was introduced to explain some of the detailed structure of the spectrum of hydrogen atoms. It has the value I mentioned earlier, namely $1/137$. That α is so small reflects the weakness of electromagnetic interactions (compared to the strong force at work within nuclei) and

is responsible for molecules, which are held together by electromagnetic interactions, being much more malleable than nuclei in the sense that they can be torn apart and reassembled in chemical reactions. If α were close to 1, there would be no chemistry, molecules, if they existed at all, would be the size of atomic nuclei, and life (a highly elaborate chemical reaction) would not have emerged. The universe would have been biologically silent.

No one yet knows why α has the value $1/137$. In one scenario, all the forces once had the same strength but as the universe expanded and cooled their strengths diverged, and $1/137$ emerged as the strength of one of them. That value, I presume, will be explained once a more comprehensive theory of the inception, structure, and evolution of the universe has been formulated, but at present its value is a mystery. That is not to say that a variety of concoctions of numbers like π and $\sqrt{2}$ have not been cobbled together, some with impressively close values to the experimental value. However, they are cobblings together with no reliable theoretical foundation and none of them has been accepted by the scientific community as anything other than numerical jugglings. The problem, though, is of enormous importance for understanding the universe and our place in it. There are similar coupling constants for the strong and weak forces that play a role in nuclear structure. Some future theory of the fundamental forces (and the fundamental particles they act on) will have to account for all their values.

The only other coupling constant I shall mention is the one that governs the strength of gravity. This constant, the "gravitational constant", G , appears in the inverse square law of gravitational attraction between two masses. The gravitational constant can be turned into a dimensionless quantity, α_G , analogous to the finestructure

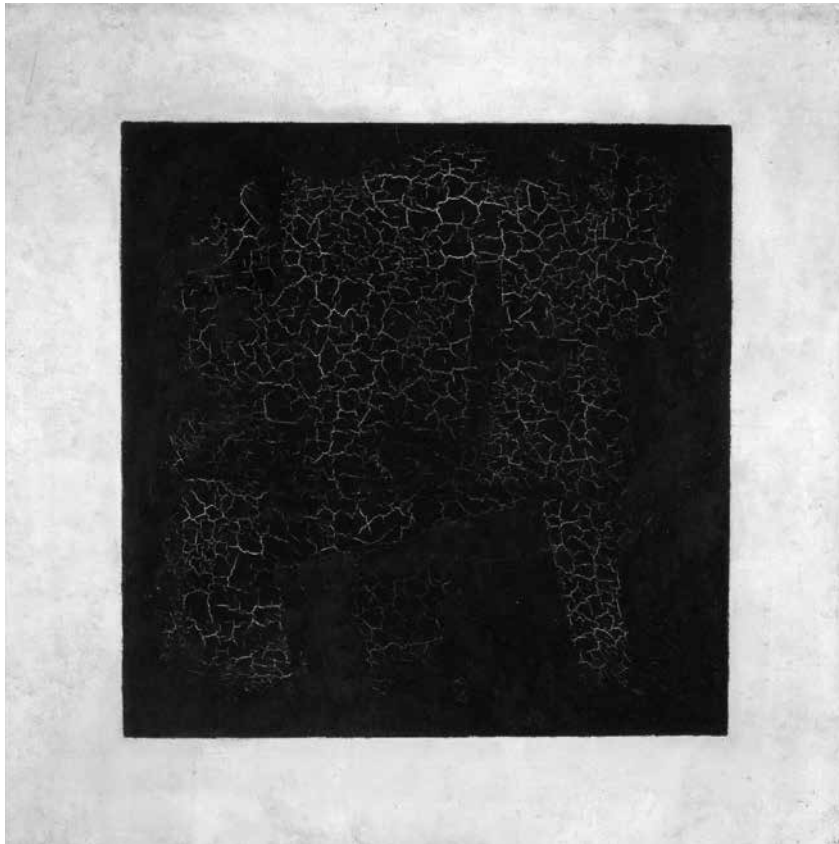
constant, effectively replacing the square of the charge of an electron (which appears in α) by the square of the mass of an electron, when it turns out to be 1.752×10^{-45} . Now you can see that it is a very tiny quantity, and conclude that gravity is a far, far weaker force than electromagnetism. That is beneficial for the emergence of thinking entities, currently at least us, for it gives time for star formation, galaxy formation, the persistence of planets in orbits around their stars, and the inception and evolution of folk. If it were much stronger, we—everything—would all be in a big black hole together (and not know it). No one has a clue about the origin of the value of G . Current speculations include the possibility that it was once strong but fizzled out to nearly nothing when the universe cooled (much like the fine-structure constant, but its fizzling out went further). Some speculate that it really is strong still, but that much of the strength of gravity has leaked out into the six or seven dimensions that have yet to unfurl and be detectable. No one knows why gravity is so weak, and certainly not why α_G has its current value, and I will not pretend otherwise.

Where are we? The laws of nature control the behaviour of entities in a general way, but their quantitative consequences depend on the values of various fundamental constants. These include the speed of light, which is central to relativity, Planck's constant, which is central to quantum mechanics, and Boltzmann's constant, which is central to thermodynamics. However, I have tried to show that if all physical observables are expressed in the same or related units rather than being trapped in a pragmatic but motley collection of human-devised units, then these three fundamental constants can be discarded. Put another way, if you go on insisting that they appear in equations, then you can

set them all equal to 1 provided you express all observable properties in related units (I have chosen seconds and its variations). There is another class of fundamental constant which consists of effectively coupling constants that express the strengths of various forces, such as the electromagnetic force and the gravitational force. No one yet has a clue about why they have their current, and for us serendipitous, values.



ABSOLUTE	248	SPEED	316
ABUNDANCE	250	SUBORDINATION	318
ACCELERATION	252	THEFT	320
ACCIDENT	254	VIRUS	322
AFTERMATH	256		
CHAOS	258		
CONTAMINATION	260		
COPY	262		
CORRUPTION	264		
DECAY	266		
DECONSTRUCTION	268		
DERIVATIVES	270		
DIFFERENCE	272		
DOMINATION	274		
EXPENDABLE	276		
EXTIMACY	278		
HABIT	280		
HARMONY	282		
LEISURE	284		
LIMIT	286		
LUNACY	288		
MEMORY	290		
MONITORING	292		
MYTH	294		
NECESSITY	296		
NOISE	298		
NOMAD	300		
ORDER	302		
PARODY	304		
RELATIVITY	306		
REPETITION	308		
REVOLUTION	310		
SCARCITY	312		
SEDENTARY	314		



KASIMIR MALEVICH, BLACK SQUARE (1915)

That mathematics and musical concord were the basis of ideal proportion was a common belief of the circles in which Palladio moved. Here there was felt to be a correspondence between the perfect numbers, the proportions of the human figure and the elements of musical harmony; and Sir Henry Wotton, as British ambassador to Venice at a slightly later date, reflects some part of this attitude when he writes:

The two principal Consonances that most ravish the Ear are, by the consent of all Nature, the Fifth and the Octave; whereof the first riseth radically, from the Proportion between two and three. The other from the double Interval, between one and two, or between two and four, etc. Now if we shall transport these Proportions, from audible to visible Objects, and apply them as shall fall fittest..., there will indubitably result from either, a graceful and harmonious Contentment to the Eye.

It was not, in fact, suggested that architectural proportions were derived from musical harmonies, but rather that the laws of proportions were established mathematically and everywhere diffused. The universe of Platonic and Pythagorean speculation was compounded of the simpler relationships of numbers, and such cosmos was formed within the triangle made by the square and the cube of the numbers 1, 2, 3. Also, its qualities, rhythms, and relationships were established within this framework of numbers up to 27; and if such numbers governed the works of God, it was considered fitting that the works of man should be similarly constructed, that a building should be a representative, in microcosm, of the process exhibited at a larger scale in the workings of the world. In Alberti's words: "Nature is sure to act consistently and with a constant analogy in all her operations"; and, therefore, what is patent in music must also be so in architecture.

COLIN ROWE, THE MATHEMATICS OF THE IDEAL VILLA (1976)

Not what we have, but what we
enjoy, constitutes our abundance.

EPICURUS, UNKNOWN (~300 BC)

Sir Henry Wotton's *Elements of Architecture* (1624) promptly introduced the new style to England and the Netherlands. [...] Huygens shared Wotton's ambition to popularize a style combining Italian regularity and order with French convenience (*commodité*). In another one of his roles, secretary to the stadholder of the Netherlands, who was pro-French, he assisted in a Dutch translation of the *Elements*. . . Inigo Jones may first have applied these lessons in the English architectural context, when in 1636 he borrowed from a French book of chimneypiece designs to redecorate rooms for Queen Henrietta Maria, the daughter of Marie de' Medici.

The political associations of such designs delayed the English aristocracy's whole-hearted adoption of the new domestic interior until the Restoration. Shortly thereafter, the London fire of 1666 provided a coincidental imperative for new construction, and the number of small fireplaces greatly increased during the city's rebuilding. They accorded with cosmopolitan style and suited the increased use of coal for heating. The colossal enterprise at Versailles was making an unquestionable standard of what had hitherto been the fashionably innovative design of mirrored chimneypiece and small fireplace. Ironically, the gigantic scale and cold formality of the French court reinforced the trend toward equating domestic amenity with small, elegantly designed chimneypieces. A new room, the closet, developed as a truly private space literally behind the scenes of the court. In this privileged but necessarily small room, a modestly scaled but exquisitely designed combination of chimney and looking glass identified the ideal personal space. . . Smaller fireplaces necessitated more fireplaces, which meant more chimneypieces; with more chimneypieces came more looking glasses.

JOHN CROWLEY, THE INVENTION OF PROGRESS, FROM LUXURY TO COMFORT (2001)

Time Shrink, n.

Describes the way in which your perceived life shrinks when it becomes over-efficient from multi-tasking, and not enough down-gaps are left between specific experiences.

**SHUMON BASAR WITH DOUGLAS COUPLAND & HANS ULRICH OBRIST,
THE AGE OF EARTHQUAKES (2015)**



UNKNOWN, LYNDON JOHNSON WATCHING APOLLO 8 NEWS (1968)



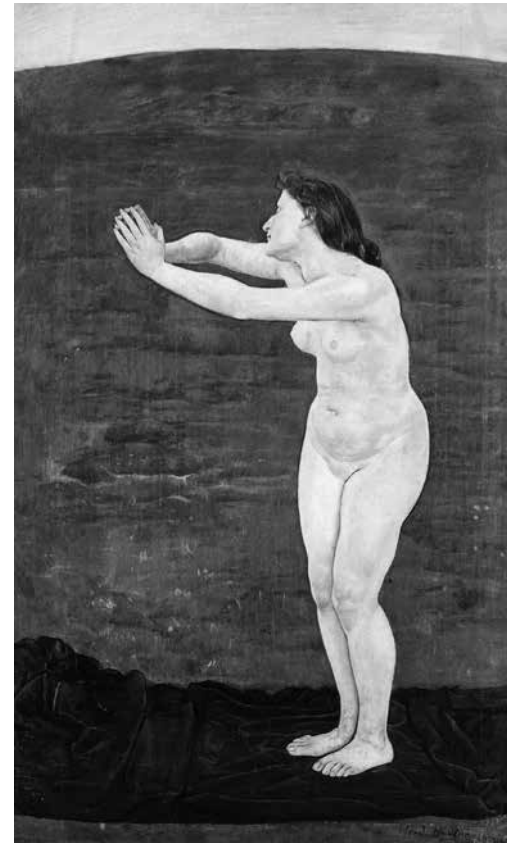
MATILDE TRAVASSOS, LINE IN COURT (2019)

Historians have the habit of characterizing past ages in terms of materials. We have the Stone Age, the Copper Age, the Bronze Age, and the Iron Age, followed at some remove by the Dark Ages, which couldn't have been a good time to be around. There would be some justification for calling the 20th century the Age of Plastics. The establishment of General Bakelite Corp. in 1910 initiated an age in synthetic polymers that provided plastics, fibers, and elastomers for a multitude of uses. Perhaps the importance and ubiquity of plastics is best demonstrated by the famous scene from the 1967 movie *The Graduate* in which recent college graduate Benjamin is given the following one word of advice by Mr. McGuire, "Plastics". McGuire goes on to tell Benjamin there is a great future in plastics. Screenplay writers Calder Willingham and Buck Henry probably intended the audience to believe that Benjamin was being tempted to sell out for mere financial success, but it has always seemed to us that this was good advice for its time and place.

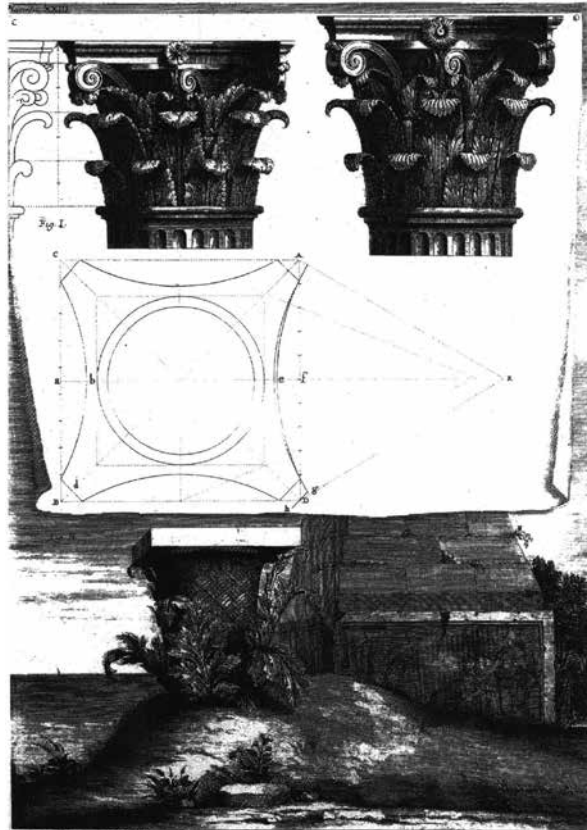
AMERICAN CHEMICAL SOCIETY, 100+ YEARS OF PLASTICS (2011)

The single biggest problem in communication is the illusion that it has taken place.

GEORGE BERNARD SHAW, COMMUNICATION (1900)



FERDINAND HODLER, COMMUNICATION WITH THE INFINITE (1892)



VITRUVIUS, TEN BOOKS ON ARCHITECTURE, CORINTHIAN CAPITAL AND ITS ORIGINS, PLATE XXIII (1684)

The reactionary attempt to sever technologically constituted forms from their functional contexts and turn them into natural constants – that is, to stylize them – appears, in a mode similar to Jugendstil, somewhat later in Futurism.

WALTER BENJAMIN, THE ARCADES PROJECT (1927–1940)



HERZOG & DE MEURON, HELVETIA CAMPUS BASEL (2013–)

But have we a right to assume the survival of something that was originally there, alongside of what was later derived from it? ...It is hardly necessary to remark that all these remains of Ancient Rome are found dovetailed into the jumble of a great metropolis which has grown up in the last few centuries since the Renaissance... Now let us, by a flight of imagination, suppose...in Rome the palace of the Caesars and the Septizonium of Septimus Severus would still be carrying on its battlements the beautiful statues which graced it until the siege by the Goths, and so on. But more than this. In the place occupied by the Palazzo Caffarelli would one more stand – without the Palazzo having to be removed – the temple of Jupiter Capitolinus; and this not in the latest shape, as the Romans of the Empire saw it, but also in its earliest one, when it still showed Etruscan forms and was ornamented with terracotta antefixes. Where the Coliseum now stands we could at the same time admire Nero's vanished Golden House. On the Piazza of the Pantheon we should find not only the Pantheon of today, as it was bequeathed to us by Hadrian, but on the same site, the original edifice erected by Agrippa; indeed, the same piece of ground will be supporting the church of Santa Maria soprano Minerva and the ancient temple over which it was built...

SIGMUND FREUD, CIVILIZATION AND ITS DISCONTENTS (1929–30)



JEAN-LUC GODARD, PIERROT LE FOU (1965)

Highways, first promoted with stories about freedom and uninterrupted movement, possessed an organizational logic that actually caused congestion. ARPAnet, first characterized as a stealth network for the military, lent itself to the kinds of exchanges that finally generated the internet. Promises of decentralization accompanied the first electrical utilities, just as promises of open access have accompanied contemporary broadband networks. Yet both networks, at certain junctures in their evolution, have sponsored constricting monopolies, whether scattered or centralized. The mass-produced suburbs sold unique country homes but delivered the virtually identical products of an assembly-line organization. Facebook, a platform created for social networking on a college campus, revealed another initially unrecognized potential when, in the Arab Spring, it was used as an instrument of dissent. Likewise the zone, created and promoted as a tool of free trade and economic liberalism, has often produced closed, exurban enclaves.

In all these cases, some of the most consequential political outcomes of infrastructure space remain undeclared in the dominant stories that portray them. Information resides in the technologies—from telecommunications to construction—as well as in the declared intent or story—from decentralization to stealth. Yet information also resides in a complex of countless other factors and activities. All these activities, taken together, lend the organization some other agency or capacity—a disposition—that often escapes detection or explanation.

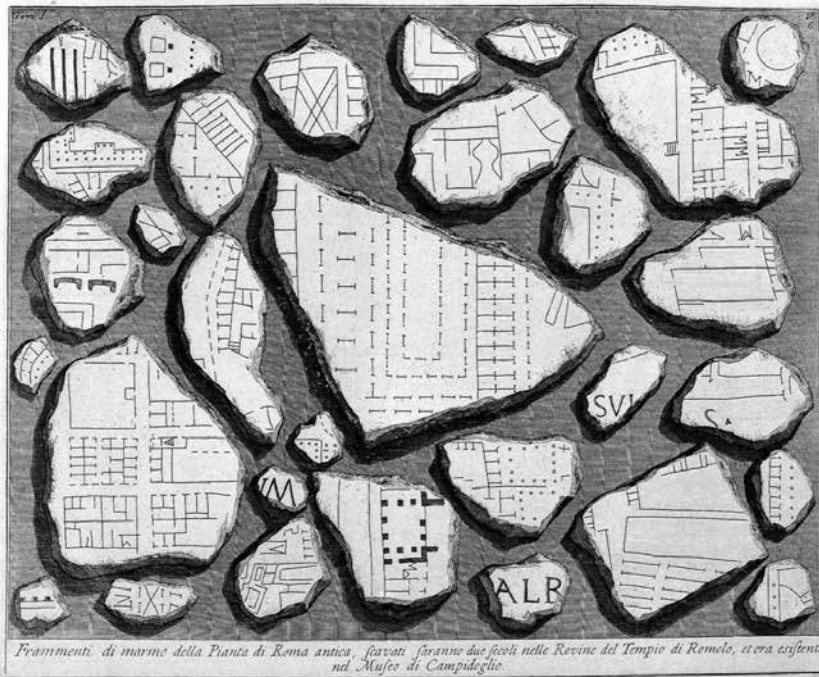
KELLER EASTERLING, EXTRASTATECRAFT: THE POWER OF INFRASTRUCTURE SPACE (2014)

The life of an organism knows three phases. In the beginning, all is simple, then the organism complexifies and diversifies itself, to finally simplify once again through a process of complete desintegration before dissolving into an inorganic nirvana (death). The third phase is thus called *secondary simplifying merger before death*. This process is applied not only to all living organisms, but also to states, to art, to architectural styles, to philosophical systems and to all cultural worlds.

CONSTANTIN LEONTIEV, BYZANTISME ET MONDE SLAVE (1919)



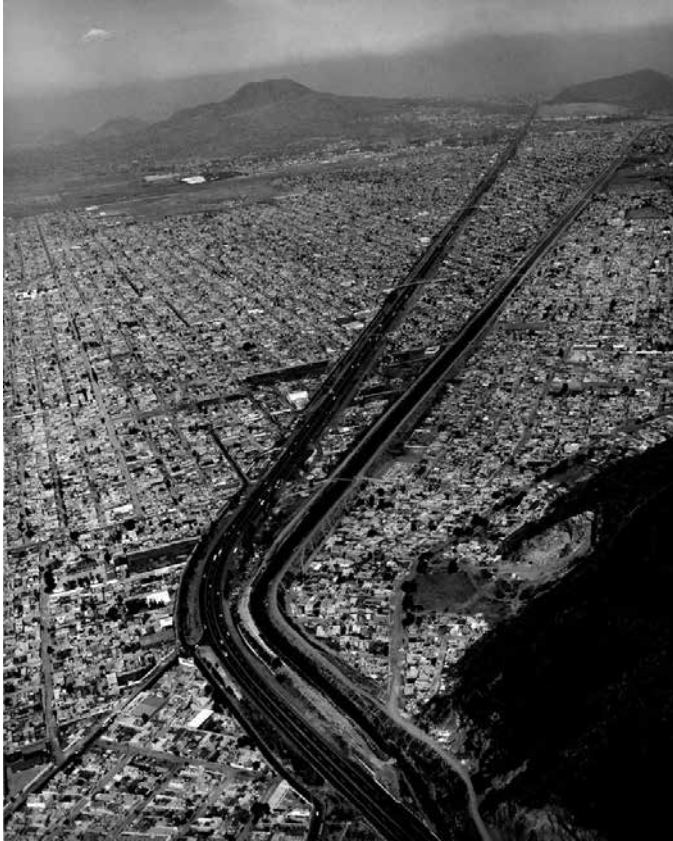
JOHN EVERETT MILLAIS, OPHELIA (1851–52)



G.B. PIRANESI, FRAGMENTS OF THE MARBLE PLAN OF ANCIENT ROME (1756)

The art of jigsaw puzzling begins with wooden puzzles cut by hand, whose maker undertakes to ask himself all the questions the player will have to solve, and, instead of allowing chance to cover his tracks, aims to replace it with cunning, trickery and subterfuge. All the elements occurring in the image to be reassembled – this armchair covered in gold brocade, that three-pointed black hat with its rather ruined black plume, or that silver-braided bright yellow livery – serve by design as points of departure for trails that lead to false information.

GEORGES PEREC, LIFE, A USER'S MANUAL (1978)



BALTHASAR BURKHARD, MEXICO CITY (1999)

This is the story of America.
Everybody's doing what they think
they're supposed to do.

JACK KEROUAC, ON THE ROAD, THE ORIGINAL SCROLL (1957)



JOSEPH BENOÎT SUVÉE, THE INVENTION OF THE ART OF DRAWING (1791)

The fault of representation lies in not going beyond the form of identity, in relation to both the object seen and the seeing subject. Infinite representation may well multiply points of view and organise these in series; these are no less subject to the condition of converging upon the same object, upon the same world. [It] may well multiply figures and moments and organise these into circles endowed with self-movement; these no less turn around a single centre which is that of the great circles of consciousness. By contrast, when the modern work of art develops its permitting series and its circular structures, it indicates to philosophy a path leading to the abandonment of representation. It is not enough to multiply perspectives in order to establish perspectivism. To every perspective or point of view there must correspond an autonomous work with its own self-sufficient sense: what matters is the divergence of series, the decentering of circles, “monstrosity”. The totality of circles and series is thus a formless ungrounded chaos which has no law other than its own repetition. [...] Nothing, however, is lost; each series exists only by virtue of the return of the others. Everything has become simulacrum, for by simulacrum we should not understand a simple imitation but rather the act by which the very idea of a model or privileged position is challenged and overturned. The simulacrum is the instance which includes a difference within itself, such as (at least) two divergent series on which it plays, all resemblance abolished so that one can no longer point to the existence of an original and a copy. It is in this direction that we must look for the conditions, not of possible experience, but of real experience (selection, repetition, etc.). It is here that we find the lived reality of a sub-representative domain. If it is true that representation has identity as its element and similarity as its unit of measure, then pure presence such as it appears in the simulacrum has the “disparate” as its unit of measure—in other words, always a difference of difference as its immediate element.

GILLES DELEUZE, DIFFERENCE AND REPETITION (1968)

I enjoy the fact that there are kings
at cards and chess and am bored
by checkers, this dolefully egalitarian
game where each pawn dreams of
being a *parvenu*.

VLADIMIR VOLKOFF, THE KING (1987)

Consumable pseudo-cyclical time is spectacular time, both as the time of consumption of images in the narrow sense, and as the image of consumption of time in the broad sense. The time of image-consumption, the medium of all commodities, is inseparably the field where the instruments of the spectacle exert themselves fully, and also their goal, the location and main form of all specific consumption: it is known that the time-saving constantly sought by modern society, whether in the speed of vehicles or in the use of dried soups, is concretely translated for the population of the United States in the fact that the mere contemplation of television occupies it for an average of three to six hours a day. The social image of the consumption of time, in turn, is exclusively dominated by moments of leisure and vacation, moments presented at a distance and desirable by definition, like every spectacular commodity. Here this commodity is explicitly presented as the moment of real life, and the point is to wait for its cyclical return. But even in those very moments reserved for living, it is still the spectacle that is to be seen and reproduced, becoming ever more intense. What was represented as genuine life reveals itself simply as more genuinely spectacular life.

GUY DEBORD, SOCIETY OF THE SPECTACLE (1967)

These days we tend to fear the future, having lost trust in our collective ability to mitigate its excesses, to render it less frightful and repellent, as well as somewhat user-friendlier. What we still, by inertia, call ‘progress’ evokes nowadays emotions opposite from those that Kant, who coined the concept, meant it to arouse. More often than not, it evokes the fear of an impending catastrophe instead of the joy of more comfort approaching and more worrisome inconvenience being about to perish and be cast into oblivion.

The first thing to leap to mind whenever ‘progress’ is mentioned is, for many of us, the prospect of more jobs for humans—those requiring intellectual skills as much as the already-vanished manual ones—that are bound to soon disappear, replaced by computers and computer managed robots; and of yet steeper hills up which the battle for survival will need to be fought. According to almost all available research, the ‘millennials’—the young people currently entering the labour market, facing the challenges of adult self-reliance and the uncertainties endemic to the search for a decent, satisfactory, gratifying and recognized social position—are the first post-war generation to voice a fear of losing instead of raising, the social standing achieved by their parents; most ‘millennials’ expect their future to bring worsening of their life conditions, instead of paving the way to their further improvements that marked their parents’ life story and which their parents taught them to expect and to work for. All in all, the vision of unstoppable ‘progress’ portends the menace of loss instead of auguring new attainments and moving up in the world; it is now associated more with social degradation than with advancement and promotion.

ZYGMUNT BAUMAN, RETROTOPIA (2017)



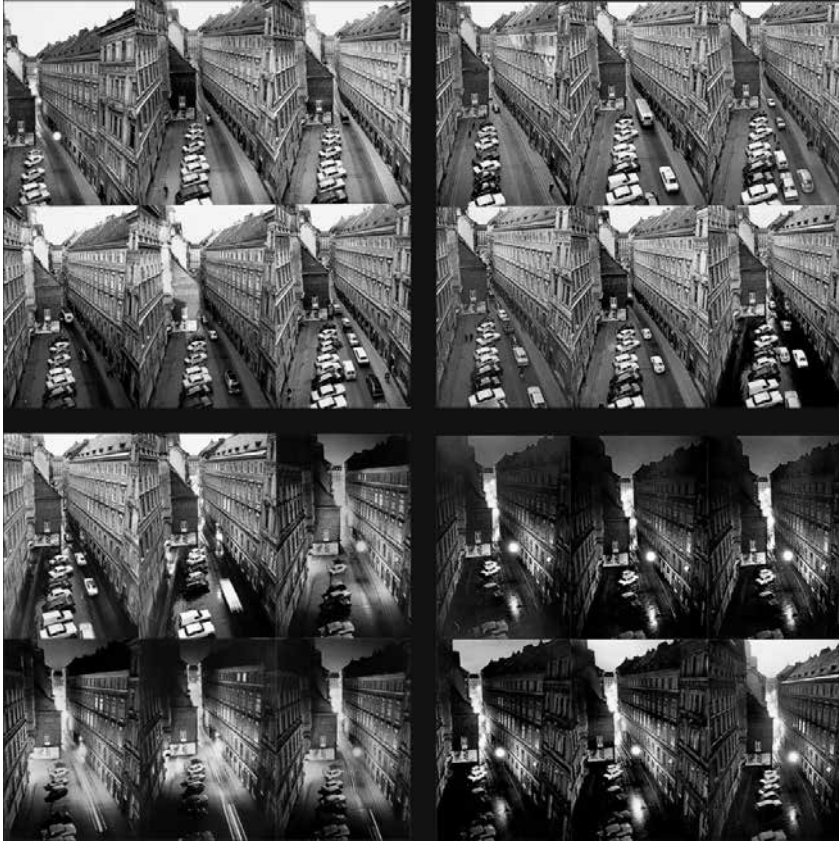
BRITISH AIRWAYS, BRITISH CONCORDE FLEET (1986)



STIJN VANHEULE, RECONSTRUCTION OF JACQUES LACAN'S
DOUBLE MIRROR SET-UP: PROJECTION OF A VIRTUAL VASE
AROUND REAL FLOWERS (~2011)

Self-consciousness exists in itself and for itself in that, and by the fact that it exists for another self-consciousness; that is to say, it is only by being acknowledged or recognised.

G.W.F. HEGEL, PHENOMENOLOGY OF THE MIND (1807)

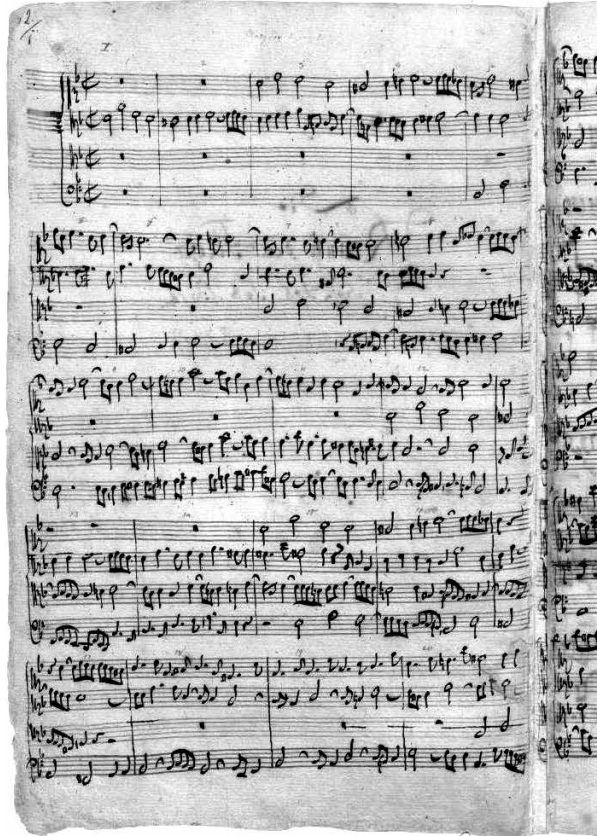
VALIE EXPORT, ZEITGEDICHT (1970)

What has changed since yesterday? At first sight, it's really the same. Is the sky perhaps cloudier? It would really be subjective to say that there are, for example, fewer people or fewer cars. There are no birds to be seen. There is a dog on the plaza. Over the Hôtel Récamier (far behind it?) a crane stands out in the sky (it was there yesterday, but I don't recall making note of it). I couldn't say whether the people I'm seeing are the same ones as yesterday, whether the cars are the same ones as yesterday. On the other hand, if the birds (pigeons) came (and why wouldn't they come) I'd feel sure they would be the same birds.

Many things have not changed, have apparently not budged (the letters, the symbols, the fountain, the plaza, the benches, the church, etc.); I myself am sitting at the same table.

Buses pass by. I've lost all interest in them.

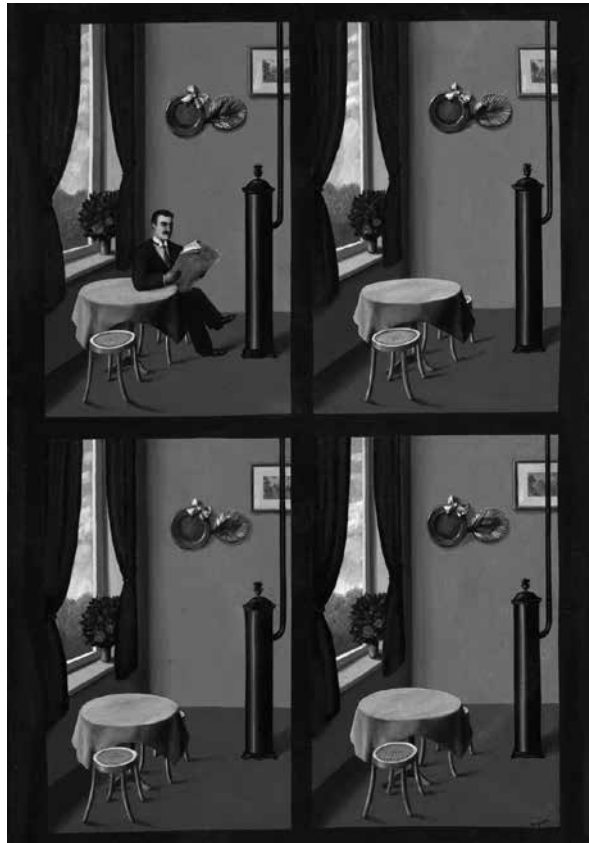
GEORGES PEREC, ATTEMPT AT EXHAUSTING A PLACE IN PARIS (1975)



J.S. BACH, THE ART OF FUGUE, FIRST PAGE MANUSCRIPT (~1745)

We have observed, that a species of greatness arises from the artificial infinite; and that this infinite consists in an uniform succession of great parts: we observed, too, that the same uniform succession had a like power in sounds. But because the effects of many things are clearer in one of the senses than in another, and that all the senses bear analogy to and illustrate one another, I shall begin with this power in sounds, as the cause of the sublimity from succession is rather more obvious in the sense of hearing. [...] When the ear receives any simple sound, it is struck by a single pulse of the air, which makes the eardrum and the other membranous parts vibrate according to the nature and species of the stroke. [...] And it must be observed, that expectation itself causes a tension. [...] But though, after a number of strokes, we expect still more, not being able to ascertain the exact time of their arrival, when they arrive, they produce a sort of surprise, which increases this tension yet further. For I have observed, that when at any time I have waited very earnestly for some sound, that returned at intervals, (as the successive firing of cannon), though I fully expected the return of the sound, when it came it always made me start a little; the ear-drum suffered a convulsion, and the whole body consented with it. The tension of the part thus increasing at every blow, by the united forces of the stroke itself, the expectation, and the surprise, it is worked up to such a pitch as to be capable of the sublime; it is brought just to the verge of pain. Even when the cause has ceased, the organs of hearing being often successively struck in a similar manner, continue to vibrate in that manner for some time longer; this is an additional help to the greatness of the effect.

EDMUND BURKE, A PHILOSOPHICAL ENQUIRY ON OUR IDEAS OF THE SUBLIME AND BEAUTIFUL, THE INFINITE (1757)



RENÉ MAGRITTE, MAN READING A NEWSPAPER (1928)

Whatever concept one may hold, from a metaphysical point of view, concerning the freedom of the will, certainly its appearances, which are human actions, like every other natural event are determined by universal laws. However obscure their causes, history, which is concerned with narrating these appearances, permits us to hope that if we attend to the play of freedom of the human will in the large, we may be able to discern a regular movement in it, and that what seems complex and chaotic in the single individual may be seen from the standpoint of the human race as a whole to be a steady and progressive though slow evolution of its original endowment.

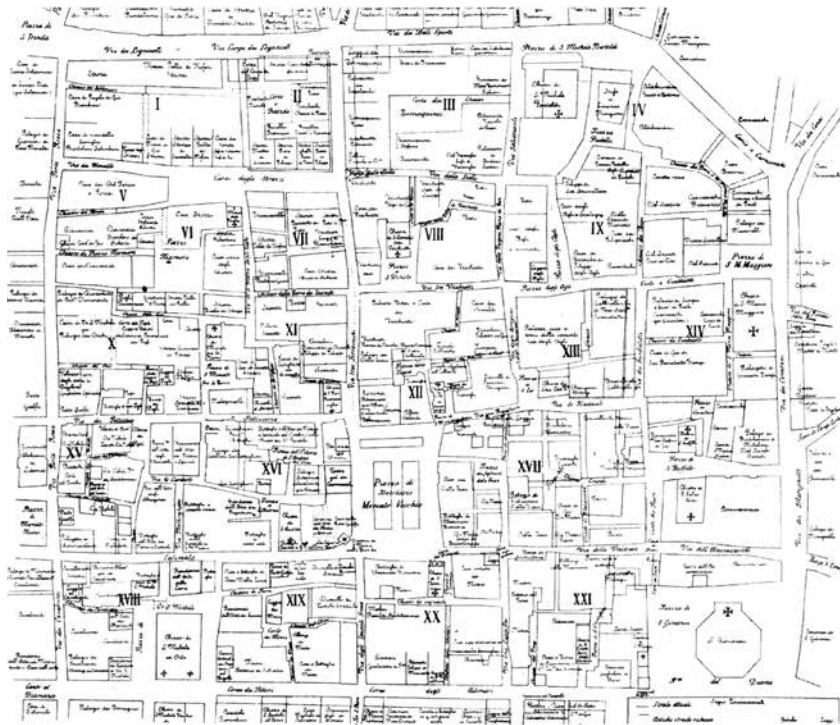
IMMANUEL KANT, IDEA FOR A UNIVERSAL HISTORY FROM A COSMOPOLITAN POINT OF VIEW (1784)

The fundamental actions of the scientific faculty of knowledge appear to us in this sense to be the following: setting limits that mark a renunciation of infinite speeds and layout a plane of reference; assigning variables that are organised in series tending toward these limits; coordinating the independent variables in such a way as to establish between them or their limits necessary relations on which distinct functions depend, the plane of reference being a coordination in actuality; determining mixtures or states of affairs that are related to the coordinates and to which functions refer.

GILLES DELEUZE, WHAT IS PHILOSOPHY? (1991)



DELPHI, SIGHTSEEING: NEW NATIONAL GALLERY, BERLIN (2017)



UNKNOWN, FLORENCE 1427 PARCEL MAP, REDRAWN (1989)

I do not think it is an exaggeration to say that behind every twentieth-century grid there lies – like a trauma that must be repressed – a symbolist window parading in the guise of a treatise on optics. Once we realise this, we can also understand that in twentieth-century art there are “grids” even where we do not expect to find them [...]. Because of its bivalent structure (and history) the grid is fully, even cheerfully, schizophrenic.

ROSALIND KRAUSS, GRIDS (1979)

There must be a difference in kind between matter and memory, between pure perception and pure collection, between the present and the past. The past is no longer, it has ceased to be. We have thus confused Being with being-present. Nevertheless, the present is not; rather, it is pure becoming, always outside itself. It is not; but it acts. The past, on the other hand, has ceased to act or to be useful. But it has not ceased to be. Useless and inactive, impassive, it IS, in the full sense of the word: it is identical with being in itself. [...] The past is contemporaneous with the present that it has been; and it would never be constituted if it did not coexist with the present whose past it is.

GILLES DELEUZE, BERGSONISM (1988)

bon bon il est un pays

*all right all right there's a land
where forgetting where forgetting weights
gently upon worlds unnamed
there the head we shush it the head is mute
and one knows no but one knows nothing
the song of dead mouths dies
on the shore it has made its voyage
there is nothing to mourn*

*my loneliness I know oh well I know it badly
I have the time is what I tell myself I have time
but what time famished bone the time of the dog
of a sky incessantly palling my grain of sky
of microns of years of darkness*

*you want me to go from A to B I cannot
I cannot come out I'm in a traceless land
yes yes it's a fine thing you've got there a mighty fine thing
what is that ask me no more questions
spiral dust of instants what is this the same
the calm the love the hate the calm the calm*

SAMUEL BECKETT, BON BON IL EST UN PAYS (1978)



CENTRE NATIONAL DU CINÉMA ET DE L'IMAGE ANIMÉE, MARCEL PROUST (1904)

Our heritage was left to us
without a testament.

RENÉ CHAR, FEUILLETS D'HYPNOS,
TRANS. BY HANNAH ARENDT (1948, 1967)

$$\begin{array}{rclcl}
 1 & + & 1 & = & 3 \\
 2 & + & 3 & = & 6 \\
 4 & + & 4 & = & 5 \\
 7 & + & 3 & = & 8 \\
 5 & + & 1 & = & 2 \\
 3 & + & 4 & = & 9 \\
 6 & + & 2 & = & 7 \\
 8 & + & 7 & = & 4 \\
 1 & + & 5 & = & 2
 \end{array}$$

SIGMAR POLKE, LÖSUNGEN (1969)

[Decadent style] is ingenious, complicated, learned, full of shades of meaning and research, always pushing further the limits of language... forcing itself to express in thought that which is most ineffable, and in form the vaguest and most fleeting contours; listening that it may translate them to the subtle confidences of the neuropath, to the avowals of aging and depraved passion, and to the singular hallucinations of the fixed idea verging on madness... In opposition to the classic style, it admits of shading, and these shadows teem and swarm with the larvae of superstitions, the haggard phantoms of insomnia, nocturnal terrors, remorse which starts and turns back at the slightest noise, monstrous dreams stayed only by impotence, obscure phantasies at which daylight would stand amazed, and all that the soul conceals of the dark, the unformed, and the vaguely horrible, in its deepest and furthest recesses.

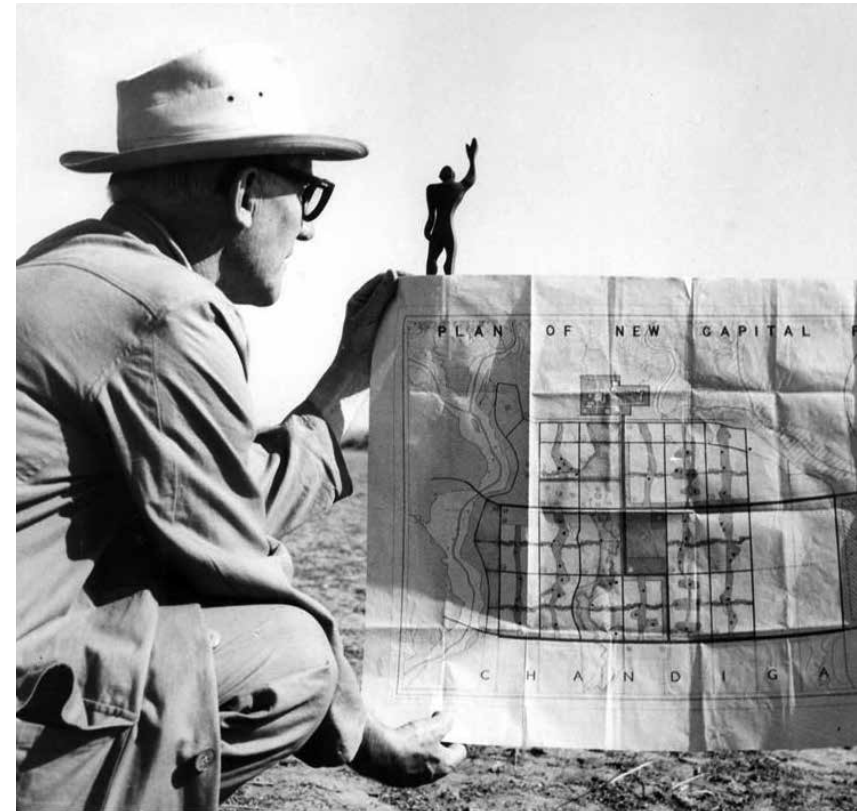
THÉOPHILE GAUTIER, CHARLES BAUDELAIRE AND HIS LIFE (1923)

The Fund or Securities are these: That of the *Fire Office* is Ground Rents [Now] to the Value of *Fifty Thousand Pounds*, settled upon Trustees, to make good all Losses from Fire; and to be Increased, as the Number of Houses *Insured* Increase. The Strength of this Security stands upon this Supposition, That the Fund is so Large, considering the Houses *Insured* are dispersed at several distances, That it is very improbable (unless the whole City be Destroyed at once) that any Loss at One time should exceed the *Fund*; and then it will be always the Interest of the *Insurers* (as of men that have *Morgaged* their Land for less than the Value) to pay the Debt when called for, to prevent a greater Loss, since the Land is of more Value than the Debt.

The Security of the *Friendly Society*, is the mutual Covenants between the *Insured* and *Insurers*: The Design is thus framed. The *Insured* deposite into the hands of the *Insurers*, *Six Shillings, Eight Pence*, for Insuring *One Hundred Pound* on a Brick House, and double for Timber; and Covenant to pay the residue of their *Premiums* when there shall be occasion, not exceeding *Thirty Shillings* for *One Hundred Pound* on a Brick House, and double on Timber, at one Loss. Upon Condition, That after such a Loss to be at Liberty to go off from the Society: Also they Covenant to pay *Sixteen Pence per Annum* for every Hundred Pound *Insured* on a Brick House, and double on Timber, for the *Insurers* trouble and charge of *Holding Stakes, Collecting the Money, and Executing the Office*, under a penalty of *Losing their Money deposited; with the Benefit of being after Insured;* and to be *Casbeired out of the Company*, if they do not pay their Rent within the time limited.

The *Insurers* Covenant with the *Insured*: And because they are Trusted with Money, give *Collateral Security*, to the Value of *Sixteen Thousand Pounds* to perform these Covenants.

NICHOLAS BARBON, A LETTER TO A GENTLEMAN IN THE COUNTRY GIVING AN ACCOUNT OF THE TWO INSURANCE OFFICES: THE FIRE OFFICE AND THE FRIENDLY SOCIETY (1698)



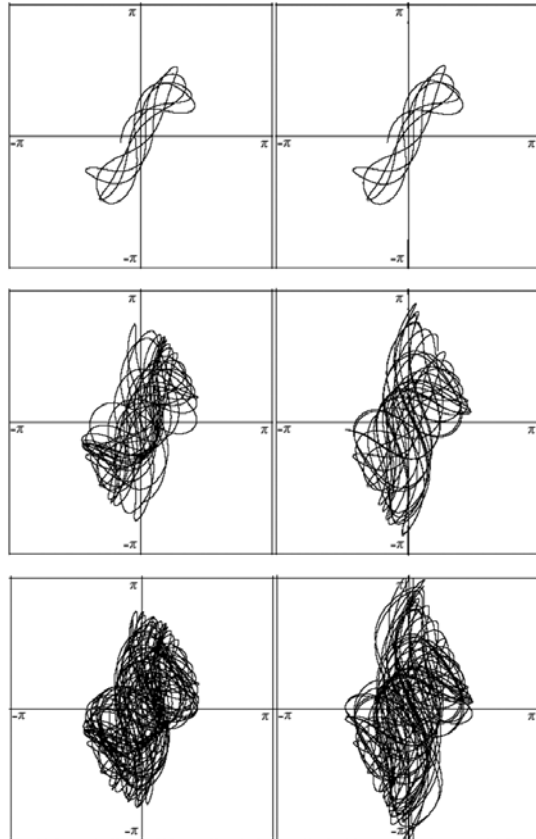
UNKNOWN, LE CORBUSIER AND HIS MODULOR IN CHANDIGARH (~1952)



EGID & COSMAS ASAM, ST JOHANNES NEPOMUK CHURCH (1733–46)

Noise has one advantage. It drowns out words. And suddenly he realized that all his life he had done nothing but talk, write, lecture, concoct sentences, search for formulations and amend them, so in the end no words were precise, their meanings were obliterated, their content lost, they turned into trash, chaff dust, sand; prowling through his brain, tearing at his head. they were his insomnia, his illness. And what he yearned for at that moment, vaguely, but with all his might, was unbounded music, absolute sound, a pleasant and happy all-encompassing, over-powering, window-rattling din to engulf, once and for all, the pain, the futility, the vanity of words. Music was the negation of sentences, music was the anti-word!

MILAN KUNDERA, *THE UNBEARABLE LIGHTNESS OF BEING* (1984)



UNKNOWN, DOUBLE PENDULUM

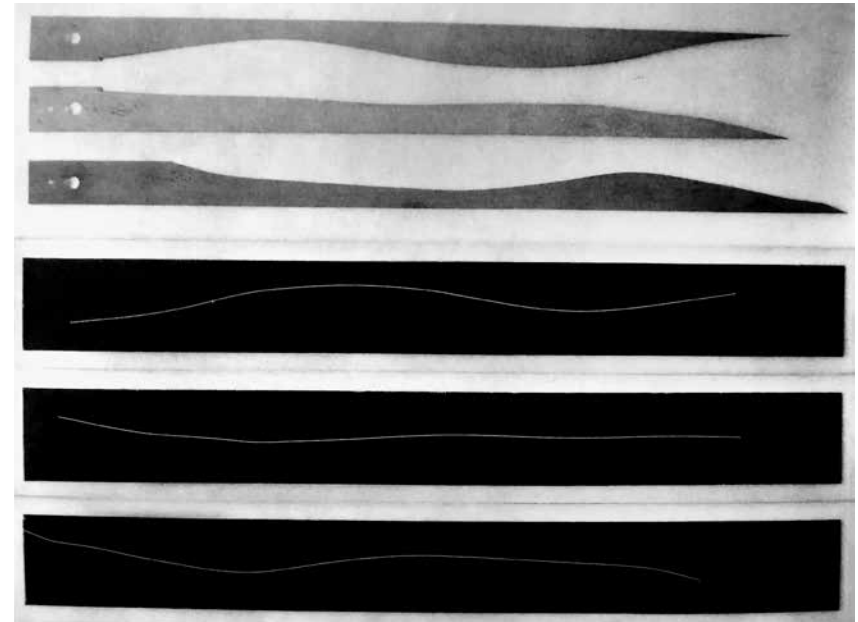
2. Logic

The different internments or spaces of enclosure through which the individual passes are independent variables: each time one is supposed to start from zero, and although a common language for all these places exists, it is analogical. On the other hand, the different control mechanisms are inseparable variations, forming a system of variable geometry the language of which is numerical (which doesn't necessarily mean binary). Enclosures are molds, distinct castings, but controls are a modulation, like a self-deforming cast that will continuously change from one moment to the other, or like a sieve whose mesh will transmute from point to point.

GILLES DELEUZE, POSTSCRIPT ON THE SOCIETIES OF CONTROL (1990)

Scruple, n.
unit of weight in the apothecaries' system, equal to 20 grains, or one-third dram, and equivalent to 1.296 grams. It was sometimes mistakenly assigned to the avoirdupois system. In ancient times, when coinage weights customarily furnished the lower subdivisions of weight systems, the scruple (from Latin *scrupulus*, "small stone" or "pebble") was a unit of Roman commercial weight as well as a unit of coinage weight. One *drachma*, the basic Greek silver unit, consisted of three scruples.

ENCYCLOPÆDIA BRITANNICA, SCRUPLE (2019)



MARCEL DUCHAMP, THREE STANDARD STOPPAGES (1913–14)

Ein Musikalischer Spass

Sextet in F: A Musical Joke

4th Movement

Wolfgang Amadeus MOZART
(1756-1791)
KV 522

Presto.

Horn in F

Violin I

Violin II

Viola

Violoncello

11

20

W.A. MOZART, EIN MUSIKALISCHER SPASS KV522 (1787)

He departs. The machine swings in SOCRATES in a basket.

STREPSIADES Socrates! my little Socrates!

SOCRATES *loftily* Mortal, what do you want with me?

STREPSIADES First, what are you doing up there? Tell me, I beseech you.

SOCRATES *pompously* I am traversing the air and contemplating the sun.

STREPSIADES Thus it's not on the solid ground, but from the height of this basket, that you slight the gods, if indeed....

SOCRATES I have to suspend my brain and mingle the subtle essence of my mind with this air, which is of the like nature, in order clearly to penetrate the things of heaven. I should have discovered nothing, had I remained on the ground to consider from below the things that are above; for the earth by its force attracts the sap of the mind to itself. It's just the same with the watercress.

STREPSIADES What? Does the mind attract the sap of the watercress? Ah! my dear little Socrates, come down to me! I have come to ask you for lessons.

ARISTOPHANES, THE CLOUDS (421-418 BC)



JEFFREY SMART, T.S. EUGENIDES, PIRAEUS (1970–71)

In the hermetic books it is written that what is down below is equal to what is on high, and what is on high is equal to what is down below; in the Zohar, that the higher world is a reflection of the lower. The Histriones founded their doctrine on a perversion of this idea. They invoked Matthew 6:12 (“and forgive us our debts, as we forgive our debtors”) and 11:12 (“the kingdom of heaven suffereth violence”) to demonstrate that the earth influences heaven, and I Corinthians 13:12 (“for now we see through a glass, darkly”) to demonstrate that everything we see is false. Perhaps contaminated by the Monotones, they imagined that all men are two men and that the real one is the other, the one in heaven. They also imagined that our acts project an inverted reflection, in such a way that if we are awake, the other sleeps, if we fornicate, the other is chaste, if we steal, the other is generous. When we die, we shall join this other and be him. (Some echo of these doctrines persisted in Léon Bloy.) Other Histriones reasoned that the world would end when the number of its possibilities was exhausted; since there can be no repetitions, the righteous should eliminate (commit) the most infamous acts, so that these will not soil the future and will hasten the coming of the kingdom of Jesus. This article was negated by other sects, who held that the history of the world should be fulfilled in every man.

J.L. BORGES, THE THEOLOGAINS (1947)

We are observing ourselves being observed by the painter, and made visible to his eyes by the same light that enables us to see him. And just as we are about to apprehend ourselves, transcribed by his hand as though in a mirror, we find that we can in fact apprehend nothing of that mirror but its lustreless back. The other side of a psyche. [...] Among all these elements intended to provide representations, while impeding them, hiding them, concealing them because of their position or their distance from us, this is the only one that fulfils its function in all honesty and enables us to see what it is supposed to show. Despite its distance from us, despite the shadows all around it. But it isn't a picture: it is a mirror. It offers us at last that enchantment of the double that until now has been denied us, not only by the distant paintings but also by the light in the foreground with its ironic canvas.

Of all the representations represented in the picture this is the only one visible; but no one is looking at it. [...] It must be admitted that this indifference is equalled only by the mirror's own. It is reflecting nothing, in fact, of all that is there in the same space as itself: neither the painter with his back to it, nor the figures in the centre of the room. It is not the visible it reflects, in those bright depths. In Dutch painting it was traditional for mirrors to play a duplicating role: they repeated the original contents of the picture, only inside an unreal, modified, contracted, concave space. One saw in them the same things as one saw in the first instance in the painting, but decomposed and recomposed according to a different law. Here, the mirror is saying nothing that has already been said before.

MICHEL FOUCAULT, THE ORDER OF THINGS (1966)



RENÉ MAGRITTE, LA REPRODUCTION INTERDITE (1937)

Man is something that shall be overcome. Man is a rope, tied between beast and overman – a rope over an abyss. What is great in man is that he is a bridge and not an end.

F.W. NIETZSCHE, THUS SPOKE ZARATHUSTRA (1883–91)

The late-modern society produces singularities. It does no longer aim at the general, standardized and average solely, but promotes and expects uniqueness. Things, individuals, events, places and communities – everything wants to be special... The result is a competition of attention and evaluation for the status of this uniqueness, the so-called singularity. The result: there are losers and winners. Digital technologies, such as social media platforms and smartphones, are a necessary condition of the process.

ANDREAS RECKWITZ, THE SOCIETY OF SINGULARITIES (2017)

On a map of the world in terms of product or income per head, the rich countries lie in the temperate zones, particularly in the northern hemisphere; the poor countries, in the tropics and semitropics. As John Kenneth Galbraith put it when he was an agricultural economist:

“[If] one marks off a belt a couple of thousand miles in width encircling the earth at the equator one finds within it no developed countries... Everywhere the standard of living is low and the span of human life is short.”

And Paul Streeten, who notes in passing the instinctive resistance to bad news:

“Perhaps the most striking fact is that most underdeveloped countries lie in the tropical and semi-tropical zones, between the Tropic of Cancer and Tropic of Capricorn. Recent writers have too easily glossed over this fact and considered it largely fortuitous. This reveals the deepseated optimistic bias with which we approach problems of development and the reluctance to admit the vast differences in initial conditions with which today’s poor countries are faced compared with the pre-industrial phase of more advanced countries.”

To be sure, geography is only one factor in play here. Some scholars blame technology and the rich countries that have developed it: they are charged with inventing methods suited to temperate climates, so that potentially fertile tropical soil remains fallow. Others accuse the colonial powers of disrupting the equatorial societies, so that they have lost control of their environment. Thus the slave trade, by depopulating large areas and allowing them to revert to bush, is said to have encouraged the tsetse fly and the spread of trypanosomiasis (sleeping sickness). Most writers prefer to say nothing on the subject. One must not take that easy way out. The historian may not erase or rewrite the past to make it more pleasing; and the economist, whose easy assumption that every country is destined to develop sooner or later, must be ready to look hard at failure. Whatever one may say about the weakening of geographical constraints today in an age of tropical medicine and high technology, they have not vanished and were clearly more powerful earlier. The world has never been a level playing field, and everything costs.

DAVID LANDES, THE WEALTH AND POVERTY OF NATIONS (1998)



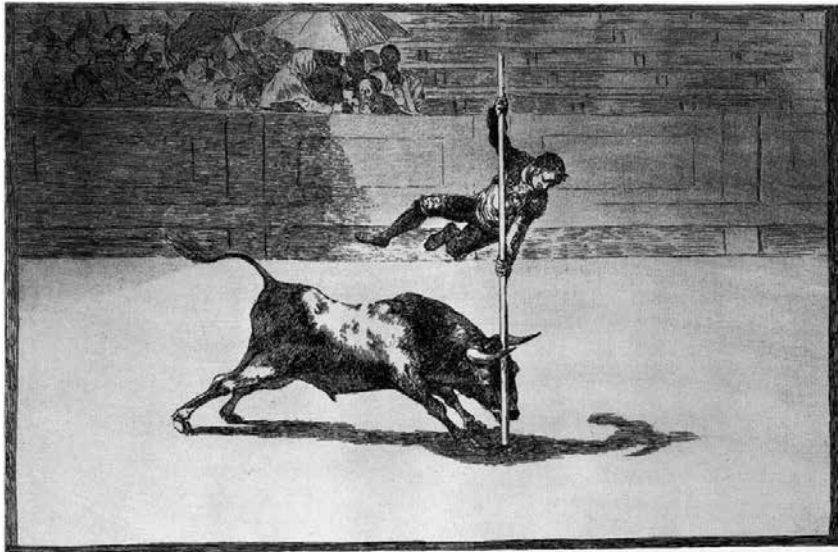
H.P. MOORE, CLIPPERTON ISLAND (~1930)



JOSEPH SCHERSCHEL, LEVITTOWN AERIAL VIEW OF ROWS OF MODEST HOUSES IN NEW HOUSING DEVELOPMENT COMMUNITY (1958)

[...] even though the nomadic trajectory may follow trails or customary routes, it does not fulfill the function of the sedentary road, which is to *parcel out a closed space to people*, assigning each person a share and regulating the communication between shares.

G. DELEUZE & F. GUATTARI, NOMADODOLOGY: THE WAR MACHINE (1986)



FRANCISCO DE GOYA, THE SPEED AND DARING OF JUANITO APIÑANI IN THE RING OF MADRID (1816)

I experience more time than you do.

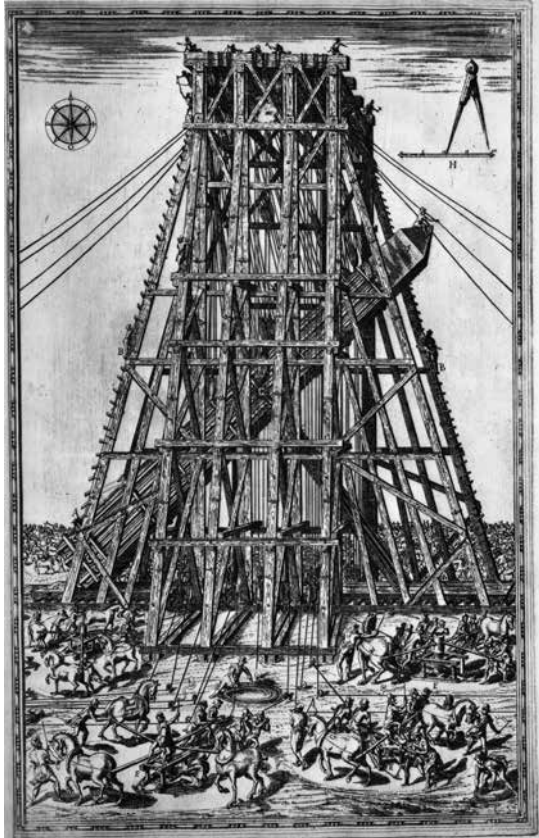
SHUMON BASAR WITH DOUGLAS COUPLAND & HANS ULRICH OBRIST,
THE AGE OF EARTHQUAKES (2015)

I would rather entertain and hope
that people learned something than
educate people and hope they were
entertained.

WALT DISNEY, ENTERTAINMENT (~1950)

Load up on guns, bring your friends
It's fun to lose and to pretend
She's over-bored and self-assured
Oh no, I know a dirty word
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello
With the lights out, it's less dangerous
Here we are now, entertain us
I feel stupid and contagious
Here we are now, entertain us
A mulatto, an albino, a mosquito, my libido
Yeah, hey
I'm worse at what I do best
And for this gift I feel blessed
Our little group has always been
And always will until the end
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello
With the lights out, it's less dangerous
Here we are now, entertain us
I feel stupid and contagious
Here we are now, entertain us
A mulatto, an albino, a mosquito, my libido
Yeah, hey
And I forget just why I taste
Oh yeah, I guess it makes me smile
I found it hard, it's hard to find
Oh well, whatever, never mind
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello, how low
Hello, hello, hello
With the lights out, it's less dangerous
Here we are now, entertain us
I feel stupid and contagious
Here we are now, entertain us
A mulatto, an albino, a mosquito, my libido
A denial, a denial, a denial, a denial, a denial
A denial, a denial, a denial, a denial

NIRVANA, SMELLS LIKE TEEN SPIRIT (1991)



DOMENICO FONTANA, LOWERING OF VATICAN OBELISK (1586)

Nothing is original. Steal from anywhere that resonates with inspiration or fuels your imagination. Devour old films, new films, music, books, paintings, photographs, poems, dreams, random conversations, architecture, bridges, street signs, trees, clouds, bodies of water, light and shadows. Select only things to steal from that speak directly to your soul. If you do this, your work (and theft) will be authentic. Authenticity is invaluable; originality is non-existent. And don't bother concealing your thievery – celebrate it if you feel like it. In any case, always remember what Jean-Luc Godard said: "It's not where you take things from – it's where you take them to."

JIM JARMUSCH, MOVIEMAKER MAGAZINE #53 (2004)

After integration-extraction in a cell, viruses may, due to an error in excision, carry off fragments of their host's DNA and transmit them to new cells: this in fact is the basis for what we call 'genetic engineering'. As a result, the genetic information of one organism may be transferred to another by means of viruses. We could even imagine an extreme case where this transfer of information would go from a more highly evolved species to one that is less evolved or was the progenitor of the more evolved species. This mechanism, then, would run in the opposite direction to evolution in the classical sense. If it turns out that this kind of transferral of information has played a major role, we would in certain cases have to *substitute reticular schemas (with communications between branches after they have become differentiated) for the bush or tree schemas currently used to represent evolution.*

**YVES CHRISTEN, LE RÔLE DES VIRUS DANS L'ÉVOLUTION,
IN: DELEUZE & GUATTARI, THOUSAND PLATEAUS (1975)**



**CHARLES GARNIER, CHÂPITEAU DES PILASTRES INTÉRIEURS DES
LOGGIAS, PALAIS GARNIER (~1875)**



AFFECT, AFFECTIONS
ANALOGIES
AGENT
ARSENAL
ASSEMBLAGE
BEAUTY
BODY
DESIRE
DETOURNEMENT
HISTORY
IMAGE
IMAGES &
PERCEPTION
LEITMOTIF
METAPHORS
MILIEU
MODELS
MONTAGE
MORPHOLOGY
MUSIC
NARRATIVE
NECESSITY
PERCEPT, AFFECT &
CONCEPT
PROJECT
PROJECTILE
REFERENCE
REPertoire
SCENARIO
SIGNS, SYMBOLS &
ALLEGORIES
SITUATION
STORY
SUBLIME

TERRITORY
TIME
TRAIT
TYPE
UTILITY
VALUE

It depends on whoever enters
 Whether I am tomb or treasure
 That I speak or stay quiet
 It is up to you solely
 Friend do not enter without desire.

PAUL VALERY, INSCRIPTION AT THE PALAIS DE CHAILLOT,
 PASSY AISLE, TOWARDS THE EIFFEL TOWER (1937)

AFFECT, AFFECTION

A

Neither word denotes a personal feeling (*sentiment* in Deleuze and Guattari). *L'affect* (Spinoza's *affectus*) is an ability to affect and be affected. It is a pre-personal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act. *L'affection* (Spinoza's *affectio*) is each such state considered as an encounter between the affected body and a second – affecting – body (with body taken in its broadest possible sense to include “mental” or ideal bodies).

GILLES DELEUZE & FÉLIX GUATTARI, A THOUSAND PLATEAUS (1987)

ANALOGIES

When Le Corbusier compared the edifice with a machine he saw an analogy where nobody saw one before. When Aalto compared the design of his organically shaped vases with the Finnish landscape, or his design for a theatre in Germany with a tree stump, he did the same; and when Haring designed with anthropomorphic images in mind he again did just that—seeing an analogy where nobody has seen one before. In the course of the twentieth century it has become recognized that analogy in the most general sense plays a far more important role in architectural design than that of simply following functional requirements or solving pure technical problems. All the constructivist designs for instance, have to be seen as a reference to the dynamic world of machines, factories and industrial components to which they are analogous.

[...]

It has been said that scientific discovery consists in seeing analogies where everybody else sees just bare facts. [...] The analogy establishes a similarity, or the existence of some similar principles, between two events that are otherwise completely different. Kant considered the analogy as something indispensable to extend knowledge. In employing the method of analogy it should be possible to develop new concepts and to discover new relationships.

OSWALD MATHIAS UNGERS, *MORPHOLOGIE, CITY METAPHORS* (1982)

AGENT

agent (n.)

1471 in Ripley's *The Comprehend of Alchemy*, perhaps influenced by Old French *agent*, but probably borrowed from Latin *agentem* (nominative *agens*), present participle of *agere* 'to do, act, lead, drive'.

The Latin *agere* is cognate with Greek *agein* to lead, Sanskrit *ajati* '(he) drives', Tocharian *ak-* 'to travel, lead', and Old Icelandic *aka* 'to travel'—all traceable to the Indo-European base *ag-*, with the meaning "drive".

CHAMBERS DICTIONARY OF ETYMOLOGY

ARSENAL

1 A collection of weapons and military equipment.
1.1 A place where weapons and military equipment are stored or made. 1.2 An array of resources available for a certain purpose.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION

ASSEMBLAGE

[An assemblage] is a multiplicity which is made up of many heterogeneous terms and which establishes liaisons, relations between them, across ages, sexes and reigns—different natures. Thus, the assemblage's only unity is that of co-functioning: it is a symbiosis, a 'sympathy'. It is never filiations that are important, but alliances, alloys; these are not successions, lines of descent, but contagions, epidemics, the wind. [...] An assemblage is never technological; if anything, it is the opposite. Tools always presuppose a machine, and the machine is always social before being technical. There is always a social machine that selects or assigns the technical elements used. A tool remains marginal, or little used, until there exists a social machine or collective assemblage that is capable of taking it into its 'phylum'. [...] How can the assemblage be refused the name it deserves, 'desire'? [...] it is the set of the affects which are transformed and circulate in an assemblage of symbiosis, defined by the co-functioning of its heterogeneous parts.

First, in an assemblage there are, as it were, two faces, or at least two heads. There are the states of things, states of bodies (bodies interpenetrate, mix together, transmit affects to one another); but also utterances, regimes of utterances: signs are organized in a new way, new formulations appear, a new style for new gestures (the emblems which individualize the knight, the formulas of oaths, the system of 'declarations', even of love, etc.) Utterances are not part of ideology, there is no ideology: utterances, no less than states of things, are components and cog-wheels in the assemblage.

[...] There is no assemblage without territory, without territoriality and reterritorializations that includes all sorts of artifices. But is there any assemblage without a point of

deterritorialization, without a line of flight that leads it on to new creations, or else towards death?

[...] Desire is revolutionary because it always wants more connections and assemblages.

[...] Desire is always assembled and fabricated, on a plane of immanence or of composition that must itself be constructed at the same time as desire assembles and fabricates. We do not simply mean that desire is historically determined. Historical determination involves a structural instance to play the role of law, or of cause, as a result of which desire is born. But desire is the real agent, merging each time with the variables of an assemblage. It is not lack or privation which leads to desire: one only feels lack in relation to an assemblage from which one is excluded, but one only desires as a result of an assemblage in which one is included (even if this were an association for banditry or revolt).

[...] The minimum real unit is not the word, the idea, the concept or the signifier, but the assemblage. It is always an assemblage that produces utterances. Utterances do not have as their cause a subject that would act as a subject of enunciation, any more than they are related to subjects as subjects of utterance. The utterance is the product of an assemblage – which is always collective, which brings into play within us and outside us populations, multiplicities, territories, becomings, affects, events. The proper name does not designate a subject, but something that happens, at least between two terms which are not subjects, but agents, elements.

GILLES DELEUZE & CLAIRE PARNET, DIALOGUES (1977)

B BEAUTY

Beauty hates ideas. It is self-sufficient. A work of art is beautiful as someone may be beautiful. This beauty I am

talking about... provokes an erection of the soul. You do not argue about an erection... Our time is drying out by dint of chitchat and ideas.

JEAN COCTEAU, POÉSIE CRITIQUE 1 (1959) TRANS. VOLUPTAS

BODY

The surprising thing is the body...
we do not know yet what a body is capable of...

BARUCH SPINOZA, UNKNOWN (~1670)

DESIRE

D

So we were saying a simple thing: desire concerns speeds and slownesses between particles (longitude), affects, intensities and heccities in degrees of power (latitude). A VAMPIRE – TO SLEEP – DAY – AND – TO WAKE UP – NIGHT. Do you realize how simple a desire is? Sleeping is a desire. Walking is a desire. Listening to music, or making music, or writing, are desires. A spring, a winter, are desires. Old age also is a desire. Even death. Desire never needs interpreting, it is it which experiments.

Then we run up against very exasperating objections. They say to us that we are returning to an old cult of pleasure, to a pleasure principle, or to a notion of the festival (the revolution will be a festival...) [...] And above all, it is objected that by releasing desire from lack and law, the only thing we have left to refer to is a state of nature, a desire which would be natural and spontaneous reality. We say quite the opposite: *desire only exists when assembled or machined*. You cannot grasp or conceive of a desire outside a determinate assemblage, on a plane which is not pre-existent

but which must itself be constructed. All that is important is that each group or individual should construct the plane of immanence on which they lead their life and carry on their business. Without these conditions you obviously do lack something, but you lack precisely the conditions that make desire possible. [...] In retrospect every assemblage expresses and creates a desire by constructing the plane that makes it possible and, by making it possible, brings it about. [...] It is in itself an immanent revolutionary process. It is constructivist, not at all spontaneist. Since every assemblage is collective, is itself a collective, it is indeed true that every desire is the affair of the people, or an affair of the masses, a molecular affair.

GILLES DELEUZE & CLAIRE PARNET, DIALOGUES (1977)

DETOURNEMENT

[...] Any elements, no matter where they are taken from, can be used to make new combinations. The discovery of modern poetry regarding the analogical structure of images demonstrates that when two objects are brought together, no matter how far apart their original contexts may be, a relationship is always formed.

GUY DEBORD & GIL VOLMAN, A USER'S GUIDE TO DETOURNEMENT (1956)

H HISTORY

History does not repeat itself, but it often rhymes.

MARK TWAIN (ATT.), UNKNOWN

For we know it well: in politics, nothing is more thrilling than the desire to start over, to pick up the torch of ancient

struggles as one revives unkept promises. In that case, the past not only enlightens the present, it brightens it with a strong, explosive glimmer, one that, literally, sparks things off. Because time that passed is less an inert sediment than rather a fossil energy, always likely to reactivate itself, and this precipitate that is the accomplishment of the past in the present is called “history”.

PATRICK BOUCHERON, L'HISTOIRE EST L'ART DE RAPPELER AUX FEMMES ET AUX HOMMES LEUR CAPACITÉ D'AGIR EN SOCIÉTÉ - TRIBUNE, LE MONDE (20.07.2019) TRANS. VOLUPTAS

IMAGE

I've always said that, in cinema, there were no images. There is always an image *before* and an image *after*. The Present does not exist in cinema. Monday does not exist. It's always Sunday or Tuesday. And Monday is simply the link between the two. And that is the Image. And even the image does not exist. There is a text by Pierre Reverdy that states: “an image is never strong because it is dreadful or brutal but because the solidarity between the ideas is distant and true.” [...] Everything is always *in between*. The light is always in between day and night, between light and dark... Everything is *in between*...

JEAN-LUC GODARD, CINÉMA DES CINÉASTES (1982) TRANS. VOLUPTAS

IMAGES AND PERCEPTION

Probably all of us remember the story of the man in the moon which occupied our childhood fantasies, producing all sorts of images of an old man, carrying a bundle on his back, and whose face used to change depending on the clarity

of the night. He helped to fulfill secret wishes, and he became the friendly companion of romantic couples. Before human intelligence managed to uncover his secret, he was the subject of so many desires and wishes that he became part of our life while existing only in our imagination.

Not only about the moon, but also about the whole firmament the human mind created a vivid fantasy. It probably took a long time to structure the wide starry sky, and to develop a coherent system within a chaotic reality long before science was capable of calculating and measuring the orbits, the gravity, the intensity of speed of light of the stars and to register relevant data. Before that, understanding was based entirely on imaginative concepts. Instead of a set of facts, knowledge referred to a set of constellations derived from perception. The firmament was filled with figures and images, such as the Orion, Castor and Pollux, the Great Bear, and others. Those stars represented a sensuous reality in the human consciousness. Therefore we might conclude: Reality is what our imagination perceives it to be. In a general sense, an image describes a set of facts in such a way that the same visual perception is connected with the conditions as with the image itself.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

L LEITMOTIF

Proust loved Wagner for the high frequency of the leitmotifs, musical reminiscences that construct a familiar landscape.

MARTHE PEYROUX, MARGUERITE YOURCENAR ET PROUST (1990)
TRANS. VOLUPTAS

METAPHORS

M

In everyday language we are constantly using metaphorical expressions without paying any attention to them. For instance, we talk about the foot of the mountain, the leg of the chair, the heart of the city, the mouth of the river, the long arm of the law, the head of the family and a body of knowledge. We use many words that are vivid metaphors although they exist as common expressions of metaphorical character such as: straight from the horse's mouth, the tooth of time, or the tide of events, a forest of masts, the jungle of the city.

Metaphors are transformations of an actual event into a figurative expression, evoking images by substituting an abstract notion for something more descriptive and illustrative. It usually is an implicit comparison between two entities which are not alike but can be compared in an imaginative way. The comparison is mostly done through a creative leap that ties different objects together, producing a new entity in which the characteristics of both take pars. Designers use the metaphor as an instrument of thought that serves the function of clarity and vividness antedating or bypassing logical processes. "A metaphor is an intuitive perception of similarities in dissimilars", as Aristotle defined it.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

MILIEU

In French, *milieu* means 'surroundings', 'medium' (as in chemistry), and 'middle'. [...] 'milieu' should be read as a technical term combining all three meanings.

GILLES DELEUZE & FÉLIX GUATTARI, A THOUSAND PLEATEAUS (1987)

MODELS

A model is commonly understood as somebody who poses as a prototype representing an ideal form. [...] Generally a model is a theoretical complexity in itself which either brings a visual form or a conceptual order into the components of complex situations. In such a model the external form is the expression of an internal structure. [...] To make a model means to find coherence in a given relationship of certain combinations and fixed dispositions. This is usually done with two types of models, visual models and thinking models. They serve as conceptual devices to structure our experiences and turn them into functions or make them intentional. By means of these two models we formulate an objective structure that turns facts into something more certain and therefore more real. It is nothing else than a formal principle which makes it possible to visualize the complexity of appearances in a more ordered way, and which in reverse is a creative approach to structured reality along the knowledge of a model. Not the least the model is an intellectual structure setting targets for our creative activities, just like the design of models-buildings, model-cities, model-communities, and other model conditions supposedly are setting directions for subsequent actions.

OSWALD MATHIAS UNGERS, *MORPHOLOGIE, CITY METAPHORS* (1982)

MONTAGE

If direction is a look, montage is a heartbeat. To foresee is the characteristic of both: but what one seeks to foresee in space, the other seeks in time. Suppose you notice a young girl in the street who attracts you. You hesitate to follow her. A quarter of a second. How to convey this hesitation? *Mise*

en scène will answer the question “How shall I approach her?” But in order to render explicit the other question, “Am I going to love her?”, you are forced to bestow importance on the quarter of a second during which the two questions are born. It may be, therefore, that it will be for the montage rather than the *mise en scène* to express both exactly and clearly the life of an idea or its sudden emergence in the course of a story. When? Without playing on words, each time the situation requires it, each time within a shot when a shock effect demands to take the place of an arabesque, each time between one scene and another when the inner continuity of the film enjoins with a change of shot the superimposition of the description of a character on that of the plot. This example shows that talking of *mise en scène* automatically implies montage. When montage effects surpass those of *mise en scène* in efficacy, the beauty of the latter is doubled, the unforeseen unveiling secrets by its charm in an operation analogous to using unknown quantities in mathematics. Anyone who yields to the temptation of montage yields also to the temptation of the brief shot. How? By making the look a key piece in his game. Cutting of a look is almost the definition of montage, its supreme ambition as well as its submission to *mise en scène*. It is, in effect, to bring out the soul under the spirit, the passion behind the intrigue, to make the heart prevail over the intelligence by destroying the notion of space in favor of that of time.

J.-L. GODARD, *MONTAGE MY FINE CARE, IN: GODARD ON GODARD* (1986)

MORPHOLOGY

There are three basic levels of comprehending physical phenomena: first, the exploration of pure physical facts; second the psychological impact on our inner-self; and

third, the imaginative discovery and reconstruction of phenomena in order to conceptualize them. If, for instance, designing is understood purely technically, then it results in pragmatic functionalism or in mathematical formulas. If designing is exclusively an expression of psychological experiences, then only emotional values matter, and it turns into a religious substitute. If, however, the physical reality is understood and conceptualized as an analogy to our imagination of that reality, then we pursue a morphological design concept, turning it into phenomena which, like all real concepts, can be expanded or condensed; they can be seen as polarities contradicting or complementing each other, existing as pure concepts in themselves like a piece of art. Therefore we might say, if we look at physical phenomena in a morphological sense, like Gestalten in their metamorphosis, we can manage to develop our knowledge without machine or apparatus. This imaginative process of thinking applies to all human activities though the approaches might be different in various fields. But it is always a fundamental process of conceptualizing an unrelated, diverse reality through the use of images, metaphors, analogies, models, signs, symbols and allegories.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

MUSIC

Music expresses the spiritual, it inspires. When I am blind, music is my little Antigone, it helps to see the unbelievable. [...] I've always wished [...] for music to take over whenever it is no longer necessary to see the image, for it to express something else. What interests me, is to see the music, to try to see what one hears and to hear what one sees.

J.-L. GODARD, IN: J.-L. DOUIN, JEAN-LUC GODARD (1994)

NARRATIVE

N

narrative (n.)

1 a spoken or written account of connected events; a story: *a gripping narrative*. 2 the narrated part of a literary work, as distinct from dialogue. 3 the practice or art of telling stories: traditions of oral narrative: *traditions of oral narratives*. 4 the representation in art of an event of story.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION | MERRIAM WEBSTER

narration (n.)

act of narrating. Probably before 1425 *narracioun* 'act of telling a story or recounting in order the particulars of some action, occurrence, or affair,' also "that which is narrated or recounted, a story, an account of events', in Trevisa's translation of Higden's *Polychronicon*; borrowed from Old French *narration* 'account, statement, a relating, recounting, narrating, narrative tale', and directly from Latin *narration* (nominative *narratio*), 'a relating, narrative', from *narrare* 'relate, recount, explain', from a possible pre-Latin word **gnarare*, related to Old Latin *gnarus* 'knowing, skilled' literally 'to make acquainted with', (also found in IGNORE); further related to *gnoscere*, *noscere* 'TO KNOW'.

CHAMBERS DICTIONARY OF ETYMOLOGY

NECESSITY

Man was created out of desire, not out of necessity.

GASTON BACHELARD, LA PSYCHANALYSE DU FEU (1949) TRANS. VOLUPTAS

P PERCEPT, AFFECT AND CONCEPT

Style in philosophy tends towards these three poles, the concept or new ways of thinking, the percept or new ways of seeing and hearing, the affect of new ways of experiencing. It is the philosophical trinity, philosophy as opera: all three are required to build a movement.

GILLES DELEUZE, POURPARLERS (1972–1990)

[...] – the thing or the work of art—is a bloc of sensations, that is to say, a compound of percepts and affects.

Percepts are no longer perceptions; they are independent of a state of those who experience them. Affects are no longer feelings or affections; they go beyond the strength of those who undergo them. Sensations, percepts, and affects are beings whose validity lies in themselves and exceeds any lived. They could be said to exist in the absence of man because man, as he is caught in stone, on the canvas, or by words, is himself a compound of percepts and affects. The work of art is a being of sensation and nothing else: it exists in itself.

Harmonies are affects. Consonance and dissonance, harmonies of tone or color, are affects of music or painting.

[...] The artist creates blocs of percepts and affects, but the only law of creation is that the compound must stand up on its own. The artist's greatest difficulty is to make it *stand up on its own*. Sometimes this requires what is, from the viewpoint of an implicit model, from the viewpoint of livid perceptions and affections, great geometrical improbability, physical imperfection, and organic abnormality. But these sublime errors accede to the necessity of art if they are internal means of standing up (or sitting or lying).

[...] The three thoughts intersect and intertwine but

without synthesis or identification. With its concepts, philosophy brings forth events. Art erects monuments with its sensations. Science constructs states of affairs with its functions. A rich tissue of correspondences can be established between the planes. But the network has its culminating points, where sensation itself becomes sensation of concept or function, where the concept becomes concept of function or of sensation, and where the function becomes function of sensation or concept. And non of these elements can appear without the other being still to come, still indeterminate or unknown. Each created element on a plane calls on other heterogeneous elements, which are still to be created on other planes: thought as heterogenesis.

GILLES DELEUZE & FÉLIX GUATTARI, WHAT IS PHILOSOPHY? (1968)

PROJECT

project (n./v.)

1 an individual or collective enterprise that is carefully planned to achieve a particular aim. 2 extend outwards beyond something else; protrude. 3 throw or cause to move forward or outward; cause (light, shadow, an image) to fall on a surface; cause (a sound) to be heard at a distance; imagine (oneself, a situation, etc.) as having moved to a different place or time.

ORIGIN: late Middle English (in the sense 'preliminary design, tabulated statement'): from Latin *projectum* 'something prominent', neuter past participle of *proicere* 'thrown forth', from *pro-* 'forth' + *jacere* 'to throw'.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION

PROJECTILE

Projectiles—the inert membranes of fortresses and bunkers, the ‘metabolic bodies’ of soldiers, and transport bodies of naval vessels.

PAUL VIRILIO, *SPEED AND POLITICS* (1977)

R REFERENCE

refer (v.)

About 1830 *referren* ‘trace back, assign, or attribute (something) to a person or thing’; borrowed from Old French *referer*, or directly from Latin *referre* (*re-* ‘back’ + *ferre* ‘take, carry, bear’).

CHAMBERS DICTIONARY OF ETYMOLOGY

reference (n.)

act of referring or fact of being referred; formed from English *refer* + *-ent*. The meaning of a direction to a book, passage, etc., where certain information may be found, is first recorded in 1612.

CHAMBERS DICTIONARY OF ETYMOLOGY

reference (n.)

1 the act of referring or consulting 2 a bearing on a matter: RELATION 3 something that refers: such as, a: ALLUSION, MENTION b: Something (such as a sign or indication) that refers a reader or consulter to another source of information (such as a book or passage) c: Consultation of sources of information 4 One referred to or consulted: such as, a: a person to whom inquires as to character or ability can be made b: a statement of the qualifications of a person seeking employment or

appointment given by someone familiar with the person c: i. a source of information (such as a book or passage) to which a reader or consulter is referred ii. a work (such as a dictionary or encyclopedia) containing useful facts or information d: DENOTATION, MEANING

MERRIAM WEBSTER ENGLISH DICTIONARY

REPERTOIRE

repertoire (n.)

the list of plays, ballets, operas, parts, pieces, etc., that a company, actor, musician, or singer is prepared to perform. 1847, borrowing of French *répertoire*, learned borrowing from Late Latin *repertorium* ‘inventory’.

CHAMBERS DICTIONARY OF ETYMOLOGY

repertory (n.)

1 a: a list or supply of dramas, operas, pieces, or parts that a company or person is prepared to perform b: a supply of skills, devices, or expedients c: a list or supply of capabilities 2 a: the complete list or supply of dramas, operas, or musical works available for performance b: the complete list or supply of skills, devices, or ingredients used in a particular field, occupation, or practice.

OXFORD DICTIONARY OF ENGLISH, 3RD EDITION

SCENARIO

In the beginning, there was no scenario. The scenario was invented by the accountants who needed to know what Mack Sennett had been filming during the day. He filled a sheet of paper: a pair of socks, a car, three cops, a girl in

a bathing suit... And then they added verbs and adjectives: “a girl in a bathing suit loves a cop who owns three cars...” And it was called “scenario”! But it is the money that made the scenario!

J.-L. GODARD, CINÉMA DES CINÉASTES (1982) TRANS. VOLUPTAS

SIGNS, SYMBOLS AND ALLEGORIES

[...] Almost all our communication is based on signs, symbols and allegories which structure most aspects of our daily routine but also are most often carriers of religious and metaphysical systems. [...]

While signs point to something that they represent, as words are artificial signs for ideas and thoughts, symbols are a penetration of mind and image characterized by misery, depth, and inexhaustible interpretation. [...]

The method of allegory is represented in art whenever it emphasizes thematic content and ideas rather than events and facts. The abiding impression left by the allegorical mode is one if indirect, ambiguous and sometimes even emblematic symbolism that inevitably calls for interpretation.

[...] What all that means—thinking and designing in images, metaphors, models, analogies, symbols and allegories—is nothing more than a transition from purely pragmatic approaches to a more creative mode of thinking. It means a process of thinking in qualitative values rather than quantitative data, a process that is based on synthesis alternate as breathing in and breathing out, as Goethe put it. It is meant to be a transition in the process of thinking from a metrical space to the visionary space of coherent systems, from the concepts of homology to the concepts of morphology.

OSWALD MATHIAS UNGERS, MORPHOLOGIE, CITY METAPHORS (1982)

SITUATION

First, we believe that the world must be changed. We desire the most liberatory possible change of the society and the life in which we find ourselves confined. We know that such change is possible by means of pertinent actions.

[...] Our central idea is the construction of situations, that is to say, the concrete construction of momentary ambiances of life and their transformation into a superior passionate quality. We must develop a systematic intervention based on the complex factors of two components in perpetual interaction: the material environment of life and the behaviours which that environment gives rise to and which radically transform it.

GUY DEBORD, REPORT ON THE CONSTRUCTION OF SITUATIONS (1957)

STORY

Sometimes reality is too complex. Stories give it form.

JEAN-LUC GODARD, UNKNOWN TRANS. VOLUPTAS

SUBLIME

Whatever is fitted in any sort to excite the ideas of pain, and danger, that is to say, whatever is in any sort terrible, or is conversant about terrible objects, or operates in a manner analogous to terror, is a source of the sublime; that is, it is productive of the strongest emotion, because I am satisfied the ideas of pain are much more powerful than those of pleasure. Without all doubt, the torments which we may be made to suffer, are much greater in their effect on the body and mind, than any pleasures which the most learned

voluptary could suggest, or than the liveliest imagination, and the most sound and exquisitely sensible body could enjoy. [...] When danger or pain press too nearly, they are incapable of giving any delight, and are simply terrible; but at certain distances, and with certain modifications, they may be, and they are delightful, as we everyday experience.

EDMUND BURKE, A PHILOSOPHICAL ENQUIRY INTO THE ORIGIN OF OUR IDEAS OF THE SUBLIME AND BEAUTIFUL (1757)

T TERRITORY

[...] The territory is in fact an act that affects milieus and rhythms, that ‘territorializes’ them. The territory is the product of a territorialization of milieus and rhythms. It amounts to the same thing to ask when milieus and rhythms become territorialized, and what the difference is between a non-territorial animal and a territorial animal. A territory borrows from all the milieus; it bites into them, seizes them bodily (although it remains vulnerable to intrusions). It is built from aspects or portions of milieus. It itself has an exterior milieu, an interior milieu, an intermediary milieu, and an annexed milieu. It has the interior zone of a residence or shelter, the exterior zone of its domain, more or less retractable limits or membranes, intermediary or even neutralized zones, and energy reserves or annexes. It is by essence marked by ‘indexes’, which may be components taken from any of the milieus: materials, organic products, skin or membrane states, energy sources, action-perception condensates. There is a territory precisely when milieu components cease to be directional, becoming dimensional instead, when they cease to be functional to become expressive. There is a territory when the rhythm has expressiveness. What

defines the territory is the emergence of matters of expression (qualities).

[...] The territory is first of all the critical distance between two beings of the same species: Mark your distance. What is mine is first of all my distance; I possess only distances. Don’t anybody touch me, I growl if anyone enters my territory, I put up placards. Critical distance is a relation based on matters of perception. It is a question of keeping at a distance the forces of chaos knocking at the door.

GILLES DELEUZE & FÉLIX GUATTARI, A THOUSAND PLATEAUS (1987)

TIME

Time must be brought into light—and genuinely conceived—as the horizon for all understanding of Being and for any way of interpreting it. In order for us to discern this, time needs to be *explicated primordially as the horizon for the understanding of Being, and in terms of temporality as the Being of Dasein, which understands Being.*

MARTIN HEIDEGGER, BEING AND TIME (1927/1962)

Indeed, nothing dies, everything exists always; no force can extinguish what once was. Every action, every word, every form, every thought fallen into the universal ocean of things sets circles off, that ripple out into eternity. Material figuration disappears only for vulgar eyes, and the phantoms that detach themselves inhabit the infinity. Paris continues to kidnap Helen in some unknown region in space.

THEOPHILE GAUTIER, ARRIA MARCELLA (1852) TRANS. VOLUPTAS

TRAIT

The word *trait* has a range of meanings not covered by any single word in English. Literally, it refers to a graphic drawing, and to the act of drawing a line. Abstractly, it is the purely graphic element. Figuratively, it is an identifying mark (a feature, or trait in the English sense), or any act constituting a mark or sign. In linguistics, “distinctive features” (*traits distinctifs* or *traits pertinents*) are the elementary units of language that combine to form a phoneme. *Trait* also refers to a projectile, especially an arrow, and to the act of throwing a projectile.

GILLES DELEUZE & FÉLIX GUATTARI, *A THOUSAND PLATEAUS* (1987)
(NOTES ON THE TRANSLATION AND ACKNOWLEDGMENTS)

TYPE

[...] not only will the portrait of a woman by a great artist not seek in the least to give satisfaction to various demands on the woman’s part... It will, on the contrary, emphasize those very blemishes which she seeks to hide, and which (as for instance a sickly, almost greenish complexion) are all the more tempting to him since they show “character” [...] Fallen now, situated outside her own type in which she sat unassailably enthroned, she is now just an ordinary woman, in the legend of whose superiority we lost all faith. We are so accustomed to incorporating in this type not only the beauty of an Odette but her personality, her identity, the standing before the portrait that has thus stripped her of it we are inclined to protest not simply “How plain he has made her” but “Why, it isn’t the least bit like her!” And yet there is a person there on the canvas whom we are quite conscious of having seen

before. But that person is not Odette; the face of the person, her body, her general appearance seems familiar. They recall to us not this particular woman who never held herself like that, whose natural pose never formed any such strange and teasing arabesque, but other women, all the women whom Eltsir has never painted, women, whom invariably, however they may differ from one another, he has chose to plant thus, in full face, [...] a large round hat in one hand, symmetrically corresponding, at the level of the knee which it covers, to that other disc, higher up in the picture, the face.

MARCEL PROUST, *À L'OMBRE DES JEUNES FILLES EN FLEUR* (1919)

UTILITY

U

CYRANO *He raises his sword.*

What say you? It is useless? Ay, I know!

But who fights ever hoping for success?

I fought for lost cause, and for fruitless quest!

EDMOND ROSTAND, *CYRANO DE BERGERAC, ACT V, SCENE 6* (1897)
TRANS. VOLUPTAS

VALUE

V

Nowadays people know the price of everything, and the value of nothing.

OSCAR WILDE, *THE PICTURE OF DORIAN GRAY* (1891)

But the true travellers are those who go
Only to get away: hearts like balloons
Unballasted, with their own fate aglow,
Who know not why they fly with the monsoons:

Those whose desires are shaped like clouds.
And dream, as raw recruits of shot and shell,
Of mighty raptures in strange, transient crowds
Of which no human soul the name can tell.

ARISTOTLE, NICOMACHEAN ETHICS
(~340 BC)

PETER ATKINS, CONJURING THE
UNIVERSE (2018)

JEAN BAUDRILLARD, THE ILLUSION
OF THE END (1994)

JOACHIM BAUER, DAS GEDÄCHTNIS
DES KÖRPERS (2004)

HENRI BERGSON, CREATIVE EVOLUTION
(1911)

HORST BREDEKAMP, SANKT PETER
IN ROM UND DAS PRINZIP DER
PRODUKTIVEN ZERSTÖRUNG (2008)

EDMUND BURKE, A PHILOSOPHICAL
ENQUIRY ON OUR IDEAS OF THE
SUBLIME AND THE BEAUTIFUL (1757)

DAVID CASS & KARL SHELL,
DO SUNSPOTS MATTER (1983)

MICHEL CHION, GUIDE TO SOUND
OBJECTS, PIERRE SCHAEFFER AND
MUSICAL RESEARCH (1972)

GILLES DELEUZE & FÉLIX GUATTARI,
THOUSAND PLATEAUS (1980)

RICHARD FEYNMAN, THE FEYNMAN
LECTURES ON PHYSICS (1964)

MICHEL FOUCAULT, THE ORDER OF
DISCOURSE (1971)

MICHEL FOUCAULT, THE ORDER OF
THINGS (1966)

GEORGE GREENSTEIN, QUANTUM
STRANGENESS (2019)

YUVAL NOAH HARARI, SAPIENS (2015)

DAVID HUME, A TREATISE OF HUMAN
NATURE (1738–40)

REM KOOLHAAS, DELIRIOUS NEW YORK
(1976)

ROSALIND KRAUSS, GRIDS (1979)

GEORGE PEREC, AN ATTEMPT AT
EXHAUSTING A PLACE IN PARIS (1975)

TOM F. PETES, AN AMERICAN CULTURE
OF CONSTRUCTION (1989)

MARCEL PROUST, CITIES OF THE PLAIN
(REMEMBRANCE OF THINGS PAST)
(1906–22)

HELEN ROSENAU, THE IDEAL CITY (1959)

CARLO ROVELLI, THE ORDER OF TIME
(2017)

COLIN ROWE, THE MATHEMATICS OF
THE IDEAL VILLA (1976)

SAINT AUGUSTINE, DE MUSICA
(~387–391)

TOMÁŠ SEDLÁČEK, ECONOMICS OF
GOOD AND EVIL (2011)

TZVETAN TODOROV, POETICS OF PROSE
(1977)

OSCAR WILDE, THE PICTURE OF DORIAN
GRAY (1890)

VIRGINIA WOOLF, THE WAVES (1931)

WOODY ALLEN, ZELIG (1993)

ROBERT ALTMAN, SHORT CUTS (1993)

THOM ANDERSEN, LOS ANGELES PLAYS ITSELF (2003)

PAUL AUSTER & WAYNE WANG, SMOKE (1995)

SAMUEL BECKETT, BECKETT DIRECTS BECKETT: WAITING FOR GODOT (1985)

PETER COLLISON, THE ITALIAN JOB (1969)

RICHARD FLEISCHER, SOYLENT GREEN (1973)

JEAN-LUC GODARD, 2 OU 3 CHOSES QUE JE SAIS D'ELLE (1967)

GEORGE ROY HILL, THE STING (1973)

JOHN HUGHES, THE BREAKFAST CLUB (1985)

ALEJANDRO GONZALEZ INARRITU, AMORES PERROS (2000)

JIM JARMUSCH, NIGHT ON EARTH (1991)

OTOMO KATSUHIRO, AKIRA (1988)

FRITZ LANG, METROPOLIS (1927)

DAVID LYNCH, LOST HIGHWAY (1997)

TERRENCE MALICK, THE THIN RED LINE (1998)

CHRIS MARKER, LA JETÉE (1962)

GEORGE MILLER, MAD MAX: FURY ROAD (2015)

ADAM MCKAY, THE BIG SHORT (2015)

HAROLD RAMIS, GROUNDHOG DAY (1993)

ALAIN RESNAIS, MON ONCLE D'AMERIQUE (1980)

ALAIN RESNAIS, L'ANNÉE DERNIÈRE À MARIENBAD (1961)

TOM TYKWER, LOLA RENNT (1998)

LUCHINO VISCONTI, IL GATTOPARDO (1963)

ORSON WELLES, F FOR FAKE (1973)



FRANZ VON STUCK, *DIE SÜNDE* (1883)

ELEGY MADE IN 2018

Lament for an architectural project

Elegy derives from the book *Histoire(s) du cinéma*, published by Gallimard in 1998 after the completion of Jean-Luc Godard's eight-part video project (1988–98), which met with controversial critical acclaim. Composed almost entirely of visual, textual and auditory quotes, *Histoire(s) du cinéma* poetically assimilates the course of the twentieth century to the history of the movie industry, merging fiction and documentary in a speculative and intricate allegory.

The following content effects a deliberate selection of sonnets and stages an opportunistic *détournement* of the original: it therefore claims no authorship as all aphoristic sources have been intentionally chosen to serve a reducing purpose in a specific field, namely that of the architectural project. As a result, quotes have been accordingly redistributed in a new purposeful sequence, partly edited or augmented in order to promote a less cryptic content, yet without withholding the poetic motives of the original text.

don't show
every side of things

allow yourself
a margin of indefiniteness

cities of desires
and people would see
that the world is there
a world still almost without a history
yet a world that tells stories

but instead of uncertainty
in order to establish idea and sensation
the two great stories were
form and function

stories of beauty and performance
architecture is not part of
the communication industry
or entertainment
as a silent margin of life
it is part of cosmetics
a minor branch of the industry of lies

the city
like christianity
is not founded
on historical truth
it supplies us with a story
and says
now believe

don't have faith
in this story
as you do in History
but believe
come what may

all these stories
now mine
how can I tell them
show them perhaps

and norm
was invented
a minor mafia
accountant had
to put some order
in the brainwaves of
architects

l'Esprit Nouveau
Ozenfant
gave the idea to
Le Corbusier
the project fell
under the guillotine
of reason
and never got back up

night
has come
another world rises
purposeless
as if one had suppressed
the perspective
the vanishing point

if an image
separately looked upon
clearly expresses something
and involves interpretation
if it does not exceed significance
it will not be transformed
on contact with other images
other images
will have no authority over it
neither action
nor reaction
no insight
sight avails

an image
is not strong
because it is brutal
or fantastic
but because
the association of ideas
is distant
distant and just
or simply
if it still
involved a text
but was not about
determining texts
on a word
but an idea
or an intention
or a movement
or a usage
or a relationship

who needs understanding
this is
what I like
in architecture
a saturation of
magnificent signs
bathing
in the light
of their absence
of explanation

one needs a day
to tell
the history of a second
one needs a year
to tell
the history of a minute
one needs a life
to tell
the history of an hour
one needs an eternity
to tell
the history of a day
one can do everything
except the history of
what one is doing

we live
in a system
in which everything
can be done
except the history of
what is being done
everything can be
completed
except the history of
this completion
the product
as only end
the captive process

somewhere else
men fight for a society
in which
they would not be
slave to money
you can't understand
living
not to make money
listening to sirens of our time
I begin to understand
but this obsessiveness

ever think of anything else
of love
no never
if property was
the original sin of capitalism
to have and not to be
reason is the original misdeed
of Western architecture
summer 1989 its redeemer
when I admire a project
I am told
it is nice
but it is not architecture

design dessein
draft dessin
design is now dessin
mystification

equality
and fraternity
between the real
and the fictional

who is out of work
some times has
too many hands
and too few hearts
yes times without heart
but not without work
when an era is sick
and lacks work
for all hands
it addresses us a new exhortation
the exhortation
to work with our hearts
instead of
using our hands
I know no era
that lacked work
for all
its hearts

this is the worry of the people
it is not material
at first
it is a concern
of heart and spirit
born of the defiance of the other
I do not believe in answers
but in the plea of questions
let us consider the time
the places we live in
our precise locations
and their resulting call
and then
let us judge

a world divided in two
those with possibilities
but not knowing what to do
with their freedom
and those who have
undergone revolution
and have freedom of opinion
that is
the right to complain
but without deep-felt passion
where misery is at the door
and all one can do
is wait
ugly winners
magnificent losers

strangest of all
the living dead of this world
are constructed
on the former world
their reflections
and sensations
are from before

the Incredulity
of Saint Thomas
who needs
to touch
to believe
gazing in the distance
has he lost sight
blasphemy to the miracle
Caravaggio had warned us
we are now left
with incredulous apostles
misery

misery
last argument
ultimate basis of modern community
the backdrop of all our
dramas
thoughts
and actions
and even our utopias
the essential is not
what the despotism
of an opinionated majority
dictates
it is not material necessity
it is a higher truth
at the level of man
and I might add
within man's reach

it is time that thought
becomes
what it truly is
dangerous for the thinker
and able to transform
reality
“Where I create
is where I am true”
wrote Rilke

some think
others act
but man's true condition
is to think with his hands

I will not denigrate
our tools
but I would like them
to be usable
if it is true
that the threat is not in our tools
but in the cowardice
of our hearts
a thought which abandons itself
to the rythm of its own mechanisms
proletarianizes itself

such a thought
no longer lives
of its own creation
man is formed by others
who are the others
they are the laws
born of
the abandonment of
thought
who is responsible
not the parties
not the classes
not the governments
it is men
one by one

so
 the project
 you see now
 what to say about it
 life is the subject
 speed
 and trajectory
 its attributes
 if we are broad-minded
 then time its territory
 life a beginning of life
 like Euclid's parallel lines
 is a beginning of
 geometry
 the life itself
 one would like to blow out
 of proportions
 to make it admired
 or reduced
 to its basic elements
 for earth dwellers
 the life itself
 one would hold prisoner

I am
 the fugitive enemy of
 our times
 the mechanically applied
 totalitarianism of
 the present
 every day more oppressive
 on a planetary scale
 this faceless tyranny
 that erases all desires
 for the systematic organization of
 the unified time of
 the moment
 this global
 abstract
 tyranny
 which I try
 to oppose
 from
 my fleeting
 point of view



US AIR FORCE, SPECTATORS TO DOG TEST IN OPERATION GREENHOUSE (1995)

To chase a never-reached mirage
Across the hot, white sand,
And choke and die, while gazing on
Its green and watered strand.

JAMES WELDON JOHNSON, VOLUPTAS (1917)

