What is the Style of Matters of Concern?

Bruno Latour

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ISBN 978 90 232 4379 3

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2008 Van Gorcum

ISBN 978 90 232 4379 3

The Department of Philosophy of the University of Amsterdam presented the Spinoza Lectures by Bruno Latour in April and May 2005.

Design: Anneke de Bruin, Amsterdam
Cover: Crasborn, Valkenburg a.d. Geul
Printing: Royal Van Gorcum, Postbus 43, 9400 AA Assen

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Spinoza Lecture I

Nature at the Cross-roads: the Bifurcation of Nature and its End

"We find ourselves in a buzzing world, amid a democracy of fellow creatures; whereas, under some disguise or other, orthodox philosophy can only introduce us to solitary substances, each enjoying an illusory experience."

Whitehead, Process and Reality, p. 50

"Why theology? Because the first must be first,
And first is the notion of truth
It's poetry precisely
With its behavior of a bird thrashing against the transparency
Of a windowpane that testifies to the fact
That we don't know how to live in a phantasmagoria.
Let reality return to our speech."[1]

And yet we seem to know very well how to live in a phantasmagoria and it seems more and more difficult to "let reality return to our speech". Why is this so? Probably because we have difficulty associating truth and poetry. Is it not poetry itself that allows us to "escape" from the harsh truth conditions of referential language? What forces us to suspend belief and disbelief and enjoy the sheer beauty of language, independently, so the formalists say, of any acquaintance, any association with reality? And yet Milosz asks us to follow the movement of a bird, a bird, he says who has the strange behaviour of "thrashing against the transparency of a windowpane".

This must have happened to you, surely: you hear the fluttering noise of a bird, who by some mistake, some strange conduit, has become a prisoner of the room where you are sitting; desperate to escape, he comes thrashing against the windowpane, which he takes, mistakenly, for the open sky, unaware as he is of the human invention of transparent glass. What do you do then? You try to open the window without frightening him.

1 Milosz, Czeslaw. "A Theological Treatise". *Spiritus: A Journal of Christian Spirituality,* Volume 2, Number 2, Fall 2002, The Johns Hopkins University Press, pp. 123-204.
The first part of the poem entitled A Young Man reads:
"A young man couldn't write a treatise like this,
Though I don't think it is dictated by fear of death.
It is, simply, after many attempts, a thanksgiving.
Also, perhaps, a farewell to the decadence
Into which the language of poetry in my age has fallen."

Can we, too, open the window and follow the poet who directs us to carefully follow the behaviour of the bird?

The difficulty of becoming, in effect, the ethologist of such behaviour, of such a bird, of such poetry, of such an escape toward reality, comes, as I will argue in these two lectures, from a strange philosophy invented somewhere in the 17th century which has made it impossible to "let reality return to our speech".

The diagnosis of this philosophy has been discussed by Alfred North Whitehead under the name of the "bifurcation of nature":

> "What I am essentially *protesting* against, he says, is the bifurcation of nature into two systems of reality, which, in so far as they are real, are real in different senses. One reality would be the entities such as electrons which are the study of speculative physics. This would be the reality which is there for knowledge; although in this theory it is never known. For what is known is the other sort of reality, which is the byplay of the mind. Thus there would be two natures, one is the conjecture and the other is the dream."[2]

Now Whitehead was the quietest and the most urbane and polite of philosophers; so when he "protests" you should take that as a typically British understatement and hear instead an ear splitting scream of indignation! Why? Because the result is to make impossible the *truth* of poetry, as well as, as we will see later, the *realism* of science:

> "Bodies are perceived as with qualities which in reality do not belong to them, qualities which in fact are purely the offspring of the mind. Thus nature gets credit which should in truth be reserved for ourselves; the rose for its scent; the nightingale for his song; and the sun for his radiance. The poets are entirely mistaken. They should address their lyrics to themselves, and should turn them into odes of self-congratulation on the excellence of the human mind. Nature is a dull affair, soundless, scentless, colorless; merely the hurrying of material, endlessly, meaninglessly."[3]

2 Alfred North Whitehead. (1920). "Concept of Nature." Cambridge: Cambridge University Press, p. 30.

3 Alfred North Whitehead. (1925[1967]). "Science and the Modern World." New York: Free Press, p. 72.

In a nature that as bifurcated, it's in vain that the nightingale sings: the singing is entirely in our mind, or even in our brain. If we could look directly at nature (I will come back to that way of looking in the second lecture), it would be soundless: the throat of the nightingale would simply agitate the air, the waves of which will strike our eardrums triggering some electric effects in our neurons, and somewhere in the auditory folds of our cortex a pure invention will emerge which has no correspondence whatsoever with anything of a similar tone in nature: the song of the soundless nightingale.

I don't know if Milosz's bird, the bird to which he compared the obstinacy of poetry and its will to escape the prison of language, was a nightingale or not. But surely, if Whitehead's diagnosis is right, in the philosophy that has been developed around a bifurcated nature, the bird will come thrashing against a transparent windowpane and there is not the slightest chance for reality "to return to our speech": the world is made of primary qualities for which there is no ordinary language but that of science – a language of pure thought that nobody in particular speaks and which utters law from nowhere; as to ordinary language, it deals with secondary qualities which have no reality. On the one hand there is nature which is real, but is a "dull and meaningless affair, the hurrying of material endlessly"; on the other hand there is the lived world of colours, sounds, values, meaning, which is a phantasmagoria of our senses but with no other existence than in the circumvolution of our brain and the illusions of our mind.

In this philosophical world, how could we follow Milosz's appeal if the poets, as Whitehead amusingly suggests, have to devise "odds to themselves"? Far from having the behaviour of a bird thrashing of a windowpane, poetry should rather accept its limits and habituate us to "live in phantasmagoria". Instead of behaving as if they could grasp reality, poets should rather help us say things like: "O my temporal lobe how beautiful you are, and you my cochlear nucleus how clever you are to make me hear the nightingale, and you my olfactory bulbs how nice of you to invent the smell of the roses, and you my nicely moist striate cortex, how elegant of you to let me feel the splendour of a sunset when there is nothing more than the connections between my hypothalamus and my cerebellum"… Exit the poets, enter the neuroscientists.

And yet Whitehead, even more forcefully than Milosz, suggests that we'd better believe the poets. Even though philosophers have, for three centuries now, tried to make us live in phantasmagoria, we, I

mean we the common sense folk, have never believed them and have never abandoned the idea of "letting reality return to our speech". But for this obstinate reaction, for this obdurate attempt to escape from the prison of being registered in any way, we first have to redress the bifurcation of nature.

I know this is difficult, so difficult indeed that it might explain why the attempts of Whitehead have been so thoroughly abandoned by most philosophers after him. Actually he was so well aware of this difficulty that in the preface of the Concept of Nature he warned his reader by saying: "It is, perhaps, as well to state explicitly that if the reader indulges in the facile *vice* of bifurcation not a word of what I have here written will be intelligible." I am afraid that this warning applies to my two lectures as well: the difficulties do not come only from what I am going to say – although I am ready to take my fair share of blame – but also because my listeners (I am afraid that this is *you*) might have indulged in the "facile vice" of letting nature bifurcate. And I would say the more philosophically literate you are, the more this vice passes for a virtue, indeed for the greatest virtue of thinking like a philosopher – a modernist philosopher, that is – instead of simply clinging to common sense. (If you complain that you have never indulged in this vice then think for a moment whether the reason might not be that you take the bifurcation so thoroughly for granted that you have accepted working on *one side* of it without ever realizing that you have abandoned half of what "is given into experience").

Anyway, it's no exaggeration to say that since the time of Galileo and Locke – the inventors of the distinction between primary and secondary qualities – all the way up to contemporary so called "cognitive science", a large part of what it is to be a philosopher consists in deriding common sense because it believes naively that the nightingale sings, the rose has an odour, the sunset is red and that reality has never left speech. "Poor folk," we seem to tell them with an amused and condescending smile, "you have forgotten that *no resemblance* exists between primary qualities, the dull and senseless stuff out of which nature is really made and the secondary qualities with which you add a meaningless and arbitrary meaning to the senseless and meaningless hurrying of matter." Since the time of Locke, philosophers, in the name of what I call the "first empiricism", have forced upon common sense a rather stark choice between *two* types of meaninglessness: either the meaninglessness of senseless but real nature; or the meaninglessness of meaningful but unreal values.

Forced to impose this amazing choice, this bifurcation, is it really surprising that philosophy, the bearer of such bad news, goes from crisis to crisis and triggers in ordinary people a sort of well founded suspicion? "Who are those guys who give me no choice about the way to live except for throwing myself either into 'conjecture' or into 'dream', that is, into meaninglessness one or meaninglessness two." And the common folk keep insisting: "Why can't I say that I hear the nightingale, that I smell the rose, and that the sunset is red without, for that reason, losing the science of ethology, the chemistry of odours and the spectral lines of solar physics?" Would it not be a poor philosopher, the one who will retort to this brave and insistent appeal: "Because you have to learn to live in phantasmagoria, make the best of it, forget that speech can articulate truth; reality is one thing, meaning another; become adult at last; shut the window and be content to look at the desolate spectacle of the dull world as it is reflected through the fully opaque windowpane of your well sealed prison".

And yet the bird keeps on having the behaviour of thrashing against this windowpane, and the poets are proved right against the philosophers, or, rather, we have to follow those rare philosophers who accept that they must follow the poets in their relentless quest for reality.

How can we do this? Whitehead tells us: by not letting nature bifurcate, that is by not letting the primary and secondary qualities go their separate ways. The reception of Whitehead's cosmology over the last century is proof enough that this is not an easy matter. So how can I do my little bit to help, with my feeble resources, to make it impossible for philosophy to deride common sense in the way I have just mockingly suggested?

I want to try this impossible feat by tackling the problem via its two opposite ends: the social first, and then the natural.

Imagine the following scene: you are trying to build a bridge over a rather tumultuous river. Let's say that one bank of this river is the "social" and the other, far away, inaccessible, separated by a violent current, by many eddies and dangerous rapids, is the "natural". Now suppose that, instead of trying to cross this river and build this bridge, you decide instead to go with the flow, that is, to get involved in a bit of canoeing, kayaking or rafting. Then the absence of a bridge is not such a problem. What counts is your ability to equip yourself with the right paraphernalia so that you can go down the river without drowning yourself. You might be scared to get into the turbulent

river, you might regret the task of bridge building, but you will probably agree that the two riverbanks are bound to look rather different once you apprehend both of them from the point of view of such a kayaking movement forward. This flowing lateral direction, turned at 90° from the obsessive question of bridge building, is, if I am not mistaken, what William James has called "pure experience".

What I invite you to participate in is a little bout of kayaking, or rafting – and also, I am afraid, a bit of drifting. My question is: what will happen if, instead of trying to bridge the distance between words and worlds, we were trying to move sideways along with the various elements that appear to go in the same direction? What would happen to the "senseless hurrying of matter" called nature if we were to go in the same direction? Would it be as senseless as before? What would happen to the so-called secondary qualities if they were viewed as being that which allows us to grasp the other entities with which we keep moving? Would they appear as "secondary", their meaning as devoid of any importance and reality as before? My intuition is rather that the two riverbanks would take on an entirely different meaning and that nature, having stopped bifurcating because of the way you have let it *pass*, ("passage of nature" is another Whitehead's expression) will be now able to mingle with our speech and other behaviours in many more interesting connections. This is, at least, the way I would advertise the kayak trip before you embark on it – it's for you to tell me at the end if I have committed the sin of false publicity...

So tonight I will start from one bank, the 'social' one and, in the next lecture, I will start from the other. The social sciences too have their Whitehead: his name is Gabriel Tarde, he lived at the end of the 19th century, was first a judge, then a criminologist and then the most famous sociologist in France.[4] However his refoundation of French sociology has been even more thoroughly buried than Whitehead's renovation of speculative philosophy. What is of interest for me, in this first lecture, is that Tarde, an attentive reader of Darwin and Marx – among countless others – makes no attempt, at any point in his sociology to distinguish human from natural *societies* – nor does he make, and this is of course important for me, any distinction between social sciences and philosophy as is clear in his recently

4 Bruno Latour. (2002). "Gabriel Tarde and the End of the Social", in Patrick Joyce (edited by) *The Social in Question: New Bearings in History and the Social Sciences*. London: Routledge.

republished book *Monadologie et Sociologie,* a book which had a crucial influence on Gilles Deleuze. I quote:

> "…this means that every thing is a society and that all things are societies. And it is quite remarkable that science, by a logical sequence of its earlier movements, tends to strangely generalize the notion of society. It speaks of cellular societies, why not of atomic societies? not to mention societies of stars, solar systems. All of the sciences seem fated to become branches of sociology."[5]

What is important for my purpose here is that Tarde is one of those philosophers *qua* scientists who goes with the flow, moves sideway, does not try to bridge some imaginary gap between a symbolic order – that of humans – and the material world out there. He is out there from the start, moving through the eddies and immersed in the stream of associations (it's not by accident that he was the predecessor of Bergson at the Collège de France since bergsonian "durée" has obviously some – only some – of the characters of the flow I am trying to descend into with you tonight).

When Tarde begins with societies and extends the notion to every group of agencies, this does not mean that he is *naturalizing* human societies; he is too much of a reader of Darwin to indulge in any *social* Darwinism and this for a reason that goes already at the heart of our question: social Darwinism is impossible because organisms are already societies and highly complex ones. Here we begin to see the advantage of *kayaking* over *bridging:* naturalisation is what happens when you try to transport, to transfer the "senseless hurrying of matter" from the nature bank to the social or human side. That is when you treat the human with the strange notion of primary qualities handed down to you by the *already* bifurcated nature. It is because of this treatment that humanists of all hues and colours, recoil in horror, and rightly so. They clearly see the imposture of treating humans as objects – but what they don't realize is that it is also an imposture to treat objects as *objects,* that is to reduce the maintaining in existence of organisms to the "dull hurrying of nature". (More of this in the next lecture). What is important to remember is that bifurcation is unfair to *both* sides: to the human and social side as well as to the

5 Gabriel Tarde. (1895/1999). "Monadologie et sociologie", [Monadology and sociology]. Paris: Les empêcheurs de penser en rond, [Barriers to circular thinking], p. 58.

non-human or 'natural' side – a point always missed by phenomenologists.

For now the question is as follows: how do things look when you begin to move sideways and go with the flow? You quickly realize that all societies share some common features: they are never faced with the rather absurd choice of hurrying forward without any sense or of adding meaning without reality – only the bridge makers are faced with this choice. No, they have another entirely different set of decisions to make: they have to repeat themselves in existence, to oppose one another in order to proceed forward, or to adapt to one another by differing from one another no matter how slightly. "Repetition", "opposition" and "adaptation" are the three "social laws" that are common, according to Tarde, to everything that moves forward in the same direction and that he calls "societies".

But remember that society is not a word specifying in advance the *type* of associations – as if human societies were different from plant, plankton, stellar or atomic societies – only that it's necessary to associate with others in order to remain in existence. Contrary to the classical c*onatus,* which is the persistence of being through substance, Tarde defines conatus as the persistence through *difference.* Any society has to 'buy', if I may say that, its continuation in existence through the exploration of new types or new degrees of difference. "Exister c'est différer", such is Tarde's redefinition of *conatus.*

> "To exist is to differ; difference, in one sense, is the substantial side of things, what they have most in common and what makes them most different. One has to start from this difference and to abstain from trying to explain it, especially by starting with identity, as so many persons wrongly do. Because identity is a minimum and, hence, a type of difference, and a very rare type at that, in the same way as rest is a type of movement and the circle a type of ellipse."[6]

To persist in being, you cannot count on a substance, a substrate behind your properties or qualities that would allow you to subsist indefinitely per *inertia* so to speak. Substance has become *subsistence* not substrate.[7] On the contrary, you have to persist by having

6 Gabriel Tarde. (1895/1999). "Monadologie et sociologie" [Monadology and sociology], p. 73.

7 Alfred North Whitehead. (1925[1967]). "Science and the Modern World." p. 134.

new properties in the renewed sense Tarde gives to this tired little word. In an amazing feat of sociological metaphysics, Tarde proposes replacing "being" by "having":

> "So far, all of philosophy has been founded on the verb To be, whose definition seemed to have been the Rosetta's stone to be discovered. One may say that, if only philosophy had been founded on the verb To have, many sterile discussions, many slowdowns of the mind, would have been avoided. From this principle 'I am', it is impossible to deduce any other existence than mine, in spite of all the subtleties of the world. But affirm first this postulate: 'I have' as the basic fact, and then the had as well as the having are given at the same time as inseparable."[6]

See the change of perspective? A philosopher can write l'Etre et le Néant, Being and Nothingness, but there is no sense in writing Having and Nothingness.

So what does the front line of this current, this stream forward, look like now? It's made up of what could be called "betting organisms having differences among themselves", provided you accept the use of the word organism as a synonym of societies, that is, provided you extend the difficulty of being to all organisms, to the so-called material, biological ones as well as the so-called social ones. Those betting organisms have *trajectories* which define what they have been and what they might become *if* they manage to persist by exploring enough differences. Sociology (conceived by Tarde as a really general science) becomes the documentation of those trajectories, or those networks, to use my own expression, what is transported, sent, carried over, enunciated, from one moment to the next, from one site to the next, from one actant to the next. Tarde is still known, at least in the United States, for having studied one of these trajectories quite thoroughly: imitation. But I won't deal with this now.

I hope you realize already, I will come back to this in a minute, that the relations of a nightingale, the potential mates of the night-

This is at the heart of what I call "être en tant qu'autre" (being qua other) and not "être en tant qu'être" (being qua being): "The point is that the enduring organisms are now the outcome of evolution; and that, beyond these organisms, there is nothing else that endures. On the materialistic theory, there is material – such as matter or electricity – which endures. On the organic theory, the only endurances are structure of activity, and the structures are evolved."

ingale, the poet, the common listener and, let's add it now, the bird ethologist with her recording equipment, will be rather different if they are all seen as moving forward, as so many betting organisms, each of them entering into relations in order to *have* enough differences to prolong their existence a bit longer. This shift in the orientation of philosophy, no matter how small, might offer a better chance for the bird to escape from the room inside which, since the beginning of this lecture, he has been doing nothing, according to Milosz, but "thrashing helplessly against the transparent windowpane".

You will have also noticed I am sure, that this type of relations, what Tarde calls societies, are impossible to detect for those who are carrying on the bridge building engineering feat – and there's no question about that: it's a feat. This is the sort of change between incompatible viewpoints that relativity theory has rendered familiar to us with its little anecdotes of a falling body viewed from an embankment and the same falling body viewed from the inside of a train carriage. Except here the different accounts are irreconcilable: from the bridge nothing is seen except the passage of a violent stream which has to be deflected by the throwing of sturdy pillars. The only question for the bridge engineers is to decide whether or not with a word I can reach a reference "out there", on the other bank, in the world. The grave question is to know if one can *escape* the constraints of one social and linguistic limitation in order to jump to the other bank through this *salto mortale* – to use James' mocking expression. This relation, the bridge one, is a zero sum game: either you are on one bank or you are on the other: the more you remain close to language, the further away you are from reference; the further away you are from the "nature" bank, the freer you have become from the "limitations" of language. But along the flow, many other connections may become possible. This is at least what I am exploring with you.

Before we consider some of those intriguing possibilities – the only way, in my view, to "let reality return to our speech" as Milosz said – we have to consider two more crucial inventions made by Tarde in his efforts to redefine sociology. The first is that there is, in fact, a difference between human and non-human societies. But this is not what you might think; it's a difference of *numbers* not of kinds; paradoxically, non-human societies are much *more* numerous than human societies. There are only nine billion humans but the smallest stone, the tiniest brain, the humblest table has many orders of magnitude, more atoms, neurons or molecules than the largest human society – which for Tarde, as it is still for us actually, was China! Because of its

small numbers we have a much more intimate knowledge of human societies than we have of other non-human societies viewed from the outside and so to speak in bulk, or statistically. I quote:

> "It means that we experience the sensation of a sentient thing, the volition of a conating thing, and the belief in a believing thing, – the perception, in short, of a personality in which the perceiving personality is reflected, and which the latter cannot deny without denying itself." ibid pp. 19-20

Everywhere else, we might believe that there is some super structure holding things in place: a sort of Body Politik, at least a whole that is more than the sum of its part. But not for human societies, viewed from inside: we know for certain that, in this case, the sum is always *less* than the tiniest of its part. To summarize Tarde's argument: when a society is seen from far away and in bulk it seems to have structural features, that is a set of characteristics that floats beyond, or beneath the multiplicity of its members. But when a society is seen from the inside, it's made up of *differences* and of *events* and all its structural features are provisional amplifications and simplifications of those linkages. Don't immediately rule out Tarde as a French madman – and don't rule me out as even madder for resuscitating such an odd way of considering the social sciences. (Tarde, for many years, directed a statistical institute and wished for nothing more than finding the right quantum for a sturdy science of the social.)[8]

To render his argument less strange, look at the consequences it has for social theory. Structures, social structure especially, are just the illusion one has to escape to establish a solid sociology:

> "This conception is, in fact, almost the exact *opposite* of (…) Monsieur Durkheim's. Instead of explaining everything by the supposed supremacy of a law of evolution, which compels collective phenomena to reproduce and repeat themselves indefinitely in a certain order, – instead of thus explaining lesser facts by greater, and the part by the whole, – I explain collective resemblances of the whole by the massing together of minute elementary acts – the greater by the lesser and the whole by the part.

8 Bruno Latour. (2005). "Reassembling the Social. An Introduction to Actor-Network Theory." Oxford: Oxford University Press.

This way of regarding phenomena is destined to work a *transformation* in sociology similar to that brought about in mathematics by the introduction of the *infinitesimal* calculus."[9]

Yes, I know, Tarde was not as lucky as Leibniz: his monadology did not transform sociology as much as the infinitesimal calculus transformed mathematics. But history is still young and if nature stops bifurcating, Tarde's innovation might still come true.

The reason why it is so important for me to make structural features a local consequence of looking at societies in bulk and from the outside, is that it's one of the main reasons why philosophy lets nature bifurcate: on the one hand you have the pulverization of small elements – atoms, humans, situations, acts of language – and on the other hand you have laws of transformation to which those small elements should conform but to which they contribute no part whatsoever. It is permissible to explain events by appealing to other sets of connections, not to provide the explanations through their own connections with one another and, so to speak, laterally. The case of social theory is only one place where the danger of structural explanation is seen by Tarde as a philosophical imposture:

"The evolutionists of his school [he has Spencer in mind], in thus formulating the *laws* of linguistic, religious, economic, political, moral, and aesthetic development, understand, at least implicitly, that these laws are capable of *governing*, not merely the single succession of peoples whose privilege it is to be called historic, but equally well all peoples that have existed or are to exist in future. But still, in a multitude of forms, though on a smaller scale, the same error always comes to light, namely, the error of believing that, in order to see a gradual dawn of regularity, order, and logic in social phenomena, we must go *outside* of the details, which are essentially irregular, and rise high enough to obtain a panoramic view of the general effect; that the source and foundation of every social coordination is some general fact from which it *descends* gradually to particular facts, though always diminishing in strength; in short, that man acts, but a law of evolution guides him." ibid p. 75

9 Gabriel Tarde. (2000 [1899]). "Social Laws: An Outline of Sociology." Translated by Howard C. Warren. Kitchener, Ont.: Batoche Books, p. 35.

What's the problem with structure? What's the link between this topos or rather cliché of social theory – namely the micro/macro distinction – got to do with our question? Because the link between a structure and some event is what happens to the bridge builders and not to the practitioners of kayaking... For the bridge builders, events are always lacking something, namely the law of their development which is always supposed to be *somewhere else,* and this somewhere is either a Platonic idea or a thought, or a projection, or some law dictating its pronouncements from nowhere. In the same way as in perception where the mind has to do the work of adding secondary qualities to meaningless primary qualities in order to obtain something that makes sense, in social sciences – and in science generally – the structure is needed to make the elements have a connection that has been withdrawn first by the divide between agencies:

"This attempt to confine social facts within lines of development which *would compel them to repeat themselves en masse with merely insignificant variations,* has hitherto been the chief pitfall of sociology, and that, whether under the more rigid form conceived by Hegel, consisting of successions of triads, or under the more exact and scientific form that it has since received at the hands of the modern evolutionists. (…) It remained to be discovered later that these supposed rules are honeycombed with exceptions, and that evolution, whether linguistic, legal, religious, political, economic, artistic, or moral, is not a single road, but a *network* of routes with many intersecting cross-ways." ibid p. 18

You might be worried that by going into social theory with Tarde I have been forgetting our imprisoned nightingale. I hope you understand that I have not left it for a single minute: in the primary/secondary qualities *scenography* – I will explain this term in the second lecture – the only problem that the bridge builders could solve was the one of knowing whether or not our sense perceptions were right or misleading or a little bit of both. But in the second scenography, the one I associate with the art of kayaking, rafting – and yes drifting too – the situation is already entirely different: the nightingale is a society – a society of societies actually[10] – but so is the listener of

10 Didier Debaise. (2006). "Un empirisme spéculatif. Lecture de Procès et Réalité." [A speculative empiricism. Lecture in Process and Reality.] Paris: Vrin.

its song – for instance the poet – and so is the potential mate of the nightingale; and so, as I said, is the ethologist recording the songs and trying to make sense of the present crisis nightingales are going through (more on this in a minute). The first scenography (on the bridge) forces us to be interested in the rather impossible question of the song *an sich;* in the second you might become aware of the relations of all those various societies or organisms *inter se,* to use Whitehead again. The shift from German to Latin is quite considerable. The nightingale bets that it can do something with his song, but so does the poet and so does his mate, and *so does the ethologist.* Relations established between betting and risking organisms – repetition, opposition and variation – are not the same as those between words (in the plural) and the world (in the singular). New connections are possible – *inter se* – that were impossible, absurd, or simply had no room, in the narrow path and along the only movement allowed on the bridge. To use one of my terms, the various organisms that all go forward may be *articulated* in ways infinitely more varied and surprising than what was available to them when a human mind was trying to look through the transparent windowpane: – in the next lecture I will propose a genealogy for this pane which I will extract in part from art history, and particularly from painting.

What are the advantages of going with the flow then?

"Because the first must be first" let us look at poetry. It's now perfectly possible that Milosz could strike a correspondence with something of the nightingale through the clever use of his unmatched poetry. Do you begin to see the differences between the two scenographies, between the engineering feat of the bridge-builders and what the canoeing people see? For a bridge builder, the poet either bridges the gap or else he just lives in a phantasmagoria and his metaphor has no reference except in his imagination: what doesn't clearly lead toward the outside should be placed firmly inside the mind. Not so in the second scenography: the metaphor – and what is a metaphor if not an attempt to drift forward with the rest of the world and get entangled with it in surprising ways – might find itself enmeshed in some surprisingly *accurate* ways with the nightingale life trajectory. In other words the poet's metaphor could begin to *correspond* to the nightingale's own experience in betting on life. Yes, finally, a *correspondence theory of truth,* but where correspondence takes on an entirely different meaning from that which is acceptable to the bridge builders: the poet's metaphorical drift and the nightingale's drift might *co-respond* to one another, that is, involve one another in some

of the new differences necessary for them to persist in their being – or rather in their "having". Wouldn't that begin to bring some reality back to our speech?

All the more so, if we could do for science – for instance bird ethology, the physiology of bird songs, the acoustics of evolution and so on – the same relocalization as I just did with the poet's metaphors. I told you at the beginning: let's follow the poets in their quest for reality, let's believe the poet who tells us that nature has not bifurcated, more than the first empiricist who tells us that, of course, it did. Is there a way to locate the power of the sciences in extracting new correspondence from the nightingale in a way that does not force us to generate the phantasmagoria of primary and secondary qualities? And here I want to stress the second of Tarde's innovations which is very important for me as a science student: the sciences (in the plural) are adding differences of equipment and attention to the world; they are not what allows us to jump to the other side of the bank smack in the middle of the primary qualities – which "are real but unknown" if you remember Whitehead's quote.

For Tarde – and this is what sets him apart from all other social scientists – you should let the sciences go with the flow as well:

> "As regards the structure of science, probably the most imposing of human edifices, there is no possible question. It was built in the full light of history, and we can follow its development almost from the very outset down to our own day. Our sciences began as a scattered and disconnected collection of small discoveries, which were afterward grouped into little theories (each group being itself a discovery); and the latter were welded, later, into broader theories, to be confirmed or amended by a host of other discoveries, and finally bound firmly together by the arches of hypotheses built over them by the spirit of unification: this manner of progress is indisputable. There is no law or scientific theory (any more than there is a system of philosophy) that does not bear its author's name still legibly written. Everything here originates in the *individual;* not only the materials, but the general design of the whole, and the detailed sketches as well; everything, including what is now diffused among all cultured minds, and taught even in the primary school, began as the secret of some single mind, whence a little flame, faint and flickering, sent forth its rays, at first only within a narrow compass, and even there encountering many obstructions, but,

growing brighter as it spread further, it at length became a brilliant illumination." pp. 85-86

Science is *adding itself* to the world. For the bridge builders this addition is impossible without having to be faced with the following choice: either you have to forget the networks of individuals, the welter of equipment, the pullulations of occasions that make it possible, or else you have to deny its truth value and turn it into an illusion, at least a social construction or, slightly better, a useful convention. No wonder: the only movement allowed on the bridge is toward the world or away from it. The only game is a zero sum game. But if the sciences can be added to the flow of experience as yet another way to fold oneself inside it, to let organisms correspond to one another on, so to speak, another wavelength, then you could finally obviate the primary/secondary quality divide, you could, in other words retain the reality of the scientific grasp without its fanciful epistemology: nature would have stopped bifurcating.

Isabelle Stengers, the Belgian philosopher of science and one of Whitehead's greatest commentators, has been trying to pinpoint the exact point of inflexion when the fabulous invention of the sciences which are adding to what is given in experience, are suddenly turned into a way of disqualifying this experience. When do science studies turn into epistemology? When, in other words, does the nightingale ethologist who is recording the song as a wave, begin to claim that this wave allows her to deduct the song you hear from the total sum of experience?[11]

James defined radical empiricism, what I prefer to call *second* empiricism, as a way not to choose: we don't want more than what is given in experience, he said, but we certainly don't want less either. This is the question that kayakers keep wondering about the bridge builders: Why is it that instead of giving us *more,* the sciences have been kidnapped into the rather dirty business of giving us *less.* Here is Whitehead's plea again from Concept of Nature:

11 Isabelle Stengers (1994) "L'effet Whitehead." [The Whitehead Effect.] Paris: Vrin; (2000) T*he Invention of Modern Science* (translated by Daniel W. Smith). The University of Minnesota Press; (2002) "Penser avec Whitehead : Une libre et sauvage création de concepts." Paris: Gallimard (and see in English Bruno Latour (2005) "What is Given in Experience? A Review of Isabelle Stengers 'Penser avec Whitehead'". Boundary 2. pp. 222-237).

"For natural philosophy everything perceived is in nature. We may not pick and choose. For us the red glow of the sunset should be as much part of nature as are the molecules and electric waves by which men of science would explain the phenomenon. (29) (…)"For example, the fire is burning and we see a red coal. This is explained in science by radiant energy from the coal entering our eyes.(…) The real question is, *When red is found in nature, what else is found there also?* Namely we are asking for an analysis of the *accompaniments in* nature of the discovery of red *in* nature." p. 41

Notice Whitehead's repetition: "*in* nature of the discovery of red *in* nature". Not in our mind. No bridge building here, no two banks, no salto mortale, no reconciliation, no dialectic, no clever intermediary solution: "So far as reality is concerned all our sense-perceptions are in the same boat, and must be treated on the same principle." (p. 44). The attempt of science studies, of sociology – in Tarde's sense – is to look at those "accompaniments" in order to detect what "else is found also". How many other things are accompanying, flowing with the flow, when we try to be attentive to new features of what is *also* given in experience? Answering those questions would allow us to find an exit for Milosz's bird and to respect the truth telling of poetry and the veridiction of the sciences without, for this reason, confusing them with one another.

I will bring this lecture to an end by alluding to a third way in which connections can be made if we go with the flow, that are impossible if we stay on the bridge: the nightingale specialists – some of them like Marc Naguib and Valentin Amrhein have written hundreds of articles[12] – tell us that the songs of the males have been dramatically altered in recent times because of the noise of traffic – they have to raise their voices – and because of the fragmentation of their forest habitat – they have to sing at a higher and higher pitch and for longer and longer to be listened to and to find a mate. The result is that their voice (like that of a tired lecturer!) becomes hoarse and they exhaust themselves in singing, so much so that they might, in the end, be incapable of fulfilling their marital duty even if they have ended up finding a mate… Now, where would you lodge this type of relation or rather interferences inside the scenography of the bridge

12 http://www.uni-bielefeld.de/biologie/vhf/NG/Naguib_Publications.htm

building? It would be at best interesting but immaterial to the knowledge activity, or at least on an entirely different plane from the word/world referential business. And yet, who could deny that those sorts of relations, of interferences, of intermingling have become so crucial in recent years that the very existence of one of the terms, namely the nightingale, could be interrupted? The nightmare of idealism was that when the mind was shut off, the world itself vanished. Idealism has now come true: human minds might be able to shut the nightingale song out of existence altogether. Surely you would agree that there should be a philosophy that allows ecological relations to be added to those of science creation and to the grasp of poetry.

I hope I have shown why we don't know to live in the phantasmagoria of divided experience, having to choose between meaning without reality and reality without meaning. Organisms and societies, in other words, might not have the luxury of being disciples of Kant: they might have no time to add secondary qualities on top of primary ones in order to fumble for a synthesis, especially if such a synthesis is impossible. To the inevitable *an sich* they might prefer the connections *inter se.*

Spinoza Lecture II

The Aesthetics of Matters of Concern

"An active school of philosophy is quite as important for the locomotions of ideas, as an active school of railway engineers is for the locomotion of fuel"

Whitehead, Science and the Modern World

Adrian Walker is posing for the great photographer Jeff Wall.[13] A mummified limb is also posing, detached rather unwillingly from the rest of a body once alive, its shapes and shadows brightly contrasted on a greenish-blue table-cloth. The artist is pondering how to complete his drawing whose shape and shadows are clearly detached on the large white brightly lit drawing paper – the greenish-blue table-cloth and the white paper being of almost the same size. No doubt that the artist, Adrian Walker, is also pondering what it means to be a model for a fastidious photographer like Jeff Wall. After all, what he is attempting with the limb, Wall is trying to do to him, that is, to capture the whole site through the highly elaborated and carefully staged pellicle of his analogue photographic machinery, much like Walker himself has been trying for some time now, to have the limb jump from out of the greenish-blue cloth to the white paper (and surely it takes as much time to draw so delicately as it does to take photographs in such a carefully staged manner).

Walker is absorbed in his task, so much so that the art historian, Michael Fried, in commenting on this image, considers it as a very contemporary example of what he calls *absorption* – by its opposition,

13 Theodora Visher and Heidi Naef (2005) "Jeff Wall: Catalogue raisonné." [Catalogue of all works] 1978-2004. Bâle: Schaulager.

to use his terms borrowed from Diderot, to "theatrical" art, and to art which is turned explicitly toward the spectator.[14] So while this scene has been staged, it is a picture of total, almost maddening absorption, both for Walker drawing his limb, and for Jeff Wall photographing "his" Walker pondering over "his" limb. And I don't doubt that your response will be the same as Fried's or mine: total absorption in the total strangeness of this scene. What is happening here?

You will surely have noticed the plastic containers and the white tiling, so white and so reflective as if the northern light, so important for art history, had almost overexposed the whole print. We are not in an artist's studio but, as the full title of the work clearly says: (I quote) *Adrian Walker, Artist, Drawing From a Specimen in a Laboratory in the Dept. of Anatomy at the University of British Columbia, Vancouver* (1992). This is an instance of Laboratory Life, the white light of the Enlightenment floods over the skills of the draughtsman in one of the rare remaining disciplines, namely anatomy, where drawing remains superior in scientific precision to photographs and the direct impressions produced by automated techniques. To this day, competent artists are still necessary to make a limb jump from the tablecloth to the paper. And this mysterious jump, or rather this abysmal gap between the model and its copy, might be what has suspended Adrian Walker's gaze and made him hold his chin in a posture just as absorbed as that of Rodin's Thinker: and indeed, for an artist as well as for a scientist – or for any combination of the two –, what is more mysterious than this gap between a copy and a model? So mysterious that Jeff Wall, the second in line, has accepted running the risk that his whole canvass, I mean his print, is devoured by such an obsessively bright light.

And yet we, who are third in line in this chain of contaminating absorption, should resist this bright light which is blinding us to the utter implausibility of such a staged situation. What is fascinating in this print is that a contemporary artist, Jeff Wall, gives us in one shot the history of three centuries of a very peculiar aesthetics, at the very moment when it has so thoroughly disappeared. Or this is, at least, how I wish to interpret this photograph tonight with you.

I have since benefited from Wall's comments: "I can't say too much about your interpretation. I see that you are looking at

14 Michael Fried (1988) "Absorption and Theatricality: Painting and Beholder in the Age of Diderot." Chicago: The University of Chicago Press.

the picture as a model of a situation you want to study critically. As a model of a way of knowing in science. I can comment only on one or two points. I understand that the situation I depicted can be considered an implausible model of scientific knowledge and of the relation between the world and the mind. But it is an actual depiction of Adrian Walker's relation to his drawing work and his art in general. It is really a documentary photograph of his corner of the anatomy lab where he worked for some months. I didn't invent anything in this situation, I just recorded it with Adrian's collaboration. He didn't do anything different either, just sat still for a few minutes for a few days. I specify this because your lecture gives me the impression you think the picture was done starting from an idea or subject I had in mind, and then 'stage' it. That's not what happened. I think it is also a completely plausible and authentic depiction of any instance of drawing something visible. I could have made a picture of Adrian drawing something else if it had come up at the time, but he was in fact drawing from specimens in the lab. He wasn't purporting to do science, just to be working on his figure drawing in a rather conventional way (even if almost nobody does it any more). I don't think it is really accurate to say that Adrian is a self-absorbed artist acting as a scientist. I think it's better to say he is an artist doing something artists have done for a long time, and which depends, to a certain extent, on the opportunities made available by science and medicine. I say 'to a certain extent' because drawing from specimens is only a single aspect of drawing, not absolutely essential. My picture is just a specific instance of drawing, distinguished only by its subject, not by anything else much. He could be drawing a vase of flowers.

I think it's the picture that indicates, or hints at, what makes Adrian want to draw the specimen. The specimen can't reveal that, no subject of a depiction can. What reveals it is the feeling in the picture, the feeling that drawing is something one loves and needs to do, in order to make depictions properly. I like to think my picture is made properly too. And that, if it is beautiful and gives pleasure, then that pleasure suggests the pleasure of all depictions, Adrian's included. So, to me, it's not so much a cognitive model, but a depiction of the love of depiction." (With permission from an email).

I want to say that this print summarizes the whole *aesthetics of matters of fact* as it has emerged around the 16th century in a close and complex association between artists, scientists, theologians and their various patrons. One could object at this point: how could matters of fact depend on any sort of aesthetic? Matters of fact are matters of fact and if there is something that escapes any staging, any artificial trick, any mediation it is exactly that: a God-dammit solid matter of fact beyond any human intention: "It is there whether you like it or not!" (And here it would do a lot of good to bang the lectern with a gesture of a fist[15]). But the splendid beauty – not to say the subtle irony – of Jeff Wall's print tells the exactly opposite story: there is nothing more amazingly artificial, more carefully staged, more historically coded than meeting a matter of fact *face to face*.

Look at the picture again: you can say everything you want to about this scene but *not* that it is a summary of common sense experience! Where on earth would you meet a mummified limb on a table-cloth? Is this the way you recognize your own limb, or caress the arm of your lover, or indeed encounter the fist of the realist who is trying to punch you in the nose with hard facts much like Thomas Gradgrind in Dickens's Hard Times? Of course not. When is it the case that you find yourself seated, quietly facing such a matter of fact? Even cannibals, if there still are any, would not remain seated like that in front of such an appetizing delicacy. Most of our experience is not obtained that way: instead we run with a pack of simultaneous events running parallel to us. And tell me, if, by the most extraordinary contrivance, you were asked to be seated face to face with a piece of dead body, when would you be requested in addition, not to touch it, not to hold it with your own hand, not to vomit on it out of disgust much like Roquentin, but instead to *draw* it from a distance of about 40 centimetres, as if you wanted, through a feat of an even more extravagant anatomy, to detach its drawable *shape* from its undrawable *material* composition?

Everything in this scene is implausible, contrived, in such a face to face situation of a human mind pondering over the yawning gap of an object that he wants nonetheless to transport by building an impossible bridge between the greenish-blue table-cloth and the white rectangular paper. No surprise that Adrian Walker has been asked by Jeff Wall to hold his chin in his hand and let his attention

15 Malcolm Ashmore, Derek Edwards and Jonathan Potter. (1994). "The Bottom Line: the Rhetoric of Reality Demonstrations". Configurations. pp. 1-14.

self-destruct in the most suspended, self-absorbed meditation, in the brightest self disappearing light. In the white space, it is the notion of matters of fact, indeed it is its whole aesthetic that is being suspended and that is fading away.

Still, one could object and say that this scene, because it takes place in a laboratory, reveals the normal, mundane ways in which *objectivity* is produced. Although it might seem extravagant in terms of daily experience, because, apart from butchers and cannibals, no one meets detached limbs this way, there is nothing strange in having scientists face an object that they try to make jump from a 3-D material reality into a 2-D shape on a piece of paper. This is not what ordinary people do, but it is for sure what anatomists do.

I am sorry to say that this is far from the case, and here I have some experience in studying laboratory practice. Look for instance at Dr. Marylin Perrin, at Salk in 2002: she is not seated, she is not taking the pose of Rodin's Thinker, but rather the active pragmatic pose of the Tinkerer: she is standing up, actively engaged in pipetting, shaking reagents, and if there is one thing she cannot do it is to make the receptor of CRF, to which she has devoted fifteen years of her life, jump in one *salto mortale* from "the world" to "the word" but instead, as it is the case for all chains of reference, she is anxiously following its successive reincarnation through a bewildering number of steps of which my own shots – not as clever as Jeff Wall, I grant you that – have extracted only a tiny few.[16] If you had to follow objectivity-making practice, you would have to use a very long videotape in which many different actors would also appear. So, in no way, can the aesthetic of matters of fact pass for a *description* of what it is that scientists do. Look here, for instance, at the assembly made of brain scientists in San Diego: 25,000 posters side by side in a huge hall?[17] Where would

16 Bruno Latour and Steve Woolgar. (1979, 1986). "Laboratory Life. The Construction of Scientific Facts" (second edition with a new postword). Princeton: Princeton University Press.

17 See the picture in Bruno Latour and Peter Weibel (edited by) (2005) "Making

you put this immense crowd, necessary to make sense of the brain, in the Hamletian soliloquy of mind pondering over matter?

Is it not extraordinary then that the primeval scene of matters of fact remains the total absorption of one mind *facing* a piece of dead material, when such a stage cannot pay justice even to the making of objects so dear to epistemologists, namely scientific facts? How can we explain that we take matters of fact to be the anhistorical ingredients of the world, when they are visible only in highly artificial sites, where you need a seated human – usually a middle-aged male –, gazing (not touching, not hearing, not manipulating); at something that is of middle size, brightly lit, highly contrasted; something which, in addition, is situated at about average height (not much higher or lower than the horizon line); standing never much farther away than a distance of about a metre; a strange situation in which both the man and the object are engaged in the amazing feat of crossing the bridge, without any visible intermediaries, between *only two elements,* I insist on this, the *copy* and the *model,* which are themselves related *mimetically:* the copy has to *resemble* the model, and ideally to be super-imposable onto it? Nowhere, in any laboratory that we know, has any objective fact ever been produced that way, and yet this is the model for all our relations to matters of fact: the limb is on the blue table-cloth; the cat is on the mat; "The facts are there, God-dammit, whether you like it or not".

In the last lecture, I tried to contrast two ways of rendering what is given in experience. I used the metaphor of riverbanks, one of the sides being the word – or the social, or the mind – while on the other side lay the world – or the material, or the natural. One enterprise consisted in trying to bridge the river by achieving the feat of accurate reference. But there was another enterprise, as I showed, that consisted of going with the flow and considering what sort of grasp we have of experience when, drifting sideways, we practice a bit of what I called "kayaking"… I proposed that we consider that the mystery of bridging the gap – this abyss that makes Adrian Walker ponder in such a self-absorbed way – is not as deep and revealing as the experience of going with the flow: this is what would happen for instance if Jeff Wall had tried to capture the movements, the duration in which those organisms are by necessity involved; for instance if he had fol-

Things Public. Atmospheres of Democracy." Cambridge, Mass: MIT Press.

lowed the rotting flesh of the limb; or, if using Peter Sloterdijk's type of interest, we had become suddenly sensitive to the tiny bubble *inside which* this whole scene takes place: what sort of envelops – Sloterdijk's expression – have to be in place for Walker to work in peace, without any noise, disturbance, agitation?[18] What is the strange *air-condition* – another of his concepts – for the very scene to unfold? If we had shifted our attention in any of those ways, no doubt suddenly, The Gigantic Gap between The World Out There and the Mind In there would have vanished because another entirely different topology of inside and outside would have appeared: this time the one between the Vancouver Department of Anatomy and the rest of the University: a tiny bubble of objects and subjects mixed up *within* a fragile foam of other tiny bubbles whose presence is deduced from the picture but who remain nonetheless wholly invisible.

No doubt that if we were practicing such a series of operations, we would consider Jeff Wall's print as a freeze frame of a highly mobile and quickly changing film presenting us with an entirely different story, much like Svetlana Alpers did, when in her masterpiece the Art of Describing, she forced the amateurs of still lives and Dutch paintings to replace their fascinated gaze over so-called "objective" and "mimetic" style by an inquiry into the whole Dutch Republic Empire.[19] No doubt, matters of fact are the result of a specific style, they do not stand for reason, they do not stand even for empiricism, if by this label we mean what is given in experience. And they certainly do not stand for the sciences, as if those had nothing else to do but to bridge the gap between words and world.

What I will argue tonight is that the other mystery to ponder, the one to make us seize our chin in our hand and imitate Rodin's pose for a very long time, is not how we can convince the world to jump into representation, (or a human limb to somersault onto a piece of paper much like a lion through a circle of fire) but how come we have, for three centuries, *discounted* what is given to us through experience and *replaced* it instead with something *never* experienced that philosophers have nonetheless the nerve to call "empirical" and "matters of factual". Now, this is quite a feat! As I said earlier, using Alfred North

18 Peter Sloterdijk. (2005). "Foreword to the Theory of Spheres." in Melik Ohanian and Jean Christophe Royoux, (edited by) *Cosmograms.* New York: Lukas and Sternberg.

19 Svetlana Alpers. (1983). "The Art of Describing." Chicago: University of Chicago Press.

Whitehead's marvellous expression: how did we manage to behave as if Nature had "bifurcated" into primary qualities – which, if you remember, are real, material, without value and goals and only known through totally unknown conduits – and secondary qualities which are nothing but "psychic additions" projected by the human mind onto a meaningless world of pure matter and which have no external reality although they carry goals and values. How did we succeed in having the whole of philosophy reduced to a choice between two meaninglessnesses: the real but meaningless matter and the meaningful but unreal symbol?

This situation, which was fully developed in the 17th century, has been well summarized by your great historian of science whose name unfortunately a French mouth cannot pronounce, Dijksterhuis:

> "The distinction in question may be defined as an *objective* treatment of the primary qualities and a *subjective* treatment of the secondary qualities, i.e. the former are considered as objectively present, independent of the perceiving subject, in the physical body perceived, and the latter as only existing in the consciousness of the perceiving person.(…) The fact that the primary qualities (size, shape, motion) are, after all, presented to us only through sense perception, *so that the very distinction is really futile was realized very seldom.* The feeling that in mathematics and mechanics it was possible to arrive, *apparently without* any recourse to sense-experience and yet with a sense of being *supported by sufficient evidence,* at an extensive knowledge of the geometrico-mechanical qualities, *inevitably gave these sciences a place apart*".[20]

And then he adds:

> "While for science the mechanistic conception was stimulating and productive, it confronted philosophy with the difficult problem of the real relation between the world of our perceptions and feelings and the world of the mechanical process outside, which is so entirely *different* in character. The natural sciences were faced with the difficult *but promising* task of devising mechanical systems to account for physical facts; philosophy, on the other hand, had to solve *the hopeless problem* of deriving psychic from physical phenomena. It is not surprising that their ways began to *diverge,* that the natural sciences began to follow a course of their own without *bothering* too much about the philosophical legitimacy of what they were doing, and that philosophy proved *less and less capable* of fulfilling, with regard to the *study of nature,* the leading role it *ought to have played* in an ideal co-operation of the mental faculties". ibid

So, no matter how "futile" this distinction has been, philosophy until now has been trying to solve "the hopeless problem" of bridging a non-existent gap. The question before us tonight is to see whether or not we can exert the rights of reason all the way – that is along the flow of experience –, abandon this "hopeless" task, and lead our "mental faculties" along a more promising path. Can we end the bifurcation of nature and pay our respects to experience without having to discount it on behalf of a totally artificial and implausible feeling that passes for common sense? This is how Whitehead puts the problem in Modes of Thought about President Roosevelt's (second) inauguration in 1937:

> "My aim in these lectures is briefly to point out how both Newton's contribution and Hume's contribution are, each in their way, gravely defective. *They are right as far as they go.* But they *omit* those aspects of the universe as *experienced,* and of our modes of experiencing, which jointly lead to the more penetrating ways of understanding. In the recent situations at Washington DC the Hume-Newton modes of thought can *only* discern a complex transition of sensa, and an entangled locomotion of molecules, while the *deepest intuition* of the *whole* world discerns the President of the United States inaugurating a new chapter in the history of mankind. In such ways the Hume-Newton interpretation *omits* our intuitive modes of understanding."[21]

Violence is committed to common sense when we are asked to "omit from our understanding" that an important event has been happening and we are requested to accept as "scientific" a gaze from nowhere: "you are mistaken, nothing has happened, only molecules

20 E.J. Dijksterhuis. (1961). "The Mechanization of the World Picture Pythagoras to Newton." Princeton: Princeton University Press, p. 241.

21 Alfred Whitehead. (1938). "Modes of Thought." New York: The Free Press, pp. 135-136.

agitation". This is exactly the same violence, to use my last lecture's example, as when we are asked to consider that the nightingale sings only in our mind (or our brain) and not in the world out there, because hearing a song is not part of the list of primary qualities (a list which is, remember, established for the most "futile" and fleeting of historical reasons).

Let us be careful here: I am not saying that we have to "reconcile" the scientific with the poetic worldviews, to "bring together" science and art, because such an enterprise would produce only the most monstrous hybrid: two artifacts brought together just makes for a third artifact, not for a solution. What we have to do, if we want to be faithful to what William James called radical empiricism, is to deny the claims of the "bifurcates" in the first place to represent common sense and to speak in the name of science. We don't have, on the one hand, a harsh world made of indisputable matters of fact and, on the other, a rich mental world of human symbols, imaginations and values. The harsh world of matters of fact is an amazingly narrow, specialized, type of scenography using a highly coded type of narrative, gazing, lighting, distance, a very precise repertoire of attitude and attention, of which historians of science like Lorraine Daston, Horst Bredekamp, Steve Shapin, Simon Schaffer and Peter Galison, to name a few, have made a careful inventory. While it seemed barely possible in the time of Whitehead to overcome the bifurcation of nature because of the total grasp the first empiricism had on European minds, it is much easier now that matters of fact appear for what they always were: a certain style as convoluted, as interesting, as historical, as artistic as Louis the XIV's court etiquette, Leibniz's baroque monadology, Maurice of Nassau's invention of military drilling or Immanuel Kant's interpretation of the Copernican revolution. Indeed, it is, in my view, precisely *because* matters of fact have become so historical that Jeff Wall has been able to stage his meditation of a self-absorbed artist *qua* scientist: no scientist can pretend anymore to gaze at the world that way. The opportunity is there to be seized: science has been so thoroughly historicized that we can now ask in an entirely new light: what has happened to us under the name of (first) empiricism? How can it be that common sense has been forced to drift so far from what is seized on by experience? And even more important: what's next?

In order to code this huge sea change between two empiricisms – the first and the second – I have proposed using the contrast between

matters of fact and *matters of concern* – a banal expression in English that I wish to render more technical.[22] A matter of concern is what happens to a matter of fact when you add to it its whole scenography, much like you would do by shifting your attention from the stage to the whole machinery of a theatre. This is, for instance, what has happened to science when seized by the recent "science studies", what has happened to Dutch landscape painting in Svetlana Alpers' able hands, and what has happened to anatomical drawing when restaged by a contemporary artist like Jeff Wall. Instead of simply being there, matters of fact begin to look different, to render a different sound, they start to move in all directions, they overflow their boundaries, they include a complete set of new actors, they reveal the fragile envelopes in which they are housed. Instead of "being there whether you like it or not" they still have to be there, yes (this is one of the huge differences), *they have to be liked,* appreciated, tasted, experimented upon, mounted, prepared, put to the test.

It is the same world, and yet, everything looks different. Matters of fact were indisputable, obstinate, simply there; matters of concern are disputable, and their obstinacy seems to be of an entirely different sort: they move, they carry you away, and, yes, they too *matter.* The amazing thing with matters of fact was that, although they were material, they did not matter a bit, even though they were immediately used to enter into some sort of polemic. How really strange they were.

Another extraordinary feature, as I have shown at length in Politics of Nature, is that although they were mute, they were supposed to speak directly – "facts after all speak for themselves, don't they?" – and not only that but, through an amazing feat of spokesmanship, mute and yet speaking facts were able to shut the dissenters' voice down.[23] And those who have invented this amazing feat of "inanimism" are deriding the poor people who believe in *animism*.[24]

But before we bid farewell to this scenography, we need to fathom out its extraordinary power, what Dijksterhuis considered to be its

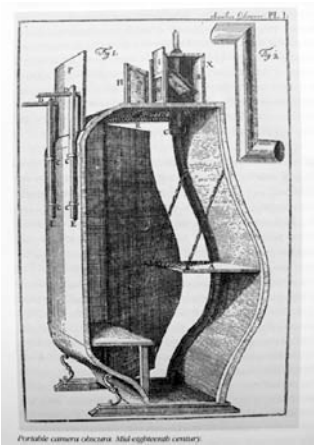
22 Bruno Latour. (2004). "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern, Special issue on the 'Future of Critique'." *Critical Inquiry,* pp. 25-48.

23 Bruno Latour. (2004). "Politics of Nature: How to Bring the Sciences into Democracy." (Translated by Catherine Porter). Cambridge, Mass: Harvard University Press.

24 Philippe Descola. (2005). "Par delà nature et culture." [Beyond nature and culture]. Paris: Gallimard.

main technical source of efficacy. To do so, however, it would be insufficient to look only at worldviews, at ideas, at a "mechanization of the world picture", unless, that is, we take the world *picture* literally and not metaphorically as he does and as so many historians of the Scientific Revolution have done after him. More humble mediators have to be added to render understandable the history of this odd divide between primary and secondary qualities, namely *drawing itself,* the very nature of what it is to picture something. As is well known to historians of empiricism, John Locke, for many years a frequent visitor to art shops around this very section of Amsterdam, was obsessed with metaphors from painting, camera obscura, wonderkammer, stocks of various goods as is clear from the Treatise: An Essay Concerning Human Understanding (1690).

"2. All ideas come from sensation or reflection. Let us then suppose the mind to be, as we say, whi*te paper, void of all characters, without any ideas:* – How comes it to be furnished? Whence comes it by that *vast store* which the busy and boundless fancy of man has *painted* on it with an almost endless variety? Whence has it all the materials of reason and knowledge? To this I answer, in one word, from Experience. In that all our knowledge is founded; and from that it ultimately derives itself. (…) The senses at first let in particular ideas, and *furnish the yet empty cabinet,* and the mind by degrees growing familiar with some of them, they are lodged in the memory, and names got to them. Afterwards, the mind proceeding further, abstracts them, and by degrees learns the use of general names. In this manner the mind comes to be *furnished with ideas and language,* the materials about which to exercise its discursive faculty. And the use of reason becomes daily more visible, as these materials that give it employment increase." p. 121



You need some extraordinary situations, as Jeff Wall has shown us, to try to take knowledge as being what appears on a white piece of paper after the material qualities have been peeled

away from their form. It is possible, as Jonathan Crary has argued, that Locke has imagined the mind to be one of those boxes where, once again, a silent mind meets the world as what can be projected flat onto a piece of paper.[25] What a strange box for Locke to lock his mind into! A camera box even more artificial than the one captured digitally by Jeff Wall. And yet, it is the only practical situation where the divide between what is transportable on a piece of paper – and what is geometry – and what is not – sound, odour, agitation, duration – can be easily separated.

This is what Locke readily recognizes:

"When we set before our eyes a *round globe* of any uniform color, e.g. gold, alabaster, or jet, it is certain that the idea thereby imprinted on our mind is of a *flat circle,* variously shadowed, with several degrees of light and brightness coming to our eyes. But we having, by use, been accustomed to perceive what kind of appearance convex bodies are wont to make in us; what alterations are made in the reflections of light by the difference of the sensible figures of bodies; – the judgment presently, by an habitual custom, alters the appearances into their causes. So that from that which is truly a variety of shadow or color, collecting the figure, it makes it pass for a mark of a figure, and frames to itself the perception of a convex figure and an uniform color; when the idea we receive from thence *is only a plane variously colored,* as is *evident in painting.*" ibid p. 58

Without the experience of being tricked by painting in taking a "plane variously coloured" for a "convex figure", philosophers would never have sustained for long the idea that the world itself could be made of primary streams of causalities that our mind transforms into non existing secondary qualities. Similarly, without the obsessive metaphor of painting, epistemologists never would have imagined that in science there are only *two* steps – a copy and a model – and a mimetic relation between the two. To put it much too bluntly: the idea of a bridge between representation and the represented is an invention of visual art.

25 J. Crary. (1990). "Techniques of the observer. On vision and modernity in the nineteenth century." Cambridge, Mass: MIT Press.

I hope you see the reason why it would be useless to try to "reconcile art and science", since what we take for science is nothing, most of the time, but a derivative epistemology, without any relation to the "visual effects" of science, and which is a scion of a highly specific moment in art history. I am sorry to say but epistemology is the fault of Dutch painters and merchants… You the Dutch impressed visitors so much, and especially Descartes, that he ended up confusing the white piece of paper on which figures are drawn with its *res extensa!* Catastrophic consequences for philosophy: never did it recover from this confusion between ontology and visualisation strategies.

No one has understood this better that the genial curator of prints William Ivins. There is, he argues two very specific reasons why the white sheet of paper on which only shapes are drawn in a geometrical idiom allows for such an enormously powerful tool. Before the Renaissance, he claims:

> "There were two great reasons for this inefficiency; one that no picture could be exactly *duplicated,* and the other, that was no *rule* or grammatical scheme for securing either logical relations within the system of pictorial symbols or a *logical two-way,* or *reciprocal correspondence* between the pictorial representations of the shapes of objects and the locations of those objects in space."[26]

But after print was invented and then, a bit later, perspective drawing followed, half a century after, by projective geometry, for the first time in the history of human codes, a two-way connection could be established between people about the things they mean, even though they remained thoroughly incapable of describing them in words. The platonic power of geometry was at last incarnated into a practice: the Book of Nature was written in geometric characters, but we should not forget that was a printed book made of many sheets of white drawing paper:

> "The most marked characteristics of European pictorial representation since the fourteenth century have been on the one hand its steadily increasing *naturalism* and on the other its purely *schematic* and logical extensions. It is submitted that both are due in largest part to the development and pervasion of methods which have provided symbols, repeatable in *invariant form,* for representation of visual awareness, and a *grammar of perspective* which made it possible to establish logical relations not only *within* the system of symbols but *between* that system and the forms and locations of the objects that it symbolizes." ibid pp. 12-13

26 Williams M. Ivins Jr. ([1930] 1973). "On the rationalization of sight: with an examination of three Renaissance texts on perspective." De artificiali perspectiva, [The artificial perspective]: reproducing both the first edition (Toul, 1505) and the second edition (Toul, 1509). New York: De Capo Press and Plenum Press. pp 8-9.

You see that the Mechanization of the World "Picture" is an apt title: it is indeed a picture allowing us to see things in a mechanical way because you can turn around and predict their deformations and projections. To use my terms they are "immutable mobiles", for the first time you can reconcile the mobility of information with the immutability of what is being transported: it is as if Parmenidian forms could be extracted out of Heracliteus' flow. No wonder every literate mind all over Europe became intoxicated with such a fabulously powerful aesthetics of reason. And yet, it remains an aesthetic, a way to draw things together.[27]

To enter into a debate over perspective, its history and its importance, would be of course impossible in a few minutes, indeed in a few weeks, but what Ivins has seen with unmatched clarity is the missing link in Whitehead's philosophical account of the bifurcation of nature, namely the confusion by philosophers and scientists alike of what is given in experience with what Whitehead calls "the operations of the mind" required to transmit information from someone to someone else. I quote from Concept of Nature:

> "Thus what is a mere *procedure of mind* in the translation of sense-awareness into discursive knowledge has been *transmuted* into a *fundamental* character of nature. In this way matter has emerged as being the metaphysical substratum of its properties, and the course of nature is interpreted as the history of matter." p. 16

And again:

27 Bruno Latour. (1990). "Drawing Things Together" in Mike Lynch and Steve Woolgar, (edited by) *Representation in Scientific Practice.* Cambridge, Mass: MIT Press.

"Thus matter represents the refusal to *think away* spatial and temporal characteristics and to arrive at the bare concept of an individual entity. It is this refusal which has caused the *muddle* of *importing* the *mere procedure of thought* into the fact of nature. The entity, *bared* of all characteristics except those of space and time, has acquired a physical status as the ultimate texture of nature; so that the course of nature is conceived as being merely the fortunes of matter in its adventure through space." p. 20

Here Whitehead offers his own historical explanation which has to do with the differential development of the scientific disciplines:

"This distinction is the product of an epoch in which physical science has got ahead of medical pathology and of physiology. Perceptions of push are just as much the outcome of transmission as are perceptions of color. When color is perceived the nerves of the body are excited in one way and transmit their message towards the brain, and when push is perceived other nerves of the body are excited in another way and transmit their message towards the brain." p. 44

And yet "pushiness" has been attributed to primary qualities and colour to secondary ones. See how "futile" this whole distinction is? But the muddle remains unclear: how on earth could Descartes have made the amazing mistake of confusing *res extensa* with what happens when you begin to draw a form geometrically on a piece of white paper? What Ivins, and more recent historians account for, is the connection established between the recently emerging scientific community and this new geometrical idiom: a two way connection can be established between savants because on the paper (plates, diagrams, figures or the calculations they depend on) transformations can be accurately predicted. Once the operations of the mind are brought in, it is only a small step to confuse immutable mobiles as a solution for communications, with immutable mobiles as being what the world itself is made of. Matters of fact shift from being a descriptive mode, a style of reasoning, to *what* is furnishing the world itself.

Here is Ivins again:

"From being an avenue of sensuous awareness for what people, lacking adequate symbols and adequate grammars and techniques for their use, regarded as *'secondary qualities',* sight has

today become the *principal avenue* of the sensuous awareness upon which *systematic thought* about nature is based. Science and technology have advanced in more than direct ratio to the ability of men to contrive methods by which phenomena which otherwise could be known only through the sense of touch, hearing, taste, and smell, have been brought within the range of *visual recognition and measurement* and thus become subject to that logical *symbolization without which* rational thought and analysis are impossible. The discovery of the early forms of these grammars and techniques constitutes that beginning of the rationalization of sight which, it is submitted, was the most important event of the Renaissance." p. 13

None of us in this room, I suppose, will deny that Ivins is right: for proof, you simply have to look at your computer, the epitome of Renaissance space to which we should add the ideal Leibnizian library. Digitalisation, as Simon Schaffer and Adam Lowe have shown, is not so much an innovation as the achievement of a three centuries' old dream. Leibniz's nickname is Google scholar…[28] Whether you are architects using CAD design, engineers, accountants, physicians pondering over patients files, down-loaders of some sort, video games addicts, your live in the 'Rationalization of sight' (Ivins's title). And yet what is amazing is that this enormously developed and materialized aesthetics of matters of fact has been unable to evolve to absorb the new matters of concern. Inundated by innovations, we are living in a more and more archaic representation of our real state of affairs.

But before I reach this last question, we have to summarize our progress so far. If you remember my last lecture, you will notice that we now have a precise conduit for explaining the bifurcation of nature. The distinction between primary and secondary qualities is the professional hazard of watching mummified limbs for too long… Then the idea might come to you to separate what you can draw on the white paper – the form – from the matter – the limb *an sich* – and then, through another extraordinary move, to fuse the ability of Adrian Walker to transport the painted limb to some other place without this limb rotting or being in any way corrupted into

28 Adam Lowe and Simon Schaffer. (1999). "N01se, 1999." An exhibition held simultaneously at Kettle's Yard, The Whipple Museum of the History of Science, Cambridge, the Museum of Archaeology and Anthropology, Cambridge and the Wellcome Institute, London. Cambridge: Kettle's Yard.

the ways in which *the limb itself* transports its material component through time. Substance is a digital dance on paper. By complementing Whitehead with Ivins we can now understand this enigmatic sentence of Concept of Nature:

> "Thus even if you admit that the adherents of substance can be allowed to conceive substance as matter, it is a fraud to slip substances into space on the plea that space expresses relations between substances." p. 21
>
> "My argument is that this dragging in of the mind as making additions of its own to the thing posited for knowledge by sense-awareness is merely a way of shirking the problem of natural philosophy. That problem is to discuss the relations inter se of things known, abstracted from the bare fact that they are known." (…) "Natural philosophy should never ask, what is in the mind and what is in nature." p. 30

The question before us is to see how can we suspend this "fraudulent export" of ways of knowing (in Ivins's rendering: drawing in perspective) into the relations *inter se* among betting organisms. But at least we now have a comprehensible historical path to explain through which intermediary nature has bifurcated somewhere in the 17th century and thus presented to the philosophical mind, from Hume all the way to contemporary neurophilosophers, the "hopeless task" of bridging a non-existing gap. There is no gap to be bridged but there is a joint history of science, of art – and I will add, of politics – to be taken up. Now that we begin to see how the aesthetics of matters of fact works, it is a much less impossible undertaking to explore what would happen were we to modify the scenography through which experience tries to capture matters of concern.

I hope it is clear that there is no possible reconciliation between art and science, no aestheticisation of beautiful results of science (fractals, galaxies, brain scans, etc), but an immense building site where once again, just as in the 16th and 17th century every intellectual skill from artists, scientists, politicians, statesmen, organizers of all kinds, merchants and patrons, are trying to reinvent an Art of Describing, or rather an Art of *Re*describing matters of fact to stop the "fraudulent export" and uptake "what is given in experience".

I am afraid that it must also be terribly clear how unfit I am for the task that I have now laid before us. And yet, even though it is

much more difficult to discern the future than to make a history of the past, I have to sketch at least what would happen if we possessed an aesthetics of matters of concern. The only way to do that in the few remaining minutes is to briefly indicate what, in industry, is called the *specifications* of the tender – not the project itself but the conditions which you have to fulfil if you want to submit a proposal for the tender. Here are a few that this alternative scenography should be able to stage through whatever means you see fit. And I have no doubt that there are many people in this room more competent than I to submit a proposal.

Specification one: Matters of concern have to *matter.* Matters of fact were distorted by the totally implausible necessity of being pure stuff of no interest whatsoever – just sitting there like a mummified limb – while at the same time being able to "make a point", humiliate human subjectivity, speak directly without speech apparatus and quieten dissenting voices. Now, this is a bit too much to do at once for some "middle size dry goods". Can we do better and distinguish those various and confused layers to make sure that our scenography registers that they matter for some people who have to be specified, and for whom they are the source of an intense interest and a redirected attention? The matter of materialists was a fraudulent mixture of politics, art and science: by contrast, let matters of concern distinguish clearly the population of those for whom they matter. The mummified limb does not tell the story of why Adrian Walker has taken the pains to draw it so carefully; but if the nightingale song has drawn the attention of bird watchers, let this conduit for attention be now visible, instead of playing this strange dance of inanimism through which pure disinterested objectivity interests no one and yet seems of great import in our quarrels.

Specification two: Matters of concern have to be *liked.* The great Act I scene I of table thumping realists was that matters of fact were there "whether you like it or not". Except that this indisputable presence was at once turned into a way of *stopping* the dispute. Now we have to choose: if matters of concern have to be closed, then a dispute has to be put to an end, and not by thumping on the table saying: "the dispute has ended because the facts are there". The matters of facts are there and the dispute has to go on until closure is obtained. It is fair to say that the whole first wave of empiricism had an odd way of conceiving democracy and was rather a clever way of escaping controversies by putting a premature end to them. Since discussions are what are in question with matter, then for God's sake, carry them

on instead of stopping them abruptly and falling back, in the end, on brute force. Are you not tired of this odd succession whereby an appeal to undisputable facts is followed by pure violence? Here again, can we not do better? How can one be polite and still be using matters of fact?

Specification three: Matters of concern have to be *populated*. To use an expression I have somewhat overused they have to become something that is to be explicitly recognized as a "gathering", as *Ding* and not as *Gegenstand*. The best measure of the incredible archaism of our present modes of representation is that we are still portraying objectivity as if we were in the time of Locke whereas every bit of science and technology has now become a convoluted, controversial *affair,* a *cause,* yes a *res.* Objects have become things and yet we have no way to represent them except in the bifurcated manner of 'pure objects', on the one hand and human organisations on the other. Even though the Shuttle *Columbia,* to use this dramatic example, makes no sense as an object except *inside* the troublesome NASA, as was made clear during the inquiry launched after the disaster, we still have no way to describe technical entities other than Gaspard Monge's *assembly drawings*. Strange drawings indeed that are incapable of showing the genuine assemblies necessary for the smallest object to come into being.[29] How can we still be stuck in modes of togetherness that our daily experience, our daily press, our daily encounters with artifacts contradict? How can a whole industry of visualization be wallowing in hype when we cannot even solve this simplest of all riddles: show me the people necessary to activate what you have drawn on a CAD design software. Soft indeed! Where are the artists, the designers, the programmers, who could finally extract us from the 17th century and bring us eventually to the 21st century?

Specifications four: Matters of concern have to be *durable*. Oddly enough, this is what was more widely vaunted about matters of fact: they remained there while the fickle history of our representations passed away. Except we now know that this was a "fraudulent export" of our ways of representing them in the passage of nature. If there is one thing that the Jeff Walls print does not account for it is through which means, which vehicles, which subsistence, it maintains itself in existence. Freeze framing is a pretty bad way of accounting for duration.[30] How do you keep a limb from rotting? Who is keeping up the whole Vancouver Department of Anatomy? What is allowing Adrian Walker to remain in his Rodin's pose forever? Facts are not the ahistorical, uninterpreted and asocial *beginning* of a course of action, but the extraordinary fragile and transient provisional *terminus* of a whole flow of betting organisms whose reproductive means have to be made clear and paid to the last cent in hard currency. Endurance is what has to be *obtained,* not what is already given by some substrate, or some substance. Let us remember Whitehead, here again:

> "Then physical endurance is the process of continuously inheriting a certain identity of character transmitted through a historical route of events. This character belongs to the whole route, and to every event of the route. This is the exact property of material. (...) Only if you take material to be fundamental, this property of endurance is an arbitrary fact at the base of the order of nature; but if you take organism to be fundamental, this property is the result of evolution."[31]

This is what Ludwig Fleck had so beautifully shown: all the drama of table-bumping realists will not allow a fact to remain in existence for one minute. Matters of concern, on the other hand, have to be kept up, cared for, accompanied, restored, duplicated, saved, yes, *saved,* we know that for our hard disks content and we still act as if facts could be *hard* forever, at no cost, without making any backup.[32] Once again, we represent our experience in a way which is appropriate for a century long past and for a scenography we have long deserted. We live in the ruins of modernism, and we seem to be content with them.

Many more specifications could be listed, but I have said enough to indicate the drift of this second empiricism. Let me conclude by offering a counter case. When Otto Neurath devised his isotypes he was trying to do something which was the equivalent of what had been attempted during the Renaissance, namely to link together in a powerful synthesis a certain conception of science – logical posi-

29 Bruno Latour. (2005). "From Realpolitik to Dingpolitik. How to Make Things Public. An Introduction." in Bruno Latour and Peter Weibel, (edited by) *Making Things Public.* Atmospheres of Democracy. Cambridge, Mass: MIT Press.

30 Bruno Latour and Peter Weibel. (edited by) (2002). "Iconoclash. Beyond the Image Wars in Science, Religion and Art." Cambridge, Mass: MIT Press.

31 Alfred North Whitehead. (1920). "Science and the Modern World." pp 134-135.

32 Ludwig Fleck. (1935 [1981]). "Genesis and Development of a Scientific Fact." Chicago: The University of Chicago Press.

tivism –, a certain political aspiration – the socialism of Red Vienna – with a certain artistic style – Bauhaus modernism.[33] When he created his Museum of Statistics it was to render visible again the facts of the matter of economics to those mainly concerned by its scandalous destruction, namely the workers who were in the grips of the Great Depression.[34] When we look at his enterprise from the point of view I have presented in those two lectures, it is clear that nothing much remains of logical positivism, of socialism and of modernist aesthetics. And yet, we are forced to say that, at least, he had respected the rights of reason by inventing for matters of fact a full scenography of great beauty and great relevance. We live in a different world. But at least Neurath gives us the exact magnitude of the task to be completed. If we have to redo every plank of his proverbial boat which has to be refitted without ever reaching a dry dock, nothing less will do. I believe it is the responsibility of Europeans to refuse to live in the ruins of the modernist scenography and to have the courage, once again, to put their skills to work in devising for matters of concern a style that does justice to what is given in experience.

33 Thomas E. Uebel, Nancy Cartwright and L. Fleck. (1996) "Otto Neurath: Philosophy Between Science and Politics." Cambridge: Cambridge University Press.

34 Frank Hartmann. (2005). "Humanization of Knowledge through the Eye" in Bruno Latour and Peter Weibel (edited by) *Making Things Public. Atmospheres of Democracy.* Cambridge, Mass: MIT Press pp. 698-707.