

"Atmosphère, Atmosphère"

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Bruno Latour

In a legendary scene from **Marcel Carné's Hôtel du Nord** (1938), the beautiful actress Arletty mocks the odd vocabulary of Louis Jouvet, Monsieur Edmond, her unwanted suitor, exclaiming in her husky working-class Parisian: 'Atmosphère, atmosphère, est-ce que j'ai une gueule d'atmosphère?' ('Atmosphere, atmosphere, do I look like someone with atmosphere?'). A word that sounded pompous in the 1930s has now become commonplace, perhaps reflecting a universal condition. Indeed, in a series of daring books, the German philosopher **Peter Sloterdijk** has recently gone so far as to take a new approach to philosophy by stressing the **importance of atmospheric conditions on our lives**. In what amounts to **a sort of expanded meteorology** he argues that **philosophers have been far too obsessed with objects and subjects, and not enough with air conditioning**. Envelopes, spheres, skins, ambiances: these are the real 'conditions of possibility' that philosophy has vainly attempted to dig out of totally inaccessible infrastructures.

What Sloterdijk does in philosophy, Olafur Eliasson does in his art. In both cases, the tired old divisions between wild and domesticated, private and public, technical and organic, are simply ignored, replaced by a set of **experimentations on the conditions that nurture our collective lives**. Seen through this approach, **climate control** is not inspired by a mad ambition for total mastery of the elements, but by a reasonable wish to ascertain what sort of breathing space is most conducive to civilised life. The most important question is, how are we going to survive? In what sort of interior milieu should we be insulated? Since the sciences have expanded to such an extent that they have transformed the whole world into a laboratory, artists have perforce become white coats amongst other white coats: namely, all of us. We are all engaged in the same collective experiments. Both Sloterdijk and Eliasson are exploring new ways of escaping the narrow constraints of modernism. They benefit from the rich humus provided by the sciences, but they turn scientific results upside down, not to tell a great narrative of progress, but simply to **explore the nature of the atmospheres in which we are all collectively attempting to survive**.

Laboratories inside out: The World Wide Lab

That we are all engaged in a set of collective experiments that have over-spilled the strict confines of the laboratory needs no more proof than reading the newspaper or watching the television news. This year, it was the SARS epidemic that highlighted

commercial, social, legal and medical relationships all over the world. Last year, in Spain, thousands of volunteers and specialists tried to fight yet another oil spill, this time from the sunken hull of the Prestige. Two years ago, thousands of officials, policemen, veterinarians, farmers, custom officers, firemen, struggled throughout Europe against the foot-and-mouth virus that was devastating the British countryside. There is nothing new in this, of course, since the concept of 'public health' was invented two centuries ago to prevent the spread of infectious diseases by means of quarantine and, later, disinfection and vaccination. But all these crises were the unwanted consequences of decisions to experiment on a very large scale: on food production in China, oil transport in Europe, non-vaccinated livestock in Great Britain. All are clear cases of what Ulrich Beck has called 'manufactured risks'. By mentioning these cases I am not being indignant. I am not claiming that we should have checked food sources in China, banned single-hull oil tankers, or vaccinated livestock. I am not even saying it is a scandal that economic interests have taken precedence over public health. My point is different: a collective experiment in which farmers, consumers, cows, sheep, pigs, veterinarians, virologists are mutually engaged is underway. The question then is, has it been a well-designed experiment or not?

It is as if, following on from the science age, we have entered the experimental age. We have shifted from science and its modernist dream of total control to research without ever putting the original dream of control into doubt, even though its unwanted consequences are evident. The problem is that while we know how to conduct a scientific experiment in the narrow confines of a laboratory, we have no idea how to pursue collective experiments in the confusing atmosphere of a whole culture.

In times past, a scientist or a philosopher of science worked in a closed site, the laboratory, where a small group of specialised experts scaled down (or scaled up) phenomena that they could repeat at will through simulations or modelling before presenting their results. Then, and only then, could they be diffused, applied, or tried out in the public sphere. We recognise here the 'trickling down' theory of scientific influence: from a confined centre of rational enlightenment, knowledge emerged and then slowly spread out to the rest of society. The public could choose to find out the results of the laboratory tests or remain indifferent to them, but it certainly could not add to them, dispute them, far less contribute to their elaboration. Science was an activity carried out inside the walls of the laboratory. Experiments were undergone by animals, materials, figures and software. Outside the laboratory was the realm of experience – not experiment.

It would be an understatement to say that absolutely nothing has been left of this trickling down model of scientific production. The laboratory has extended its walls to the whole planet. Instruments are everywhere. Houses, factories, hospitals have become so many subsidiaries of the laboratories. Think, for instance, of the satellite network Global Positioning System (GPS), with which geologists and naturalists can now take measurements with the same range of precision outside and inside their

laboratories. Think of the monitoring systems for fish quotas, for volcanoes, for glaciers: everywhere, instruments criss-cross the 'outside world' as if it were made of graph paper. Think of the new requirements for traceability, quality control and standardisation, which are as stringent outside factories as inside them. The difference between natural history – outdoor science – and lab science has slowly been eroded; so much so that it is now possible, through 3-D equipment, to organise 'field trips' inside datascares projected onto a screen in conference rooms. Soldiers in the recent war with Iraq, with one eye on the actual battlefield and the other on the 'digital battle field', must have found it difficult to detect the difference between the inside and the outside of the command-and-control war rooms.

Of course, nothing is more 'global' than global warming, which seems to be eroding the very planet from the outside. The key question of **global warming demonstrates the fact that experiments are now taking place on a life-size scale and in real time.** To be sure, many simulations and complex models are being tried out on huge computers, but the real experiment is happening to us, through the action of each of us, with all the oceans, high atmosphere and even the Gulf Stream – as some oceanographers argue – participating. The only way to find out if global warming is indeed due to anthropic activity is to see what happens if we try to eliminate noxious emissions. This is indeed an experiment in which we are all involved. What is the difference between this collective experiment and what used to be called a 'political' issue? Nothing. And this is precisely the point. **The sharp distinction between, on the one hand, scientific laboratories experimenting on theories and phenomena inside their walls, and, on the other, a political outside where non-experts get by with human values, opinions and passions, is simply evaporating before our eyes.** These experiments made on us, by us and for us have no protocol. No one is in charge. No one is explicitly given the responsibility for monitoring them. Who has the last word, the power to decide for all of us? This is why a new definition of sovereignty is being called for.

When I say that the distinction between the inside and outside of the laboratory has disappeared, however, I am not saying that from now on everything is political. I am simply saying that contemporary scientific controversies are designing what Arie Rip and Michel Callon have called 'hybrid forums'. There used to be two types of representation: the representation of things in nature – and here the word 'representation' signifies accuracy, precision and reference – and the representation of people in society – where it means faithfulness, election, confidence, obedience. A simple way to characterise our times is to say that the two meanings of representation have now merged into one, around the notion of spokespersons offering clearly staged demonstrations to prove the existence of some new entity that becomes the object of collective concern.

The global-warming controversy is just one of those many new hybrid forums. Around the table, some people are spokespersons for high atmosphere, some represent the many lobbies for oil and gas, others speak for non-governmental organisations, while some still represent, in the classical sense, their electors. The

sharp difference that seemed so important between those who represent things and those who represent people has simply vanished. What counts is that all these spokespersons are in the same room, engaged in the same collective experiment, in an imbroglio of people and things. This does not mean that everything is political, but that a new politics certainly has to be devised, as Peter Sloterdijk has so forcefully argued in his vertiginous text *Regeln für den Menschenpark* (Rules for the Human Park).

One way to summarize this argument is to remind oneself that in both Old English and Old German the word 'thing' meant a case, a controversy, a cause to be collectively decided at the 'Thing', the assembly or forum. In other words, it referred to what was inside the human realm, as opposed to outside it. It is no coincidence that Eliasson is a son of Iceland, whose Parliament, the most ancient of Europe, is called the Althing and its members Althingmen. As an Icelander he knows quite well that all 'things' —matters of concern— begin and end in the Althing. One can say that **things have become 'things' again:** Ein Ding ist Ein Thing. If one looks at the scientific as well as in the lay press, there is hardly a thing that has not also become, through litigation or protestation, also a case, une affaire as we would say in French, res in Latin, aitia in Greek. Hence the expression I have chosen for this new politics: the **Parliament of Things.**

Let us dwell for a moment on this major transformation. It is one of the most tragic intellectual failures of our age that the best minds, the highest moral authorities we possess, dream only of one thing: 'If only', they say, 'we could control science, separate it entirely from the realm of human values, keep humanity safely protected from the encroachment of instrumental rationality, then we could live better lives.' John Rawls, for instance, invites us to judge about values hidden behind a 'veil of ignorance' while Jürgen Habermas would like us to put aside 'objectification' and 'reification' so as to deliberate more freely. They want to keep science and technology as distinct as possible from the search for values, meaning and ultimate goals! Is this not a tragedy if, as I have argued, the present trend is leading precisely in the opposite direction, so that the most urgent concern for us today is to make sure that we fuse together humans and non-humans in the same hybrid forums so as to inaugurate, as fast as possible, this Parliament of Things? When all our energy should be directed to this task, our best minds are dreaming, on the contrary, of an even sharper division that would render us even more inhuman than we are now, deprived of our very conditions of humanness: the things, the controversial states of affairs to which we are attached and without which we would die on the spot. Humanists of many hues and shades are scoring own goals, shooting themselves in the foot, wishing for what would be, if realised, the darkest of all nightmares.

The tragedy is compounded, when we see, on the other hand, numerous mad scientists who are still imagining the possibility of 'naturalising' the whole of social life and collective existence by taking it not as a controversial collective experiment but as a concatenation of incontrovertible causalities that are known only to them. Richard Dawkins still dream of limiting our bodies to our genes as much as Steven

Pinker dreams of reducing our words to our brain. In their hands, those interesting cases, those beautiful controversies in search of a forum, are no longer what I would like to call matters of concern, but have become boring, cold matters of fact, stripped of every one of the ingredients necessary to make them scientific: researchers, instruments, theories, hesitations, history and collective experiments in which the scientists play a role among many others. From now on, I will use these contrasting terms: the modernist 'matters of fact' – invented for political reasons in the seventeenth century – and the non-modern 'matters of concern' in which we are now entangled.

As an example we could take the 'discourse of gene action', as Evelyn Fox-Keller calls it. How ridiculous it would be to try to keep a genetic interpretation of human behaviour as remote as possible from a moral, symbolic or phenomenological one, since genetics itself, as a science, is one of those hybrid forums torn apart by many fascinating controversies. The distance between Richard Dawkins' genetic theories and those of Richard Lewontin, for instance, is much greater than that between the whole field of genetics and, let's say, Jurgen Habermas' or Paul Ricoeur's view of humanity. This is what has changed so much: there are still people who oppose the notion of splitting science and humanity into 'two cultures', but their efforts have now moved inside the sciences themselves, which, in the meantime, have expanded to cover the whole of culture and politics. The new political, moral, ethical, artistic fault lines are now inside the sciences and technology, but to say 'inside' no longer means anything since it is also everywhere in the collective experiments in which we are all involved. If nothing is left of the trickling down model of science production, nothing is left of the two-culture argument either, even though our best minds still dream of keeping scientific facts and human values apart, or – even stranger – expect to 'build a bridge' between the two domains as if they were not totally entangled. Perhaps it is less a tragedy than a farce.

However, the fact that we cannot count on the help of moralists does not mean that we have to shy away from our collective task of reinventing politics for things or that we have to become immoral or cynical. It just means that there is some controversy about the interpretation of the present time – and we know from history how difficult it is for thinkers to interpret what the present signifies. This is why we should devise a test to measure our bearings accurately.

Those who dream of separating facts and values believe that an arrow of time, a thrust forward, clearly distinguishes the past from the future. 'Yesterday', they say, 'we were still mixing things up – ends and means, science and ideology, things and people – but tomorrow we will separate facts and values even more sharply. We will no longer confuse the way the world really is with the way it should be. Others in the past created this confusion; we won't do it in the future.' Take the test, make the experiment, ask yourself if you sense this trajectory of the arrow of time. If so, you're a modernist. There's nothing wrong with that; you're in good company. If you hesitate, even a tiny bit, you're a postmodernist. But if, in the depths of your heart you're convinced that, whereas yesterday things were a bit confused and entangled,

tomorrow facts and values, humans and non-humans, will be even more entangled, then you've stopped being modern altogether. You've entered a different world or, more precisely, you've ceased to believe that you're in a different world from the rest of humanity. You've finally discovered that when you mocked people from ages past or other cultures because, like my Celtic ancestors, they naively believed that the sky could fall on their heads, they did not mean this literally, since you too are concerned that the sky might fall on your head, in the form, for instance, of global warming. And if it is not a true belief for you, it means it was not a belief for 'them' either. Thus, there's no 'them' left. You've shifted out of the old state of anthropology as well as out of the former state of modernist history.

The lives of the ancients might have been entangled, but ours are even more so and on a much wider scale, with many more entities and agencies to take into account. If there's one thing we don't believe in any more it's the possibility of being emancipated, freed from all attachments, blissfully unaware of the consequences of our actions. End of modernist parenthesis; beginning of (or return to) what? The second modernity? 'Reflexive modernisation' as Ulrich Beck has proposed? The non modern? Why not 'terrestrial', 'mortal', 'anthropological', 'ordinary'? Yes, 'ordinary': that's the word I prefer. By ceasing to be modern, we have become ordinary humans again.

But in what way could having ceased to be modern possibly help us in carrying out our politics of controversial matters of concern, in inaugurating this Parliament of Things, the rules of which have to be written, the protocol book established? How would it make it easier to define the new sovereign?

Let me try to answer this with a simple but telling example. Monsieur Chirac, my President, decided four years ago to put an end to the violent controversy over mad-cow disease and the use of powder made out of crushed bones to feed livestock, stating that, from now on: 'Herbivores are herbivores are herbivores.' This statement is not as stupidly tautological as it sounds. Although at first sight it seems a truism, a fact of nature, it is in effect a strongly political statement, since Monsieur Chirac has taken a stand in the controversial matter of mad-cow disease and decided, yes decided, something that before would have been considered a matter of fact: 'Herbivores are herbivores and should remain so.'

Let us be careful here: when uttering this sentence, the President is not invoking Mother Nature's wisdom, forbidding man to break her limits. Chirac has a fully modernist mind (one of the few left), is a famous beef-eater, and I'm sure he doesn't give a hoot for the sacred limits of Nature. No, Monsieur Chirac is drawing what I will call, after **John Tresch, a 'cosmogram'**. He is deciding in which world he wishes the French to live: after the catastrophic collective experiment of mad-cow disease a cosmos is redesigned in which herbivores become herbivores again and for good – or at least until another cosmogram is designed.

What is a cosmos? As we know from the Greek and from the word 'cosmetic' it means a beautiful arrangement, the opposite being a kakosmos, a horrible shambles

as Plato calls it. Once we've taken for granted that there exists only one cosmos, known by a unified science and simplified as one nature, **politics** – if I'm right in my interpretation of the present – no longer resides in defining what human values should be, but in drawing, deciding, **proposing a cosmogram, a certain distribution of roles, functions, agencies to humans and non-humans**. When uttering his sentence that looks like a factual statement Monsieur Chirac is in effect defining at once a type of landscape for the Corrèze region in which he lives, a role model for cattle-raisers, a type of industry, an agro-industrial model, a pattern for consumer taste, and probably also a European Union subsidy policy.

But is this not the way political claims have always been formulated? There is nothing new in these cosmograms since politics has never been simply about human values, but also about infrastructure, city planning, boundaries, landscape, ways of life, industry, economy and so on. Telling proof of this is in the beautiful fresco by Ambrogio Lorenzetti, the famous allegory of good and bad government in Siena City Hall. This painting does not only contrast good and wicked people but, above all, harmonious and destroyed landscapes, handsome and ugly dwellings, affluent and destitute economies. Things are everywhere mixed with people; they always have been.

There is, however, a huge difference in the way political claims can now be articulated around cosmograms and the way they were authorised before. 'The Great Pan is dead', **Nature has disappeared**, and so have the 'experts' mediating between the production of science and the desire or wishes of society. By 'Nature' I mean **this unified cosmos that could shortcut political due process by defining once and for all which world we all have to live in**. Nature, contrary to superficial impression, is not an object out there, but above all a political animal: it is the way we used to define the world we have in common, the obvious existence we share, the sphere to which we all equally pertain. In addition to Nature, we used to say, there exists what divides us, what makes us enemies, what scatters us around in a maelstrom of controversies: namely passions, subjectivities, cultures, religions, tastes ... Nature unifies in advance and without discussion or negotiation; cultures divide. 'If only', the modernist dreams, 'we could all be children of nature, forget about our cultural, subjective, ideological and religious divisions, we would all be unified again, we would all zoom in on the same solution.' More nature, hence more unity; more cultures, hence more divisions.

We know from the Bible that ever since God destroyed the Tower of Babel people have been scattered around the world, prisoners of their differing dialects and of their incommensurable cultural biases. But no one has yet told the terrifying story of **the fall of the second Tower of Babel**, when Nature herself, in a mutually induced crisis that should have made all of the people of the world agree again, has been destroyed under the weight of its own ambition, and lies everywhere in ruins. To the multiculturalism born in the aftermath of the first Babel, one should now add the many tribes of multinaturalism born in the wreck of the second. The whole political energy of nature depended on its being one and unified, and indisputably so:

'herbivores are herbivores'. But what can you do with multiple natures? This is, by the way, the trap into which political ecology has fallen. Nature cannot be used to renew politics, since it is the oldest means devised to block politics and to make it impossible to compose the cosmos since the job is already done. The weakness of ecological movements everywhere has no greater cause than this use of nature, which poisons their good will and thwarts their activism. It is their mono-naturalism that renders them unable to monitor the collective experiments regarding the many natures that need to be progressively assembled. They might expand to renew politics, but only when they're ready to swallow not only multiculturalism but also multinaturalism.

In case the first trial was inconclusive, here's another test to decide for yourselves if you're modernist, postmodernist or ordinary mortals. Do you believe that the second Tower of Babel can reach Heaven and that the whole planet, having been fully naturalised, will then agree rationally on all the important issues, with the little divisions that remain being due only to subjective opinions and leftover passions? A simple, sharp, but very discriminating test: do you associate Nature with a unification already completed, or with even more divisions in great need of a unification to be completed in the future?

It is my feeling that **we now live in the ruins of Nature** – in all the senses of this expression – and also more and more in the ruins of those sciences, so prolific in the last century, that dreamed of prematurely unifying the cosmos without taking the trouble of putting into practice what Isabelle Stengers has called 'cosmopolitics'. By borrowing this venerable word from the Stoics, she does not only mean that we should be attuned to the many qualities of multiculturalism and internationalism, but to the many worries of multinaturalism as well. The whole civilisation that has been devised under the heading of 'Cosmopolitism', because it was obvious that we all shared one nature, and especially one human nature, has to be reinvented, this time with the terrible added difficulty that there are many competing natures and that they have to be unified through due process – an agonisingly slow endeavour. The common world is not behind us as a solid and indisputable ground for agreement, but before us as a risky and highly disputable goal that remains very far in the future.

Some people, especially scientists and philosophers of science, have of late been terrified on hearing the second Tower of Babel begin to crumble. Irritated by the realisation that nature can no longer unify nor reconcile, that the new sciences are not dampening the fires of passion but fuelling them, they are turning against other philosophers, 'postmodern' thinkers, science students and anthropologists of various hues. Even philosophers of science like me have been accused of being responsible for the destruction of the second Tower, as if we were strong enough to behave like Samson and bring down the pillars of established nature upon our own heads! No, we are not that strong; we don't have this power, and we have no taste for heroic suicide. As for the Tower, it was never that stable anyway; if it has crumbled it is under the weight of its own ambition. By expanding everywhere to

cover the whole of human experience it has lost its immunity, its unity, its privilege. It has become the common cause, and thus fully entered the realm of politics. Here, matters of fact have become matters of concern.

When pacing among those ruins, there is nothing to be sad or nostalgic about, since one of the many things that has made politics so weak in the past, in the European tradition at least, has been this absolute distinction between, on the one hand, the sovereignty of nature, and on the other the pathetic efforts of naked humans to put an end to their passions and divisive opinions. As long as the two Towers were not smashed to the ground at the same time it remained difficult to begin again and to define politics as what I call the 'progressive composition of the common world'. As long as one of them remained standing, it was impossible to secularise politics. You always had to defend hybrid forums against people, coming from the ranks of the social or natural sciences, who claimed that elsewhere, outside, in another place, existed a pure and perfect 'assembly' in the midst of which agreement could be obtained by 'simply' behaving rationally and by gathering people, in a reasonable manner, around 'indisputable matters of fact'. This miraculous recipe was enough to disqualify by contrast all other attempts to reach an agreement. As long as this phantom forum existed, all the others were deemed inefficient, irrational and impure.

Although, at first, it sounds like a negative step, it is a huge advantage for the monitoring of the collective experiment not to be threatened again by the promise of salvation through any science – neither physics, nor biology, nor sociology, nor economics, nor even procedural rationality. Now at least, there is no other alternative. We have already embarked. We cannot hope for the transcendence of nature, for the transcendence of rationality to come and save us. If we don't discover the ways through which the world can be made common, there will be no common world to share. It's as simple as that, and nature will no longer be sufficient to unify us, in spite of ourselves. To sum up, one could say that when Galileo modified the classical trope of the 'Book of Nature', adding that it 'was written in mathematical characters', little could he have anticipated that we would now have to say that the 'Book of Nature' is in fact a protocol book, a huge and complex ledger that should be written in a mixture of legal, moral, political and mathematical hieroglyphs. It is still a book, but how differently it reads ...

What Sloterdijk, in meteorological philosophy, and Eliasson, in meteorological art, try to do, is to explore what could be called a completely new form of idealism. Idealism used to entertain the rather silly notion that the whole outside world exists only inside the mind, thus elevated to the level of an omnipotent demiurge. Idealists were wrong about the mind's power, of course, but they were right about one thing: interesting things happen inside not outside. Because of the simultaneous extension of science and the ever increasing entanglement of human activities with things, there is no longer any outside. The remaining inside is to be explored in great detail and with great caution because it is neither a mind nor an 'outside world' as the tired old modernist argument would have it, but rather a delicate sphere of climate

control. What Sloterdijk and Eliasson help us all to discover is that even politics needs air conditioning. There is a great charm and more than a slight dose of irony in attempting such a demonstration in the empty space left by the ruined Turbine Hall – the hall of machines – at Tate Modern. Or should that be Tate non modern?

Footnotes:

Peter Sloterdijk, *Spheren I, II and III*, publisher, city date?. See for instance, this quote from the introduction to *Spheren III*: 'L'étude entreprise dans ce troisième volume reprend le fil au point où le travail de deuil sur la métaphysique impossible de l'Un est arrivé à son terme. Son point de départ, c'est la supposition du fait que la cause de la vie n'a été en de bonnes mains ni avec les religions traditionnelles, ni avec les métaphysiciens. Si la chose est exacte, il faudrait entièrement repenser la relation entre le savoir et la vie. La philosophie, en tant que forme de pensée et de vie de l'ancienne Europe, est épuisée ; la biosophie a à peine commencé ; la théorie des atmosphères se consolide tout juste et laborieusement ; la Théorie Générale des systèmes immunitaires et des systèmes communs en est à ses débuts.' English translation needed.

Ulrich Beck, *Risk Society. Towards a New Modernity*, Sage, London, 1992.

See 'Theatre of the Proof', in the catalogue *Laboratorium*, Antwerp, 1999 (exhibition [at what venue?] curated by Hans Ulrich Obrist and Barbara Vanderlinden).

See Peter Dear, *Experiment As Metaphor In The Seventeenth Century*, publisher, city?, 1990, pp. 1–26; Peter Dear, *Discipline and Experience: The Mathematical Way in the Scientific Revolution*, University of Chicago Press, Chicago, 1995; Christian Licoppe, *La formation de la pratique scientifique. Le discours de l'expérience en France et en Angleterre (1630-1820)*, La Découverte, Paris, 1996.

See W.S. Broecker, *Science*, no. 278, pp. 1582–8

Michel Callon and Arie Rip, 'Forums hybrides et négociations des normes socio-techniques dans le domaine de l'environnement', in *Environnement, Science et Politique*, Cahiers du GERMES, no. 13, 1991, pp. 227–38.

Peter Sloterdijk, *Règles pour le parc humain, Mille et une nuits*, Paris, 2000.

See Y.[full name?] Thomas, 'Res, chose et patrimoine (note sur le rapport sujet-objet en droit romain)', *Archives de philosophie du droit*, no. 25, 1980, pp. 413–26. He argues that the course of history is exactly the opposite of what Martin Heidegger suggested – that all *Gegenstand* have now become *Ding* – in *What is a Thing?*, translated by W.B. Barton, Jr, and Vera Deutsch, with an analysis by Eugene T. Gendlin, publisher?, Chicago, 1968.

See Bruno Latour, *We Have Never Been Modern*, Harvard University Press, Cambridge, Mass., 1993, and its elaboration in *Politics of Nature* (to be published by Harvard University Press in spring 2004, English translation by Cathy Porter).

For a very early example [of what?] see Ludwig Fleck, *Genesis and Development of a Scientific Fact*, The University of Chicago Press, Chicago, 1935, and for a more recent case, Hans-Jorg Rheinberger, *Toward a History of Epistemic Thing. Synthetizing Proteins in the Test Tube*, Stanford University Press, Stanford, 1997. Matters of concern are what matters of fact become once you add to 'factuality' all that these authors deem necessary for the existence and sustenance of facts.

This difference is also a way of reminding ourselves that it is not a question of being anti-empiricist but of respecting in the empirical setting a much more complex situation than the one staged by the seventeenth-century philosophers. See Mary Poovey, *History of the Modern Fact. Problems of Knowledge in the Sciences of Wealth and Society*, Chicago University Press, Chicago, 1999.

Evelyn Fox-Keller, *The Century of the Gene*, Harvard University Press, Cambridge, 2000.

Richard Lewontin, *The Triple Helix. Gene, Organism and Environment*, Harvard University Press, Cambridge, Mass., 2000, for example. Equally distant from Dawkins' views are those of the biologists Jean-Jacques Kupiec and Pierre Sonigo, who have published in French a fabulous book with the fiery title *Ni Dieu ni gène* (Neither God nor gene), *Le Seuil-Collection Science ouverte*, Paris, 2000. They see the whole idea of the gene as information carrier as a mere theological fiction. 'Belief in belief' was the object of a systematic enquiry made by an exhibition held at ZKM, Karlsruhe, Germany, 2002. See the catalogue Bruno Latour and Peter Weibel (eds), *Iconoclasm. Beyond the Image Wars in Science, Religion and Art*, MIT Press, Cambridge, Mass., 2002.

Ulrich Beck, A. Giddens, et al., *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*, Stanford University Press, Stanford, 1994.

John Tresch, 'Mechanical Romanticism: Engineers of the Artificial Paradise', PhD Thesis, Department of History and Philosophy of Science, University of Cambridge, 2001.

See the excellent chapter on this by Quentin Skinner in *Ambrogio Lorenzetti: the artist as political philosopher*, Cambridge University Press, Cambridge.

For a more complete argument see Bruno Latour, *War of the Worlds: What about Peace?*, Prickly Press Pamphlet, Chicago University Press, Chicago, 2002, and especially Bruno Latour, *Politiques de la nature. Comment faire entrer les sciences en démocratie*, *La Découverte*, Paris, 1999 (to be published by Harvard University Press, English translation by Catherine Porter, in 2004).

Isabelle Stengers, *Cosmopolitiques - Tome 1: la guerre des sciences*, *La découverte & Les Empêcheurs de penser en rond*, Paris, 1996.

This is what has been called the 'science wars', supposedly pitting together 'real' scientists and postmodern thinkers indifferent to truth. On this rather obscure affair, see B. Jurdant (ed.), *Impostures intellectuelles. Les malentendus de l'affaire Sokal*, *La Découverte*, Paris, 1998, I. [full name?] Hacking, title, publisher, city?, 1999. For an analysis of the philosophical stakes of the debate, see author?, *The Social Construction of What?* Harvard University Press, Cambridge, Mass., date?. See Latour, *Politiques de la nature*, op. cit.

See the two chapters on Plato's *Gorgias* in Latour, *Pandora's Hope. Essays on the reality of science studies*, Harvard University Press, Cambridge, Mass, 1999.

'Phantom' is an allusion to W. Lippmann, *The Phantom Public*, Transactions Publishers, New Brunswick, 1993.

Only the absurd theories of science harboured by so many current artists and art critics could explain how the flood of kitschy biotech cyborgian clichés exhibited by artists such as Matthew Barney could pass for great and profound art 'about'

biology. Any article in Nature or Science on DNA, embryos, termites or heart disease would generate ten times more 'art' for a fraction of the expense.