Finally, when everything else has failed, the resource of fiction can bring—through the use of counterfactual history, thought experiments, and 'scientifiction'—the solid objects of today into the fluid states where their connections with humans may make sense. Here again, sociologists have a lot to learn from artists.[102]

Whatever solution is chosen, the fieldwork undertaken by ANT scholars has demonstrated that if objects are not studied it is not due to a lack of data, but rather a lack of will. Once the conceptual difficulty of the flip-flop between commensurability and incommensurability has been lifted, all of the remaining problems are matters of empirical research: they are not a matter of principle any more. The impassable boundary marked by some Herculean Columns to stop the social sciences reaching beyond the narrow confines of social ties has been left behind. It's thus possible now for social scientists to catch up with what paleontologists call 'anatomically modern humans', who have already been settled for tens of thousands of years beyond the limits dictated to them by *social* science.

Who has been forgetting power relations?

We can now at last put our finger on what upset ANT so much in the pretensions of the sociology of the social to explain asymmetries in order to be faithful to the central intuition of their science: they could not deliver. The word 'social' meant either local face-to-face interactions that were too transient to account for asymmetries or a magical appeal to tautological forces whose exact price in object-load they were never ready to fully pay.

Social explanations run the risk of hiding that which they should reveal since they remain too often 'without object'.[103] In their study, sociologists consider, for the most part, an object-less social world, even though in their daily routine they, like all of us, might be constantly puzzled by the constant companionship, the continuous intimacy, the inveterate contiguity, the passionate affairs, the convoluted attachments of primates with objects for the past one

[102] It ranges from Francis Ponge's (1972), *The Voice of Things* to the thought experiments allowed by science fiction or Richard Powers's decisive work as a novelist of science studies in, for instance, Richard Powers (1995), *Galatea 2.2*.

[103] Even though objects proliferate in the works of Simmel, Elias, and Marx, the presence of objects is not enough to load the social. It's their way of entry that makes the difference. Hence the necessity to add the fourth uncertainty (see next chapter) to the one on agency and later the redefinition of politics (see Conclusion). For a very useful collection of cases on the effect of technology studies on materialism, see Donald MacKenzie and Judy Wajcman (1999), *The Social Shaping of Technology*

From:

LaTour, Bruno. Reassembling the Social: An Introduction to Actor-Network Theory. Oxford University Press. New York: 2005. Pgs 82-93, 106-115, 193-199, 232-41

million years. When we define the quality control of ANT accounts, we have to be very scrupulous in checking whether power and domination are explained by the multiplicity of objects given a central role and transported by vehicles which should be empirically visible—and we will not be content to have power and domination *themselves* be the mysterious container that holds inside of it that which makes the many participants in the action move.

To follow the social links even when they weave their way through non-social objects might be difficult for a reason that has nothing to do with theory. For the social scientists, there were some serious motives behind the need to ceaselessly patrol the border separating the 'symbolic' from the 'natural' domain, namely a good—that is, a bad—polemical argument. To carve out a little niche for themselves, they had abandoned, early in the 19th century, things and objects to the scientists and engineers. The only way to plead for a little autonomy was to forsake the vast territories they had given up and stick forcefully to the shrinking plot allotted to them: 'meaning', 'symbol', 'intention', 'language'. When a bicycle hits a rock, it is not social. But when a cyclist crosses a 'stop' sign, it becomes social. When a new telephone switchboard is installed, this is not social. But when the colors of telephone sets are discussed, this becomes social because there is, as designers say, 'a human dimension' in the choice of such a fixture. When a hammer hits a nail, it is not social. But when the image of a hammer is crossed with that of a sickle, then it graduates to the social realm because it enters the 'symbolic order'. Every object was thus divided in two, scientists and engineers taking the largest part—efficacy, causality, material connections—and leaving the crumbs to the specialists of 'the social' or 'the human' dimension. Thus, any allusion by ANT scholars to the 'power of objects' over social relations was a painful reminder, for sociologists of the social, of the clout of the other 'more scientific' departments on their independence—not to mention grant money—and on the territories they were no longer allowed to walk through freely.

But polemics among disciplines does not produce good concepts, only barricades made of any available debris. When any state of affairs is split into one material component to which is added as an appendix a social one, one thing is sure: this is an artificial division imposed by the disciplinary disputes, not by any empirical requirement. It simply means that most of the data has vanished, that the collective course of action has not been followed through. To be 'both material and social' is not a way for objects to exist: it is simply a way for them to be artificially cut off and to have their specific agency rendered utterly mysterious.

It is fair to say that social scientists were not alone in sticking polemically to one metaphysic among the many at hand. Their 'dear colleagues' in the other hard science departments were also trying to claim that all material objects have only 'one way' to act and that was to 'causally determine' other material objects to move. As we shall see in the next chapter, they were granting the social no other role than that of an intermediary faithfully 'transporting' the causal weight of matter. When the social realm is given such an infamous role, great is the temptation to overreact and to turn matter into a mere intermediary faithfully 'transporting' or 'reflecting' society's agency. As usual with those polemics among disciplines, stupidity breeds stupidity. To avoid the threat of 'technical determinism', it is tempting to defend adamantly 'social determinism', which in turn becomes so extreme (the steam engine becoming, for instance, the 'mere reflection' of 'English capitalism') that even the most open-minded engineer becomes a fierce technical determinist bumping the table with virile exclamations about the 'weight of material constraints'. These gestures have no other effect but to trigger even a moderate sociologist to insist even more vehemently on the importance of some 'discursive dimension'.[104]

What renders these disputes moot is that the choice between these positions is unrealistic. It would be incredible if the millions of participants in our courses of action would enter the social ties through three modes of existence and *only three*: as a 'material infrastructure' that would 'determine' social relations like in the Marxian types of materialism; as a 'mirror' simply 'reflecting' social distinctions like in the critical sociologies of Pierre Bourdieu; or as a backdrop for the stage on which human social actors play the main roles like in Erving Goffman's interactionist accounts. None of those entries of objects in the collective are wrong, naturally, but they are only primitive ways of packaging the bundle of ties that make up the collective. None of them are sufficient to describe the many entanglements of humans and non-humans.

Talking of 'material culture' would not help very much since objects, in this case, would be simply connected *to one another* so as to form an homogeneous layer, a configuration which is even less likely than one which imagines humans linked to one another by nothing else than

[104] See examples of this tug-of-war and on the ways to pacify it in Philippe Descola and Gisli Palsson (1996), *Nature and Society. Anthropological Perspectives*. See also Tim Ingold (2000), *Perception of the Environment: Essays in Livelihood, Dwelling and Skill* and the early discussions around Bijker's volumes in Wiebe Bijker and John Law (1992), *Shaping Technology-Building Society: Studies in Sociotechnical Change*; Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch (1987), *The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology*; and Wiebe Bijker (1995), *Of Bicyles, Bakelites, and Bulbs. Towards a Theory of Sociotechnical Change*.

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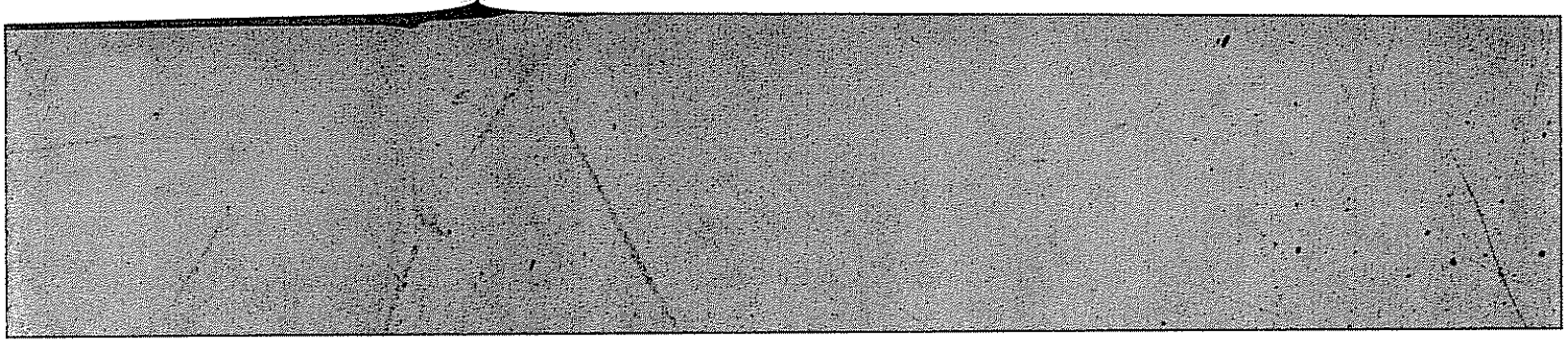
social ties. Objects are never assembled together to form some other realm anyhow, and even if it were the case they would be neither strong nor weak—simply 'reflecting' social values or being there as mere decorum. Their action is no doubt much more varied, their influence more ubiquitous, their effect much more ambiguous, their presence much more distributed than these narrow repertoires. The best proof of this multiplicity is provided by a close look at what objects really do in the texts of the writers alluded to above: they deploy many *other* ways for objects to act than the ones granted to them by their author's own philosophy of matter. Even as textual entities, objects overflow their makers, intermediaries become mediators.[105] But in order to learn this lesson, the research field should be made wide open to begin with and it cannot be opened if the difference between human action and material causality is maintained as adamantly as Descartes's distinguished mind from matter (*res extensa* from the *res cogitans*) as a proof of scientific, moral and theological virtue—and even *he* kept open the tiny conduit of the pineal gland that sociologists of the social have cut off as well.

There exists, however, an even more important reason for rejecting adamantly the role given to objects in the sociology of the social: it voids the appeals to power relations and social inequalities of any real significance. By putting aside the practical means, that is the mediators, through which inertia, durability, asymmetry, extension, domination is produced and by conflating all those different means with the powerless power of social inertia, sociologists, when they are not careful in their use of social explanations, are the ones who hide the real causes of social inequalities. If there is one point where confusing cause and effect makes a huge difference, it is at this juncture when an *explanation* should be provided for the vertiginous effect of domination. Of course, appealing to 'social domination' might be useful as shorthand, but then it is much too tempting to *use* power instead of *explaining* it and that is exactly the problem with most 'social-explainers': in their search for *powerful explanations*, is it not *their* lust for power that shines through? If, as the saying goes, absolute power corrupts absolutely, then gratuitous use of the concept of power by so many critical theorists has corrupted them absolutely—or at least rendered their discipline redundant and their politics impotent. Like the 'dormitive virtue of opium' ridiculed by Molière, 'power' not only puts analysts to sleep, which does not matter so much, it also try to anesthetize the actors as well—and that is a political crime. This

[105] A crucial case is fetishism in *The Capital* where the textual fetish does much more in the text of Marx than what Marx himself reduces the fetish to do. See William Pietz (1985), 'The Problem of the Fetish, I' and William Pietz (1993), 'Fetishism and Materialism: the Limits of Theory in Marx'.



rationalist, modernist, positivist science nurtures in its bosom the most archaic and magical ghost: a self-generated, self-explicative society. To the *studied* and *modifiable* skein of means to achieve powers, sociology, and especially critical sociology, has too often substituted an invisible, unmovable, and homogeneous world of power for itself.[106] In sociology, powerful explanations should be counterchecked and counterbalanced.

Thus, the accusation of forgetting 'power relations' and 'social inequalities' should be placed squarely at the door of the sociologists of the social. If sociologists of associations wish to inherit this ancient, venerable, and fully justified intuition of the social science—power is unequally distributed—they also have to explain how domination has become so efficacious and through which unlikely means. Quite reasonably, it is for them the only way to make it modifiable. But to do so, a fourth uncertainty has to be accepted, a fourth can of worms opened—and this one is a Pandora's box.

[106] That this lesson is easy to forget is shown dramatically by the transatlantic destiny of Michel Foucault. No one was more precise in his analytical decomposition of the tiny ingredients from which power is made and no one was more critical of social explanations. And yet, as soon as Foucault was translated, he was immediately turned into the one who had 'revealed' power relations *behind* every innocuous activity: madness, natural history, sex, administration, etc. This proves again with what energy the notion of social explanation should be fought: even the genius of Foucault could not prevent such a total inversion.

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Fourth Source of Uncertainty: Matters of Fact vs. Matters of Concern

Groups are made, agencies are explored, and objects play a role. Such are the three first sources of uncertainty we rely on if we want to follow the social fluid through its ever-changing and provisional shapes. So far, our core hypothesis may still remain acceptable to those who define social in the traditional sense of the word. To be sure, it requires more work: an extension of the list of actors and agencies; a deepening of the conflicts about practical metaphysics; an abandonment of the artificial divide between social and technical 'dimensions'; a pursuit through areas scarcely visited until now; a new practice of finding controversies more rewarding and, in the end, more stable than absolute departure points; and, finally, an invitation to develop a puzzling new custom to generously share metalanguage, social theory, and reflexivity with the actors themselves who are no longer considered as mere 'informants'. Still, the travels that are made possible by such a new departure point, although rougher and bumpier, have not requested any basic changes in the *scientific* outlook itself. After all, sociology may remain a science even though this means paying a higher price than expected, visiting sites that had not been anticipated, accepting more relativity, and deploying more contradictory philosophies than seemed necessary at first glance. On the whole, abandoning the ether of society to feed off of controversies doesn't seem to be that much of a sacrifice. No matter how startling at first, new habits of thought might be quick to form.

Unfortunately, the difficulties we have to tackle do not stop at these three. A fourth source of uncertainty has to be accepted, and this one will lead us to the trickiest points of the sociology of associations as well as to its birthplace. Sociology of science, or what is known as 'science studies', is a convenient although banal translation into

English of the Greek word 'epistemology'.[107] After having doubted the 'socio' in the word socio-logy, we now have to doubt its 'logy'. Once this double revision is completed, we might finally be able to use the word positively again and without too many qualms. At this juncture problems become so numerous that all our travels would come to a stop if we were not careful enough to prepare the visitors to get through this tangle. Once again, in order to gain some freedom of movement we have to learn how to go even slower.

Constructivism vs. social constructivism

ANT is the story of an experiment so carelessly started that it took a quarter of century to rectify it and catch up with what its exact meaning was. It all started quite badly with the unfortunate use of the expression 'social construction of scientific facts'. We now understand why the word 'social' could entail so much misunderstanding; it confused two entirely different meanings: a kind of stuff and a movement for assembling non-social entities. But why has the introduction of the word 'construction' triggered even more confusion? In accounting for this difficulty, I first hope to make clear why I give so much prominence to the tiny subfield of science studies. It has renewed the meaning of all the words making up this innocent little expression: what is a fact, what is a science, what is a construction, and what is social. Not so bad for an experiment so recklessly conducted!

In plain English, to say something is constructed means that it's not a mystery that has popped out of nowhere, or that it has a more humble but also more visible and more interesting origin. Usually, the great advantage of visiting construction sites is that they offer an ideal vantage point to witness the connections between humans and non-humans. Once visitors have their feet deep in the mud, they are easily struck by the spectacle of all the participants working hard at the time of their most radical metamorphosis.[108] This is not only true of science but of all the other construction sites, the most obvious being those that are at the source of the metaphor, namely houses and

[107] A striking proof of the impact of science studies on social theory is provided by the parallel effect it had on Haraway. See Donna J. Haraway (1991), *Simians, Cyborgs, and Women: The Reinvention of Nature*. Pickering's critique of the earlier explanations provided by the Edinburgh school (Andy Pickering (1995), *The Mangle of Practice: Time, Agency and Science*) as well as Karin Knorr-Cetina's definition of agencies in science (Karin Knorr-Cetina (1999), *Epistemic Cultures: How the Sciences Make Knowledge*) They all had to take a similar turn.

[108] This is of course Marx's decisive insight and remains the crucial advantage of any historicization.

buildings fabricated by architects, masons, city planners, real estate agents, and homeowners.[109] The same is true of artistic practice.[110] The 'making of' any enterprise—films, skyscrapers, facts, political meetings, initiation rituals, haute couture, cooking—offers a view that is sufficiently different from the official one. Not only does it lead you backstage and introduce you to the skills and knacks of practitioners, it also provides a rare glimpse of what it is for a thing to emerge out of inexistence by adding to any existing entity its time dimension. Even more important, when you are guided to any construction site you are experiencing the troubling and exhilarating feeling that things *could be different,* or at least that *they could still fail*—a feeling never so deep when faced with the final product, no matter how beautiful or impressive it may be.

So, using the word 'construction' seemed at first ideal to describe a more realistic version of what it is for anything to *stand*. And indeed, in all domains, to say that something is constructed has always been associated with an appreciation of its robustness, quality, style, durability, worth, etc. So much so that no one would bother to say that a skyscraper, a nuclear plant, a sculpture, or an automobile is 'constructed'. This is too obvious to be pointed out. The great questions are rather: How well designed is it? How solidly constructed is it? How durable or reliable is it? How costly is the material? Everywhere, in technology, engineering, architecture, and art, construction is so much a *synonym* for the real that the question shifts immediately to the next and really interesting one: Is it *well* or *badly* constructed?

At first, it seemed obvious to us—the early science students—that if there existed building sites where the usual notion of constructivism should be readily applied, it had to be the laboratories, the research institutes, and their huge array of costly scientific instruments. Even more so than in art, architecture, and engineering, science offered the most extreme cases of complete *artificiality* and complete *objectivity* moving in parallel. There could be no question that laboratories, particle accelerators, telescopes, national statistics, satellites arrays, giant computers, and specimen collections were artificial places the history of which could be documented in the same way as for buildings, computer chips, and locomotives. And yet there was not the slightest doubt that the products of those artificial and costly sites were the most ascertained, objective, and certified results ever

[109] See two totally different but equally remarkable examples in Tracy Kidder (1985), *House* (1985) and Rem Koolhas and Bruce Mau (1995), *Small, Medium, Large, Extra-Large* No one should use the word 'construction' without reading first the 'constructors'.

[110] See Albena Yaneva (2001), *L'affluence des objets Pragmatique comparée de l'art contemporain et de l'artisanat'* and Albena Yaneva (2003), 'When a Bus Meet a Museum. To Follow Artists, Curators and Workers in Art Installation'

obtained by collective human ingenuity. This is why it was with great enthusiasm that we began using the expression 'construction of facts' to describe the striking phenomenon of artificiality and reality marching in step. Moreover, to say that science, too, was constructed gave the same thrill as with all the other 'makings of': we went back stage; we learned about the skills of practitioners; we saw innovations come into being; we felt how risky it was; and we witnessed the puzzling merger of human activities and non-human entities. By watching the fabulous film that our colleagues the historians of science were shooting for us, we could attend, frame after frame, to the most incredible spectacle: truth being slowly achieved in breathtaking episodes without being sure of the result. As far as suspense was concerned, history of science outdid any plot Hollywood could imagine. Science for us became better than simply objective, it became *interesting*, just as interesting as it was for its practitioners engaged in its risky production.[111]

Unfortunately, the excitation went quickly sour when we realized that for other colleagues in the social as well as natural sciences the word construction meant something entirely different from what common sense had thought until then. To say that something was 'constructed' in their minds meant that something was not true. They seemed to operate with the strange idea that you had to submit to this rather unlikely choice: *either* something was real and not constructed, *or* it was constructed and artificial, contrived and invented, made up and false. Not only could this idea not be reconciled with the sturdy meaning one had in mind when talking about a 'well constructed' house, a 'well designed' software, or a 'well sculpted' statue, but it flew in the face of everything we were witnessing in laboratories: to be contrived and to be objective went together. If you began breaking the seamless narratives of fact making into two branches, it made the emergence of any science simply incomprehensible. Facts were facts—meaning exact—*because* they were fabricated—meaning that they emerged out of artificial situations. Every scientist we studied was proud of this connection between the quality of its construction and the quality of its data. This strong connection was actually one's main claim to fame. While the epistemologists might have forgotten this, etymology was there to remind everybody.[112] We were prepared to answer the more interesting question: Is a given fact of science *well* or

[111] Before the 'anti-whiggish' reactions in the history of science, it was impossible to share the *libido sciendi* of practitioners: faced with the final product, the public had no other way to get interested in science but the pedagogical injunction: 'It's true, so you should know about it.'

[112] The French epistemologist Gaston Bachelard has often insisted on this double etymology. For an English presentation see Mary Tiles and Robert B Pippin (1984), *Bachelard: Science and Objectivity*.

badly constructed? But certainly not to sway under this most absurd alternative: 'Choose! Either a fact is real or it's fabricated!'

And yet, it became painfully clear that if we wanted to go on using the word construction we would have to fight on two fronts: against the epistemologists who went on claiming that facts were 'of course' not constructed—which had about as much sense as saying that babies are not born out of their mother's wombs—and against our 'dear colleagues' who seemed to imply that if facts were constructed then they were as weak as fetishes—or at least what they *believed* fetishists 'believed' in. At which point, it could have been safer to abandon the word 'construction' entirely—especially since the word 'social' had the same built-in defect of maddening our readers as surely as a torero's cape in front of a bull. On the other hand, it remained an excellent term for all the reasons just mentioned. Especially useful was the clear fashion in which 'construction' focused on the scene in which humans and non-humans were fused together. Since the whole idea of the new social theory we were inventing was to renew in both directions what was a social actor and what was a fact, it remained crucial not to lose sight of those most extraordinary building sites where this double metamorphosis was occurring. This is why I thought it more appropriate to do with constructivism what we had done for relativism: thrown at us like insults, both terms had a much too honorable tradition not to be reclaimed as a glorious banner. After all, those who criticized us for being relativists never noticed that the opposite would be *absolutism*.[113] And those who criticized us for being constructivists would have probably not wished to see that the opposite position, if words have any meaning, was *fundamentalism*.[114]

On the one hand, it seemed easy enough to reclaim a sturdy meaning for this much maligned term construction: we simply had to use the new definition of social that was reviewed in the earlier chapters of this book. In the same way as a Socialist or an Islamic Republic is the opposite of a Republic, adding the adjective 'social' to 'constructivism' completely perverts its meaning. In other words, 'constructivism' should not be confused with 'social constructivism'. When we say that a fact is constructed, we simply mean that we account for the solid objective reality by mobilizing various entities whose assemblage could fail; 'social constructivism' means, on the other hand, that we *replace* what this reality is made of with some *other stuff*, the social in which it is 'really' built. An account about the heterogeneous genesis of a building is substituted by another one dealing with the homogeneous

[113] David Bloor (1991), *Knowledge and Social Imagery*

[114] Bruno Latour (2003a), 'The Promises of Constructivism'. I am following here in this chapter the clarifying work of Ian Hacking (1999), *The Social Construction of What?*

social matter in which it is built. To bring constructivism back to its feet, it's enough to see that once social means again association, the whole idea of a building made of social stuff vanishes. For any construction to take place, non-human entities have to play the major role and this is just what we wanted to say from the beginning with this rather innocuous word.

But obviously this rescue operation was not enough since the rest of the social sciences seemed to share a completely different notion of the same term. How could that be? Our mistake was that since we had never shared the idea that construction could mean a reduction to only one type of material, we produced antibodies against the accusation that we had reduced facts to 'mere construction' only very slowly. Since it was obvious to us that 'social construction' meant a renewed attention to the number of heterogeneous realities entering into the fabrication of some state of affairs, it took years for us to react in a balanced way to the absurd theories with which we appeared to be associated.[115] Even though constructivism was for us a synonym for an *increase* in realism, we were feted by our colleagues in social critique as having shown at last that '*even* science is bunk'! It took me a long time to realize the danger of an expression that, in the hands of our 'best friends', apparently meant some type of revenge against the solidity of scientific facts and an exposé of their claim to truth. They seemed to imply that we were doing for science what they were so proud of having done for religion, art, law, culture, and everything the rest of us believe in, namely reducing it to dust by showing it was made up. For someone who had never been trained in critical sociology, it was hard to imagine that people could use the causal explanation in their own discipline as proof that the phenomena they were accounting for didn't really exist, not to mention that they were associating the artificiality of the construction with a *deficit* in reality. Unwittingly, constructivism had become a synonym of its opposite number: deconstruction.

No wonder that our excitement in showing the 'social construction of scientific fact' was met with such fury by the actors themselves! For physicists, it is far from the same thing to settle complex controversies about black holes or to be presented instead with 'power struggles among physicists'. For a religious soul, it is far from the same thing to address God in prayer and to be said to pray only to 'the personalization

[115] Since, in the French tradition, constructivist and rationalist are synonymous, it was especially difficult for the French. The association of the word 'construction' with any suspicion about the reality of science crossed our 'Duhemian' (see Pierre Duhem (1904), *La Théorie Physique. Son objet sa structure*), 'Bachelardian', or 'Canguilhemian' mind only very slowly. See Georges Canguilhem (1968 [1988]), *Ideology and Rationality in the History of the Life Sciences*.

of Society'. For a lawyer, it is not the same thing to obey the Constitution or to yield to powerful lobbies hidden behind the law. For a haute couture seamstress, it is not the same to cut through thick and shiny velvet or to be said to make 'social distinction' visible. For a follower of a cult, it's not the same thing to be tied to the existence of a divinity and to be told that one adores a fetish made out of wood. The substitution of the social with other stuff seems to every actor a catastrophic loss to be adamantly resisted—and rightly so! If, however, the word social is not used to replace one kind of stuff by another, but is used instead to deploy the associations that have rendered some state of affairs solid and durable, then another social theory might become audible at last.

How could there be, we wondered, such a divide in the basic duties of social science? This is why it slowly dawned on us that there was something deeply flawed not only in the standard philosophy of science, but also in the standard social theories used to account for *other domains* than science. This is what made ANT scholars at first look either too critical—they were accused of attacking 'even' matters of facts and of not 'believing' in 'Nature' or in 'outside reality'—or much too naive—they believed in the agencies of 'real things' that were 'out there'.[116] In effect, what ANT was trying to modify was simply the use of the whole critical repertoire by abandoning *simultaneously* the use of Nature and the use of Society, which had been invented to reveal 'behind' social phenomena what was 'really taking place'. This, however, meant a complete reinterpretation of the experiment that we had conducted, at first unwittingly, when trying to account sociologically for the production of science. After all, there is a lot to be said in favor of red flags in the hands of clever toreros as they might, in the end, allow one to tame the wild beast.

The fortunate wreck of sociology of science

Let me first dispose of a mistake frequently made about our original subfield by people who are not conversant with it—and that means, I am afraid, most of the world. The field of science studies is often presented as the *extension* of the same normal sociology of the social to a new object: scientific activities. After having studied religion, class struggles, politics, law, popular cultures, drug addiction, urbanism,

[116] The first critique has been offered during the 'Science Wars' episode, the second can be seen in Collins and Yearley 'Epistemological Chicken'; Simon Schaffer (1991a), 'The Eighteenth Brumaire of Bruno Latour'; and Steve Woolgar (1991), 'The Turn to Technology in Social Studies of Science'

When they have to transport social explanations to the sanctuary of science, factors have an unfortunate tendency to run out of gas! Naturally, this had always been true for the transportation of all the other entities to the various sanctuaries of law, religion, technology, markets, and subjectivities. But before science studies, it was never noticed how quickly they came to a full stop. The experiment that never took place in social theory about what is really meant by a social explanation of anything has been going on in our little field every day when papers are written about the history and sociology of the natural sciences. This is what has made science studies such a perfect crucible for the whole of sociology: finally, thanks to the attempts at socially explaining hard scientific facts, we are going to know what they all had meant before by 'social'. Here is the place for the decisive big jump: *Hic Rhodus, hic salta*.

Translation vs. transportation

We have now reached the very birthplace of what has been called 'actor-network-theory' or, more accurately, 'sociology of translation'—unfortunately the label never held in English. As I said, ANT is simply the realization that something unusual had happened in the history and sociology of scientific hard facts, something so unusual that social theory could no more go through it than a camel through the eye of a needle.

The Rubicon was crossed, for me at least, when successive connections were accepted of three former non-social objects (microbes, scallops, and reefs) that insisted on occupying the strange position of being *associated* with the former social entities we were trying to describe.[140] Either they were rejected out of social theory because they did not look social enough, or they were welcomed into it. But then the very concept of social had to be deeply altered. This second solution was the defining moment of what was later called ANT.

For instance, fishermen, oceanographers, satellites, and scallops might have some *relations* with one another, relations of such a sort that they *make* others do unexpected things—this is the definition of a mediator, as we have now seen several times. Is there one element in this concatenation that can be designated as 'social'? No. Neither the functioning of satellites nor the life habits of scallops would be

[140] See Bruno Latour (1984), *Les microbes, guerre et paix, suivi de Irréductions*; John Law (1986b), 'On the Methods of Long-Distance Control Vessels Navigation and the Portuguese Route to India'; and of course the now mythical paper on scallops Michel Callon (1986), 'Some elements of a sociology of translation domestication of the scallops and the fishermen of St Brieux Bay' that I here summarize in this section.

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clarified in any way by *adding something social* to the description. The social of sociologists thus appears exactly as it always was, namely a superfluity, a purely redundant rear-world adding nothing to the real world except artificial conundrums—just like the ether before relativity theory helped physicists to re-describe dynamics. Stage one: the social has vanished.

On the other hand, is there anything in the chain deployed that could be said to be *non social*, in the sense of pertaining to a world apart from associations, for instance a 'material objective' one, a 'subjective symbolic' one, or a realm of 'pure thoughts'? No. Scallops *make* the fisherman *do* things just as nets placed in the ocean lure the scallops into attaching themselves to the nets and just as data collectors bring together fishermen and scallops in oceanography. From the first three uncertainties, we have learned that studying their relations might be empirically difficult but is no longer a priori forbidden by the 'obvious objections' that 'things don't talk', 'fish nets have no passion', and 'only humans have intentions'. Social is *nowhere* in particular as a thing among other things but may circulate *everywhere* as a movement connecting non-social things. Stage two: social is back as association.

We don't know yet how all those actors are connected, but we can state as the new default position before the study starts that all the actors we are going to deploy might be *associated* in such a way that they *make others do things*. This is done not by transporting a force that would remain the *same* throughout as some sort of faithful intermediary, but by generating *transformations* manifested by the many unexpected *events* triggered in the other mediators that *follow* them along the line. This is what I dubbed the 'principle of irreduction' and such is the philosophical meaning of ANT: a concatenation of mediators does not trace the same connections and does not require the same type of explanations as a retinue of intermediaries transporting a cause.

When science studies writers set out to account for Einstein's relativity, Pasteur's bacteriology, Kelvin's thermodynamics, and so on, they have to draw connections between entities that are completely different from what before was considered to be a string of social explanations. Those writers state that a factor is an *actor* in a *concatenation* of actors instead of a *cause* followed by a *string* of intermediaries. As soon as they do that, to their great surprise, the practical details of the case at hand seem to provide some explanation of the context that was supposed to explain it. Suddenly, it's Pasteur's own bacteria that appears to explain, through the new tracer of infectious diseases, a large part of what it meant, during the Second Empire in France, to be 'socially connected': contagious and uncontaminated people didn't establish the same solidarity as, say, the rich and the poor. The direction of causality between what is to be explained and what provides an

explanation is not simply reversed, but thoroughly subverted: the contagion redraws the social maps. The British Empire is not only 'behind' Lord Kelvin's telegraph experiments, it is also given a reach, a faster reaction time, a durability it will never have without the tiny cables laid out on the ocean. Kelvin's science creates, in part, the Empire, which is no longer in the background manipulating him unwittingly but made to exist by telegraph wires that are turned into full-blown mediators.[141] It is this reversal in causality that ANT tried to register first for science and technology and then for every other topic.[142] This is where it got the strange idea that the social was to be explained instead of providing the explanation. We all began to wonder: if we were good enough at describing so many mediators, we would realize that there is no need anymore for a society that lies 'behind'.[143]

As I have said in the introduction, to use the word social for such a process is legitimated by the oldest etymology of the word *socius*: 'someone following someone else', a 'follower', an 'associate'. To designate this thing which is neither one actor among many nor a force behind all the actors transported through some of them but a connection that transports, so to speak, transformations, we use the word *translation*—the tricky word 'network' being defined in the next chapter as what is *traced* by those translations in the scholars' accounts.[144] So, the word 'translation' now takes on a somewhat specialized meaning: a relation that does not transport causality but induces two mediators into coexisting. If some causality appears to be transported in a predictable and routine way, then it's the proof that other mediators have been put in place to render such a displacement smooth and predictable (see Part II). I can now state the aim of this sociology of associations more precisely: there is no society, no social realm, and no social ties, *but there exist translations between mediators that may generate traceable associations*. Through this book, we will hopefully learn to widen the gap between an account that makes use of the social as traditionally construed and this other one that purports to deploy

[141] See Crosbie Smith and Norton Wise (1989), *Energy and Empire: A Biographical Study of Lord Kelvin* and Brian Cantwell Smith (2003), 'The Devil in the Digital Details. Digital Abstraction and Concrete Reality'.

[142] Once again, everyone else in history, anthropology, art history, and business history had been doing the same all along. See the stunning example in Carlo Ginzburg (1980), *The Cheese and the Worms: The Cosmos of a 16th-Century Miller* for the way to respect the metaphysics of a miller. See Alfred D. Chandler (1977), *The Visible Hand: The Managerial Revolution in American Business* for an account of the growth of companies that does not presuppose scale.

[143] Had we known Gabriel Tarde earlier, we would have saved a lot of effort or at least would not have had to indulge in the rather silly posture that we had invented a brand new social theory.

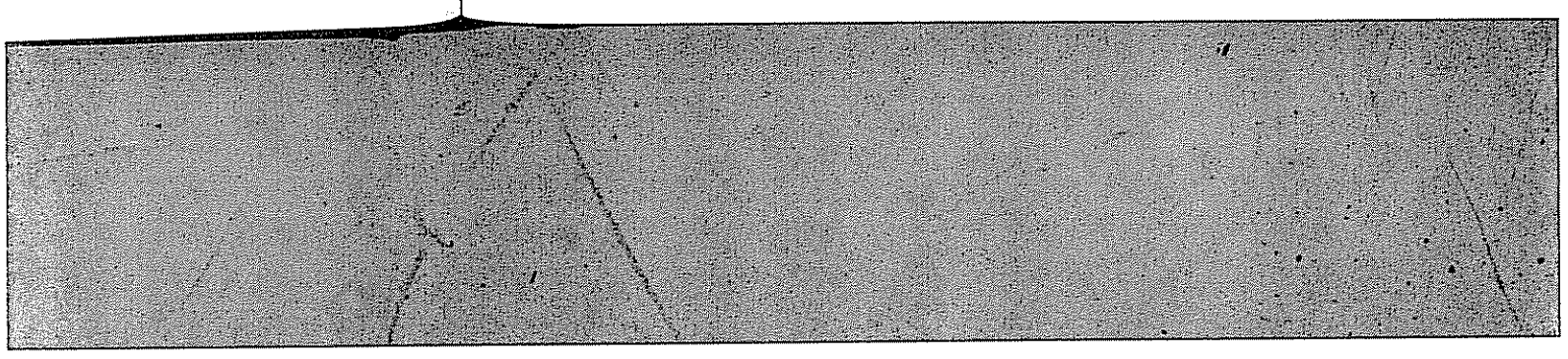
[144] Callon refers explicitly to Michel Serres (1974), *La Traduction (Hermès III)*.

strings of mediators. To learn ANT is nothing more than to become sensitive to the differences in the literary, scientific, moral, political, and empirical dimensions of the two types of accounts.

There is more to experience than meets the eye

What may appear really shocking in such a definition of association is not only the strange new meaning it gives to 'social' but also the unusual place offered to so-called 'natural' objects. And yet both ends of these chains, the social and the natural, have to be dissolved simultaneously. This symmetry is rarely understood by those who define ANT as a sociology 'extended to non-humans'—as if non-humans themselves had not undergone a transformation as great as those of the social actors. And yet, if both are not put aside at the same time, it is in vain that we will do our fieldwork: whatever new connections we will have traced, some agencies will take up the label 'social' and others the label 'natural', and the incommensurability between the two will render invisible the drawing of what we mean by social connections. How they are *associated* will be lost for good: scallops will sink back into the deep ocean of natural, material, objective, and unintentional matters of fact, while fishermen will assemble in the shabby hut at the entrance of which is written, as in the bad old days of Apartheid, 'for intentional humans only'. Meantime, sociologists will come back from the field empty-handed, all their data spoiled by a division that contradicts the very practice they tried to account for: fish and fishermen do not face one another like 'natural' and 'social', 'object' and 'subject', 'material' and 'symbolic'—and oceanographers even less. Social theory does not have to be confused with Kantism.

To make this possible, we have to free the matters of fact from their reduction by 'Nature' exactly as much as we should liberate objects and things from their 'explanation' by society. Without this double move, our argument is nothing more than a return to classical materialism that closely resembles a 'sociology of engineers' complete with its 'technical determinism'. The problem is that if it's already difficult to show that the social is an artifact produced by the application of an ill-adapted notion of causality, it is even trickier to show that 'Nature', conceived as the gathering of all non-social matters of fact, should be dispensed with as well. And the utterly puzzled reactions to ANT over the years is proof enough that this is quite tricky and that the chances of success are indeed slim.



Durkheim against pragmatism

No one offers a more striking proof of the close link between the definition of society and the theory of science than Durkheim when he set himself the task of criticizing pragmatism, then a novel philosophy. This is how he opened his first 1914 class:

'We are currently witnessing an attack on reason which is truly militant and determined. Consequently the problem is of threefold importance.
1) In the first place, it is of general importance. Pragmatism is in a better position than any other doctrine to make us see the need for a reform of traditional rationalism, for it shows us what is lacking in it.
2) Next, it is of national importance. Our whole French culture is basically and essentially a rationalist one. The 18th century is a prolongation of Cartesianism. A total negation of rationalism would thus constitute a danger, for it would overthrow our whole national culture. If we had to accept the form of irrationalism represented by pragmatism, the whole French mind would have to be radically changed.
3) Lastly, it is of philosophical importance. Not only our culture, but the entire philosophical tradition, right from the very beginnings of philosophical speculation is inspired by rationalism. If pragmatism were valid, we should have to embark upon a complete reversal of this whole tradition.'
(Durkheim 1955)

So this is where the fourth source of uncertainty can help us. If we accept to learn also from the controversies about non-humans, we soon realize that matters of fact do not describe what sort of agencies are populating the world any better than the words 'social', 'symbolic', and 'discursive' describe what is a human actor and the *aliens* overtaking it. This is no wonder since 'Society' and 'Nature' do not describe domains of reality, but are two *collectors* that were invented together, largely for polemical reasons, in the 17th century.[145] Empiricism, conceived as a clear-cut distinction between sensory impressions on the one hand and mental judgment on the other, cannot certainly claim

[145] On this long history I can only refer the reader to Steven Shapin and Simon Schaffer (1985), *Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life*. The link between sociology and modernization is so strong that it's impossible to disentangle one from the other. See Ulrick Beck, Anthony Giddens and Scott Lash (1994), *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*; Zygmunt Bauman (1997), *Postmodernity and its Discontents*; and Bruno Karsenti (1997), *L'Homme total: Sociologie, anthropologie et philosophie chez Marcel Mauss*.

to be a complete description of what 'we should be attentive to in experience'.[146]

To pursue our project we don't have to tackle these difficult philosophical questions. We just need to be open-minded about the shape in which former objects of nature might present themselves in the new associations we are following. To our great surprise, once the artificial boundary between social and natural was removed, non-human entities were able to appear under an unexpected guise. For instance, rocks might be useful to knock an idealist back to his senses, but rocks *in geology* seemed to be much more varied, much more uncertain, much more open, and deploy many more types of agencies than the narrow role given to them in empiricist accounts.[147] Steel desks offer a great opportunity for angry realists to thump the table in the name of 'material constraints' so as to bring sociologists back to reality, but laminated steel *in metallurgy* offers so many conundrums on the ways material resistance may occur that there is almost no relation between what positivist philosophers and material scientists call 'matter'.[148] The inflexible drive of genetic make-up may be great for socio-biologists to ridicule the socialist dream of nurturing a better humanity, but genes *in biogenetics* take so many contradictory roles, obey so many opposite signals, are 'made up' of so many influences that if there is one thing that cannot be done with them it is to silence an adversary.[149] Computers might offer an advertisement for the best example of hype, but chips *in computer science* require vast institutions in order to live up to their reputation as 'formal machines'.[150] Everywhere, the empirical multiplicity of former 'natural' agencies overflows the narrow boundary of matters of fact. There exists no direct relation between being real and being indisputable.

Empiricism no longer appears as the solid bedrock on which to build everything else, but as a very poor rendering of experience. This poverty, however, is not overcome by moving *away* from material experience, for instance to the 'rich human subjectivity', but *closer* to the

[146] This is Whitehead's expression. See William James (1890), *The Principles of Psychology*, John Dewey (1930 reprinted in 1948 complete works 1982), *Reconstruction in Philosophy*, and Stengers *Penser avec Whitehead*. That empiricism has never been simply about matters of fact is marvellously shown in Lorraine Daston (1988), 'The Factual Sensibility: an Essay Review on Artifact and Experiment' and Jessica Riskin (2002), *Science in the Age of Sensibility: The Sentimental Empiricists of The French Enlightenment*

[147] See the chapter on rocks in Hacking, *The Social Construction of What?*

[148] See Pablo Jensen (2001), *Entrer en matière: Les atomes expliquent-ils le monde?*

[149] See Evelyn Fox-Keller (2000), *The Century of the Gene*; Sophie Houdart (2000), 'Et le scientifique tint le monde: Ethnologie d'un laboratoire japonais de génétique du comportement'; and Richard Lewontin (2000), *The Triple Helix: Gene, Organism and Environment*

[150] Brian Cantwell Smith (1997), *On the Origins of Objects*

much variegated lives materials have to offer.[151] It's not true that one should fight reductionism by adding some human, symbolic, subjective, or social 'aspect' to the description since reductionism, to begin with, does not render justice to objective facts. What could be called the first empiricism managed, for political reasons, to obscure the many tours and detours of objectivity and to reduce non-humans to shadows. Far from 'owning objectivity', positivists are more like absentee landowners who don't seem to know what to do with their properties. It just happens that we, in science studies, might know.

The great chance of ANT is that objectivity's many folds become visible as soon as one moves a bit *closer* to where agencies are made to express themselves, namely scientific laboratories—or where laboratories are brought into more intimate contact with daily life, which is quite often nowadays. Positivists were not very inspired when they chose 'facts' as their elementary building blocks to build their cathedral of certainty. They acted as if it was the most primitive, solid, incontrovertible, undisputable material, as if all the rest could be reduced to it. But there was more than one straw in the solid matter they chose as their foundation.[152] The etymology itself should have made them shudder: How could a fact be that solid if it is also fabricated? As the shortest inquiry in the most primitive laboratory shows, and as Ludwik Fleck proved long ago, facts are about the least primitive, the most complex, the most elaborated, and the most collective makeup there is![153]

Fleck on Wasserman's reaction to detect syphilis

In his pioneering book, the founder of sociology of science elaborates a much finer description of the 'genesis' of scientific fact that is usually recognized by those who read it through a Kantian or a Kuhnian lens:[154]

> 'To give an accurate historical account of a scientific discipline is impossible. It is as if we wanted to record in writing the natural course of an excited conversation among several persons all speaking simultaneously among themselves and each clamoring to make himself heard, yet which nevertheless permitted a consensus to crystallize.' (Fleck 1981: 15)

[151] The unlikely case of sugar beets has helped François Mélard to provide one of the best applications of what happens to society when things are brought in. See François Mélard (2001) 'L'autorité des instruments dans la production du lien social: le cas de l'analyse polarimétrique dans l'industrie sucrière belge'

[152] Durkheim had not much chance either when he proposed to treat 'social facts as things', since what is social, what is a fact, and what is a thing are probably the three most controversial, uncertain, and shaky concepts of philosophy!

[153] See Ludwig Fleck (1981) *Genesis and Development of a Scientific Fact* and Ludwik Fleck, Robert S. Cohen and Thomas Schnelle (1986) *Cognition and Fact: Materials on Ludwik Fleck*

[154] The metaphor of lens or presupposition is actually the one used by Kuhn in his foreword to Fleck's book.

But his definition of social is clearly positive and non negative, that is, the more social there is, the more realism there is:

'Every epistemological theory is trivial that does not take this sociological dependence of all cognition into account in a fundamental and detailed manner. But those who consider social dependence a necessary evil and unfortunate human inadequacy which ought to be overcome fail to realize that without social conditioning no cognition is even possible. Indeed, the very word "cognition" acquires meaning only in connection with a thought collective.' (Fleck 1981: 43)

This is what makes him at odds with sociologists like Durkheim:

'All these thinkers trained in sociology and classics, however, no matter how productive their ideas, commit a characteristic error. They exhibit an excessive respect, bordering on pious reverence for scientific facts'. (Fleck 1981: 47)

But the ambiguous notion of 'thought collective' is in no way akin to traditionally conceived social influence:

'If we define "thought collective" as a *community of persons mutually exchanging ideas or maintaining cultural interaction, we will find by implication that it also provides the special "carrier" for the historical development of any field of thought, as well as for the given stock of knowledge and level of culture. This we have designated thought style.* The thought collective thus supplies the missing component'. (Fleck 1981: 39)

Thought collective is not what conditions or limits the fact production, but what allows it to emerge:

'This is how a fact arises. At first there is a signal of resistance in the chaotic initial thinking, then a definite thought constraint, and finally a form to be directly perceived. A fact always occurs in the context of the history of thought and is always the result of a definite thought style'. (Fleck 1981: 95)

This realist attitude toward the social allows Fleck to shift from the notion of collective practice to that of the event:

'We can summarize as follows our theory of the recognition of the relation between the Wassermann reaction and syphilis. The discovery—or the invention—of the Wasserman reaction occurred during a unique historical process, which can be neither reproduced by experiment nor confirmed by logic. The reaction was worked out, in spite of many errors, through sociopsychological motives and a kind of collective experience. *From this point of view the relation between the Wassermann reaction and syphilis-an undoubted fact-becomes an event in the history of thought*'. (Fleck 1981: 97)

The notion of event becomes the way to overcome the symmetric limits of sociologists and epistemologists:

'Truth is not "relative" and certainly not "subjective" in the popular sense of the word. It is always, or almost always, completely determined within a thought style. One can never say that the same thought is true for

> A and false for B. If A and B belong to the same thought collective, the thought will be either true or false for both. But if they belong to different thought collectives, it will just *not* be the *same* thought! It must either be unclear to, or be understood differently by, one of them. Truth is not a convention but rather (1) in historical perspective, an event in the history of thought, (2) in its contemporary context, stylized thought constraint'. (Fleck 1981: 100)

ANT is not interested only in freeing human actors from the prison of the social but in offering natural objects an occasion to escape the narrow cell given to matters of fact by the first empiricism.[155] This is what I have always found so refreshing in science studies: until its development, the conversation between philosophers, sociologists, and political scientists about the right divide between 'Nature' and 'Society' had always been illustrated by boring, routine, millenary old matters of fact such as stones, rugs, mugs, and hammers that were basically things Neanderthals could have been using already. Those objects are perfectly respectable but, as we saw in the preceding chapter, they no longer leave a trace, and thus there is no way they could appear again as mediators.[156]

The discussion begins to shift for good when one introduces not matters of fact, but what I now call *matters of concern*. While highly uncertain and loudly disputed, these real, objective, atypical and, above all, *interesting* agencies are taken not exactly as object but rather as *gatherings*.[157] You cannot do with Monte Carlo calculations what you do with mugs; you cannot do with genetically modified organisms what you do with mats; you cannot do with quaternions what you do with black swans.[158] This is exactly what the fourth uncertainty wishes to thrive from: the mapping of scientific controversies about matters of concern should allow us to renew from top to bottom the very scene of empiricism—and hence the divide between 'natural' and 'social'. A natural world made up of matters of fact does not look quite the same as a world consisting of matters of concern and thus cannot be

[155] Latour, *Politics of Nature*, Chapter 2.

[156] Except of course in the expert hands of archaeologists and ethnographers. See Pierre Lemonnier, *Technological Choices*

[157] Martin Heidegger (1977), *The Question Concerning Technology and Other Essays*. On the rereading of this argument, see Graham Harman (2002), *Tool-Being: Heidegger and the Metaphysics of Objects*.

[158] See Peter Galison (1997), *Image and Logic: A Material Culture of Microphysics* and Pickering *The Mangle of Practice*.

used so easily as a foil for the 'symbolic-human-intentional' social order. This is why what could be referred to as the *second* empiricism doesn't look at all like the first: its science, its politics, its esthetics, its morality are all different from the past. It is still real and objective, but it is livelier, more talkative, active, pluralistic, and more mediated than the other.

There is, however, nothing radical or revolutionary in going from the first to the second empiricism. The shift from one world to the other did not require great ingenuity, courage, and originality from ANT scholars. Scientists and engineers in their laboratories were every day making the production of facts *more* visible, *more* risky, *more* costly, *more* debatable, *more* interesting, and *more* publicly relevant as even a cursory look at any technical magazine easily showed. Matters of fact may remain silent, they may allow themselves to be simply kicked and thumped at, but we are not going to run out of data about matters of concern as their *traces* are now found everywhere. If there is something disheartening for sociologists of associations, it is not the deep silence of a mute 'Nature' that would render their enquiries impossible and force them to stick to the 'symbolic' human realm, but the sheer flood of information on the many modes in which matters of concern exist in the contemporary world. How could we be up to the task and do justice to such a rising mass of evidence?

A list to help deploy matters of concern

The solution, once again, is to learn how to feed off uncertainties, instead of deciding in advance what the furniture of the world should look like. The inquiry can go on as long as we learn how to take the poison out of the concept of nature in the same way we did for the twin concept of society. In 'society' we learned to distinguish the associations—which we kept—from a substance made of social stuff—which we rejected. Similarly, in 'nature' we are going to keep the deployment of reality and reject its premature unification into matters of fact. If it was a mistake to jump from the idea of association to the conclusion that they are phenomena made of social *stuff*, it's a symmetric error to conclude from an interest in non-humans that they will look like matters of facts—which are nothing more than a dumbed-down version of matters of concern as any reading in science studies will show.

For instance, spermatozoids used to be obstinate little machos swimming forcefully toward the powerless ovule; they are now attracted, enrolled, and seduced by an egg the agency of which is becoming so

our attention will begin to concentrate on the 'connectors' that will then, and then only, be allowed to freely circulate without ever stopping at a place called 'context' or 'interaction'. When the two moves are carried out together, the social world will begin to transform itself for good; it will take a new and more plausible shape—a shape that allows one to travel without sudden hiccups, a shape that might lend itself to the later work of assembling, collecting, and composing.

Articulators and localizers

To say that every local interaction is 'shaped' by many elements already in place, doesn't tell us anything about the origin of those elements. And yet we have now verified where they *don't* come from: they are not oozing out of a global context, of an overarching framework, of a deep structure. We just went there; there is nothing to be seen except the shadow of the body politic—which is to be reserved for later. Although purely negative, this result clears the way rather nicely. We are now free to search for the existence of another more continuous, more empirically traceable path to reach the places where the ingredients entering into interactions appear to come from. And sure enough, if no label, barcode, certificate of origin, or trademark is able to help us follow the 'actors themselves', there exists what is called in the industry an excellent *traceability* between the sites of production of local interactions, provided we don't forget the lesson of Part I and make good use of all the sources of uncertainty.

The meandering path through which most of the ingredients of action reach any given interaction is traced by the multiplication, enrollment, implication, and folding of non-human actors. If the analyst is not allowed to exert some right of pursuit through multiple types of agencies, then the whole question of local and global becomes intractable. But as soon as non-human agents are brought in, another set of connections appears which are as different to those deployed in the preceding section as veins are to neural pathways.[256] The powerful insight that most of the ingredients of the situation are 'already' in place, that we simply 'occupy' a predetermined position 'inside' some preformatted order, is always due to the transportation of a site into another one at another time, which is produced by someone else through subtle or radical changes in the ways new types of non-social

[256] A good example of the crucial importance of not taking the relative size of entities as a given is provided in the case of French water politics in Jean Pierre Le Bourhis (2004), 'La publicisation des eaux Rationalité et politique dans la gestion de l'eau en France (1964–2003)'

agencies are mobilized. Others' actions continue to be carried out at some distance, but through the relay of new types of mediators. Paradoxically, it's only once it's allowed to percolate through *non*-social agencies that the social becomes visible.

This process of delegation, dislocation, and translation is never clearer than in the role of material objects—provided we understand 'matter' in the extended sense given earlier (see p. 109). When we talk about an 'overarching framework', 'pillars', 'infrastructure', 'frame', we use loosely the technical terms borrowed from architecture, metallurgy, and cinema. Why not take literally what it means for an interaction to *frame*, to *structure*, or to *localize* another? As long as we use those metaphors in a muted form, we don't see what could connect a place to another via a template. We may continue to believe that leaving a local scene could really mean jumping into the context, or that all of the ingredients of local interactions have to be improvised on the spot through social skills.[257] But as soon as we activate the technical metaphors for good, the connections between sites become visible, even though they are made of many different types of stuff. This heterogeneity, however, no longer represents for us a difficulty since we have learned how to render commensurable various incommensurable materials. We know that objects have the strange capacity of being at once compatible with social skills during certain crucial moments and then totally foreign to any human repertoire of action. This flip-flop renders the inquiry more difficult but not enough to break the newly spun social we use as our Ariadne thread. In effect, what has been designated by the term 'local interaction' is the assemblage of all the *other* local interactions distributed elsewhere in time and space, which have been brought to bear on the scene through the relays of various non-human actors. It is the transported presence of places into other ones that I call *articulators* or *localizers*.[258]

If, to take a trivial enough example, you sit in a chair in a lecture hall surrounded by well-ordered tiers of students listening to you in an amphitheater, I need only half a day's work in the university archives to find out that fifteen years ago and two hundred kilometers away an architect, whose name I have found and whose exploratory scale models I have ferreted out, has drawn the *specifications* of this place down to the centimeter. She had no precise idea that you would be

[257] Such is one of the solutions devised by symbolic interactionists to give some maneuvering room to the individual intentional agent without modifying the overall framework of social theory

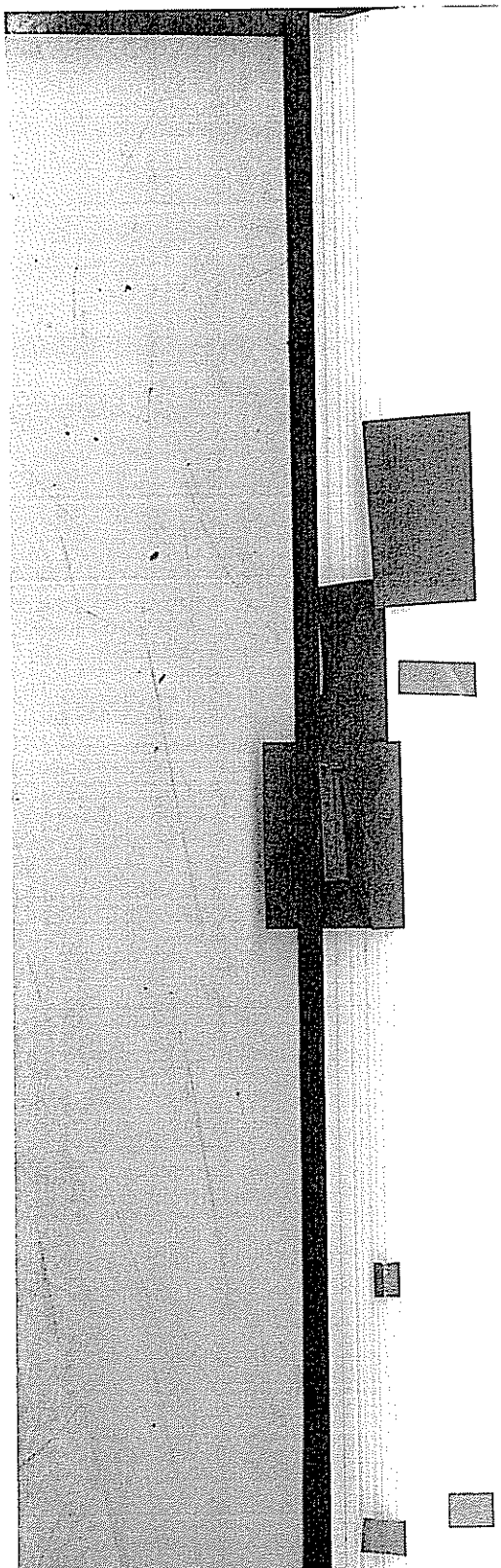
[258] The word localizer in computer parlance might be slightly misleading since it is the manifestation of an even larger increase in standards which can then allow the local to be accepted as a mere variation of a more general pattern. We will tackle the question of standardization in the next chapter

lecturing out loud today, and yet she anticipated, in a gross way, one aspect of such a scene's *script*: you will have to be heard when you speak; you will sit at the podium; you will face a number of students whose maximum number, space requirements, etc. must be taken into consideration. No wonder that, fifteen years later, when you enter this scene, you feel that you have not made it all up and that most of what you need to act is already *in place*. Of course, the space has in fact been tailored for you—the generic you, that is, a large part of you.

Sure enough, no aspect of this structure—and now I can use the term without qualms because there is nothing hidden or discontinuous about it—'determines' what you are going to say, nor even where you will sit. You might decide to stand up, to walk up and down the alleys, or to play the role of the May 1968 rebellious teacher by reassembling the chairs to form a less 'authoritarian' circle—and nothing can stop the students from falling asleep as soon as you open your mouth. But just because some material element of the place does not 'determine' an action doesn't mean you can conclude that they do nothing. We are now familiar with many more ontological stages than the two foolish extremes of being and nothingness. Fathom for one minute all that allows you to interact with your students without being interfered too much by the noise from the street or the crowds outside in the corridor waiting to be let in for another class. If you doubt the transporting power of all those humble mediators in making this a *local* place, open the doors and the windows and see if you can still teach anything. If you hesitate about this point, try to give your lecture in the middle of some art show with screaming kids and loud speakers spewing out techno music. The result is inescapable: if you are not thoroughly 'framed' by other agencies brought silently on the scene, neither you nor your students can even concentrate for a minute on what is being 'locally' achieved. In other words, what would happen if inter-subjectivity was obtained *for good* by removing, one after the other, all traces of *inter-objectivity*?

In many cases, it is fairly easy to establish some continuous connections that are open to scrutiny between the dreams and drawings of *someone else*, at some *other* time, in some *other* place, and whatever you and your students are now doing locally, face-to-face. This local site has been *made to be a place* by some other locus through the now silent mediation of drawings, specifications, wood, concrete, steel, varnish, and paint; through the work of many workers and artisans who have now deserted the scene because they let objects carry their action in absentia; through the agency of alumni whose generous deeds might be rewarded by some bronze plaque. Locals are *localized*. Places are *placed*.[259] And to remain so, myriads of people, behind the doors, have

[259] Koolhas and Mau, *Small, Medium, Large, Extra-Large*



to keep up the premises so that you can remain, you along with your students, safely 'in it'. Far from offering some primordial autochthony which would be 'so much more concrete' than abstract contexts, face-to-face interactions should be taken, on the contrary, as the terminus point of a great number of agencies swarming toward them.

Although there is no 'underlying hidden structure', this is not to say that there doesn't exist *structuring templates* circulating through channels most easily materialized by techniques—paper techniques and, more generally, intellectual technologies being as important as gears, levers, and chemical bonds. To the inter-subjective relation between you and your students, one should add the inter-objectivity that has dislocated actions so much that someone else, from some other place and some other time, is still acting in it through indirect but fully traceable connections.[260] That does not mean that this faraway site is part of some mysterious context. It simply reveals between these two places—the architect's studio and this classroom today—another circuitry through which masses of entities begin to circulate. Even more than after the first corrective move, one now finds in the foreground the vehicles, the movements, the shifts, and the translation *between* loci rather than the loci themselves. Places do not make for a good starting point, since every one of them are framed and localized by others—including of course the architect's studio that I chose as the provisional origin for my example. We now understand why we had to start, according to Horace's famous expression, in the middle of things, *in medias res*. Circulation is first, the landscape 'in which' templates and agents of all sorts and colors circulate is second. This is probably the oldest intuition of the social sciences, what made us exclaim that the social was an objective, transcendent, ubiquitous, sui generis phenomenon. As usual, the intuition was right but it was difficult to register as long as the circulation of the social was confused with the emergence of a society—itself mixed up with the body politic.

That scale does not depend on absolute size but on the number and qualities of dispatchers and articulators is what I had learned many years ago when I had the chance to follow Shirley Strum and her baboons. When I met her at the first ever 'baboon conference' held in a luxurious castle near New York City, she was a young researcher who had managed to habituate wild monkeys to her close and regular presence. Earlier observers, who watched baboons from afar and from the safe haven of a jeep, had detected a lot of interesting features, but they had situated agonistic encounters 'inside' absent structures—applying to the baboons the stock-in-trade of human sociology

[260] On the condition there exists well-kept archive. Archeologists have to toil much longer to reconstruct the connections

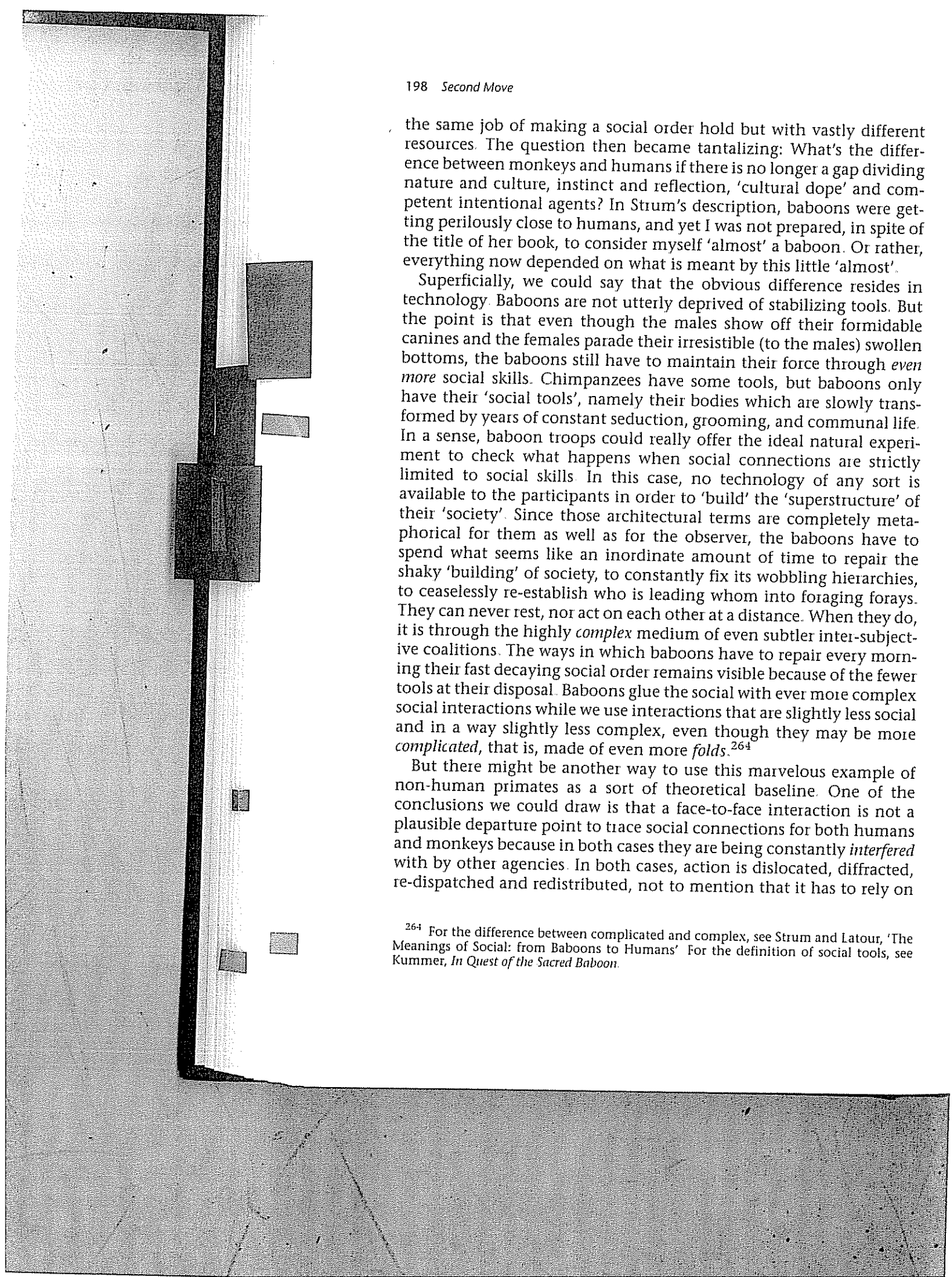
Animal societies were said to possess, for instance, a rigid dominance pattern 'in which' males had to enter. During this conference, Strum was trying to demonstrate that the dominance 'structure' was not something which male baboons were trying to find, but a *question* all animals raised by testing one another through carefully managed agonistic encounters.[261] In other words, Strum *as well as* young males moving in the troops were raising the same basic questions about what it meant to generate some social structuring effects.[262] And both were slowly discovering, by a series of trials, that it was the females and not the males that were weaving, through daily interactions, a pretty solid kind of dominance order that had remained invisible to the (mostly male) observers too far removed to detect those subtle trials. So I was, in effect, following in this beautiful Kenyan landscape a sort of Garfinkel primatologist as she tried to make sense of baboons whom she was gently moving out of their perennial role of 'cultural dopes' so that they could graduate to the new reflexive actions of competent members. In a word, baboons were smart, socially smart.[263]

If there was one social theory mistake not to make, it would be act as if baboons had found a role inside a preexisting structure. But it would be just as wrong to suppose that they were simply interacting with one another. Those furry little beasts were doing just as much social labor as their observers and were living in a world just as complex. And yet, there was a clear difference of *equipment*. The same basic job of testing, achieving, and generating all the ingredients of social life was done, in one case, with 'social tools' only, while the human observer was additionally equipped with materials and intellectual technologies. The primates had to decipher the meaning of the interactions with no other tools than the interactions themselves: they had to decide who was friend and enemy, who was displacing whom, who was leading whom, and who was ready to enter in a coalition by using the basic resource of trying and grooming, more grooming and trying. If they kept records, those records had to be 'inscribed' on their own bodies by their own bodies. It was the primatologist who had to rely on written names, statistical charts, notebooks, documentation, blood samples, genetic fingerprints, and visual aids of all sorts. They were achieving

[261] Shirley Strum (1982), 'Agonistic Dominance among Baboons an Alternative View' and see Insert p 69.

[262] This is the dramatic episode narrated in Shirley Strum (1987), *Almost Human: A Journey Into the World of Baboons*.

[263] Since her earlier work, this has become somewhat of a standard for a host of other animals See Richard Byrne and Andrew Whiten (1988), *Machiavellian Intelligence: Social Expertise and the Evolution of Intellects in Monkeys, Apes and Humans*; Strum and Fedigan *Primate Encounters*; Vinciane Despret (1996), *Naissance d'une théorie éthologique*; and Vinciane Despret (2002), *Quand le loup habitera avec l'agneau*



the same job of making a social order hold but with vastly different resources. The question then became tantalizing: What's the difference between monkeys and humans if there is no longer a gap dividing nature and culture, instinct and reflection, 'cultural dope' and competent intentional agents? In Strum's description, baboons were getting perilously close to humans, and yet I was not prepared, in spite of the title of her book, to consider myself 'almost' a baboon. Or rather, everything now depended on what is meant by this little 'almost'.

Superficially, we could say that the obvious difference resides in technology. Baboons are not utterly deprived of stabilizing tools. But the point is that even though the males show off their formidable canines and the females parade their irresistible (to the males) swollen bottoms, the baboons still have to maintain their force through *even more* social skills. Chimpanzees have some tools, but baboons only have their 'social tools', namely their bodies which are slowly transformed by years of constant seduction, grooming, and communal life. In a sense, baboon troops could really offer the ideal natural experiment to check what happens when social connections are strictly limited to social skills. In this case, no technology of any sort is available to the participants in order to 'build' the 'superstructure' of their 'society'. Since those architectural terms are completely metaphorical for them as well as for the observer, the baboons have to spend what seems like an inordinate amount of time to repair the shaky 'building' of society, to constantly fix its wobbling hierarchies, to ceaselessly re-establish who is leading whom into foraging forays. They can never rest, nor act on each other at a distance. When they do, it is through the highly *complex* medium of even subtler inter-subjective coalitions. The ways in which baboons have to repair every morning their fast decaying social order remains visible because of the fewer tools at their disposal. Baboons glue the social with ever more complex social interactions while we use interactions that are slightly less social and in a way slightly less complex, even though they may be more *complicated*, that is, made of even more *folds*.[264]

But there might be another way to use this marvelous example of non-human primates as a sort of theoretical baseline. One of the conclusions we could draw is that a face-to-face interaction is not a plausible departure point to trace social connections for both humans and monkeys because in both cases they are being constantly *interfered* with by other agencies. In both cases, action is dislocated, diffracted, re-dispatched and redistributed, not to mention that it has to rely on

[264] For the difference between complicated and complex, see Strum and Latour, 'The Meanings of Social: from Baboons to Humans'. For the definition of social tools, see Kummer, *In Quest of the Sacred Baboon*.

successive layers of mediations piled on top of one another. Baboons, too, use some type of 'intellectual technology': their home range, the life history of each interaction, the trajectory of friendships and coalitions, the built-in variations of sizes, sex, anatomical features, etc. It's this constant interference by the action of others that makes life in a baboon group an environment just as selective, just as pressing, and just as taxing as the one made of resources and predators. A baboon that is not socially smart is selected out just as swiftly if it doesn't find food or can't mate. Humans have lived in an environment as taxing, as selective, and as pressing but which is made up of even more mediators, dispatchers, and 'dislocators' that render local interactions even less local.[265] If context was an impossible starting point, so are face-to-face interactions. The difference is no longer between 'simple' baboons and highly 'complex' humans, but rather between complex baboons who have folded themselves into many entities—landscape, predators, groups—and complicated humans who have folded themselves into vastly more entities, some of them having the great advantage of remaining in place, thus simplifying, locally at least, the task of ordering. In humans more so than in monkeys, interference, dispatching, delegation, and articulation are visible and should offer us, in place of local face-to-face interactions, an excellent point of departure.

The implausible locus of face-to-face interactions

Because of the powerful feeling that interactions are 'more concrete', it might be easier for the reader to get rid of the global than the local. As we have seen in reviewing the second source of uncertainty, the same actant may be given different figurations (see p. 57). Although individualized characters might be granted more plausibility because of our habits of reading stories, it requires exactly the same semiotic labor, if I can use this expression, to produce a character as it does a concept or a corporate body. So, while we should remain attuned to small differences in figuration, there is no reason to forget that our own relativistic frame of reference should be indifferent to scale. But it remains true that beliefs in the indisputable existence of individuals is so entrenched, in our western climes at least, that people are only too ready to accept that, even though abstractions like structure, context,

[265] This approach of technology as second nature is essential for André Leroi-Gourhan (1993), *Gesture and Speech*; Lewis Mumford (1967), *The Myth of the Machine: Technics and Human Development*; and Tom Hughes (2004), *Human-Built World: How to Think about Technology and Culture*.

surface of a gem, a whole interpretation of the linkages between theology and politics.

These collecting statements are not rare and exotic cases. Think of what is achieved when an American proudly exclaims 'This is a free country!' or when a Frenchman retorts '*On est en République quand même!*' Consider how many positions are modified when the 'principle of precaution' is invoked by European bureaucrats against the more classical American definition of risk.[323] Fathom what is triggered in a Middle Eastern audience when you speak of an 'Axis of Evil' or plead for 'an Islamic Enlightenment'. Collecting statements not only traces new connections but also offers new highly elaborated theories of what it is to connect.[324] They perform the social in all practical ways. Such is the power of the 'justifications' analyzed by Boltanski and Thévenot: they have no size but they leave 'sizings', so to speak, in their wake since those expressions allow people to rank themselves as well as the objects in dispute. Every time an expression is used to justify one's action, they not only format the social but also provide a second order description of how the social worlds should be formatted.[325] It's precisely because scale is not a fixed feature of the social that those collecting statements play such an important role. As soon as they are allowed to simply represent, reify, or objectify something else, for instance the social context behind them, they efficacy stops being visible. But as soon as they are taken again as so many standards circulating along tiny metrological chains, they clearly become the source of what we mean by being in a society. Without collecting statements, how could the collective be collected?

Mediators at last

Now that we understand how to navigate our way through the flattened landscape and how to pay our respects to the formatting power of the sociology of the social, the next step is as difficult as it is logical. The very metrological power of the social sciences is just what makes it

[323] In his work on the expression 'precautionary principle' in European offices, see Jim Dratwa (2003), 'Taking Risks with the Precautionary Principle'.

[324] A beautiful example of the connecting ability of arguments is provided in Michael Baxandall (1985), *Patterns of Intention On The Historical Explanation Of Pictures* Timothy Mitchell (2002), *Rule of Experts: Egypt, Techno-Politics, Modernity* provides one of the best cases of the richness of studying in addition to the collecting statement 'development' the formatting power of intellectual technologies.

[325] Boltanski and Thévenot, *On Justification*. Boltanski's sociology is half Kantian philosophy and half a new attention toward collecting and circulating statements. There should be no difficulty in relocating the second and getting rid of the first.

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difficult for them to encounter the social as associations. It's precisely because it is so good at calibrating and benchmarking *stabilized* definitions of the social that it finds so impractical the sizing up of newcomers that are constantly imported in the course of controversies. The better you are at defining the 'older' social, the worse you are at defining the 'new' one. The situation is exactly the same with the technical fields of metrology: they allow all the other laboratories to do science, but they are not themselves the sources of much discovery—even though they are quick to use any new fact to improve the accuracy of their instruments by a few more decimal places.[326] Metrology is no more the whole of science than the sociology of the social is the whole of sociology. The social that makes up society is only one part of the associations that make up the collective. If we want to reassemble the social, it's necessary, aside from the circulation and formatting of traditionally conceived social ties, to detect other circulating entities.

This detection is made easier once we know that we should not confuse the already assembled social with the work of reassembling it, and once we learn how not to substitute the entities we are looking for with something made out of social stuff. By localizing the circulation, production, formatting, and metrology of the social inside tiny, expansive, and expensive conduits, we have already opened a space in which other types of entities may begin to circulate.

But if we wish to profit from this small 'window of opportunity', we have to modify the default setting of our inquiries. We should not state that 'when faced with an object, ignore its content and look for the social aspects surrounding it'. Rather, one should say that 'when faced with an object, attend first to the associations out of which it's made and only later look at how it has renewed the repertoire of social ties'. In other words, what we have to understand is why sociologists are so shy to meet the non-social entities that make up the social world, even though this wondrous encounter is a most common experience. It's as if we could not stand meeting face-to-face the puzzling phenomena that keep proliferating whenever we feel that collective life is breaking down. Why is it that when faced with religion, we tend to limit our inquiry to its 'social dimensions' and take as a scientific virtue *not* to study religion itself? When faced with science, why is our first reaction to politely stick to its 'social biases' and *not* to account for objectivity itself? Why is it that when inquiring about art we restrict ourselves only to 'what is social' in the appreciation of a masterpiece and not to

[326] See Cochrane, *Measures for Progress*. Unfortunately, the amazing article by P. Hunter (1980), 'The National System of Scientific Measurement', to my knowledge, has not been updated.

the many other sources from which its worth could come from? When we study economics, why are we so hesitant at going to the heart of our attachments to goods and instead limit ourselves to 'the something sociological' that seems to 'embed' the purely rational calculations? And so on. It's as if our first reaction was to welcome associations only if they had first been covered in a coat made of social ties; as if we could never accept to talk with the original characters but only with the social forces that act as their proxies. In a period not known for its chastity, such prudishness is rather extraordinary: 'Hide, please hide, I can't bear to see those associations!' or 'Before entering the palace of social sciences please conceal yourself under the chador of social explanations.'

Although our most common encounter with society is to be overloaded by new elements that are not themselves part of the social repertoire, why do we keep insisting that we should stick to the short list of its accepted members? Such a limitation made sense during the time of modernization. To mark a clean break with the past, it was logical to limit in advance society to a small number of *personae gratae*. But this doesn't mean that sociology should accept forever to be an object-*less* discipline, that is, a science *without object*. Respecting the formatting power of the sociology of the social is one thing, but it's another to restrict oneself to metrology and abandon the discovery of new phenomena. How could we call empirical a discipline that excises out of the data only those that can be packaged into 'social explanations'? It does not take much courage or imagination to see that, once modernism is put aside, such an attitude no longer makes moral, scientific, or political sense.

Consider for instance what would happen if we were approaching the study of religion while keeping the older default settings. Pious souls have an uncanny obstinacy to speak as if they were attached to spirits, divinities, voices, ghosts, and so on. All of those entities would have, of course, no existence at all in the observer's agenda since they would not pertain to the limited repertoire of agencies fixed at the onset. So what should we do with what the actors designate ceaselessly as 'real beings'? We would have to put scare quotes around them, bracket their existence out, and locate them firmly in the believer's mind. We would literally have to *invent a believer*.[327] A first fanciful sphere would begin to develop. Now since those entities don't exist but are nonetheless 'taken as' being real, they have to come from the inside of one's spirit or brain.

[327] That belief is a modernist institution coming from critique is one of the important aspects of the study of iconoclasm and of the whole repertoire of critical gestures. See Latour and Weibel, *Iconoclash*.

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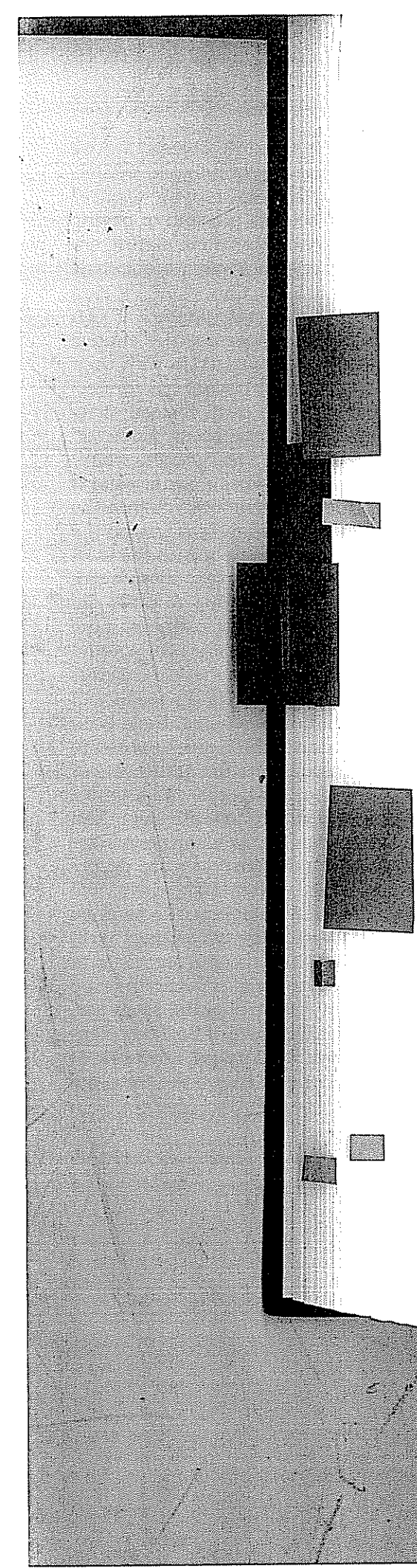
But divinities, spirits, and voices live a rather cramped life inside the individual person's sphere. They are too precise, too technical, too innovative. They move too wildly and they obviously overflow the individual capacity of invention, imagination, and self-delusion. And besides, actors still insist they are made to do things by those real entities 'outside' of them! Ordinary persons don't want them to be just an object of belief and so those entities have to come from the outside after all. Does this mean that we have to accept their real existence? No, no, since they don't exist—that's supposedly the only 'sure fact' of the matter. What is the only reality which is outside the individual and which has the strength to sustain the existence of non-existing phenomena? The answer of course is society, the social made of social stuff. Here, a second even bigger sphere would begin to develop out of our own studies: the non-existing social stuff in charge of maintaining the existence of non-existing entities that populate the narrow mind of deluded members. And all of that would be in the name of good science and serious scholarship! All the while, ordinary folks would keep insisting that they are made to act by real entities *outside* of themselves.

But any science has to invent risky and artificial devices to make the observer sensitive to new types of connections. Is it not obvious that it makes no empirical sense to refuse to meet the agencies that make people do things? Why not take seriously what members are obstinately saying? Why not follow the direction indicated by their finger when they designate what 'makes them act'? A (surely fake) Chinese proverb says that 'When the wise man shows the moon, the moron looks at the finger'. I find it impossible to accept that social sciences could be so debased as to create entire disciplines to make scholars moronic. Why not say that in religion what counts are the beings that make people act, just as every believer has always insisted?[328] That would be more empirical, perhaps more scientific, more respectful, and much more economical than the invention of two impossible non-existing sites: one where the mind of the believer and the social reality are hidden behind illusions propped up by even more illusions. Besides, what is so scientific in the notion of 'belief'?

If such a default setting is accepted—look at the object first and only later at the standardized social—there is of course a catch. I am not deluded enough to believe that ANT could escape the fate of all theories: to think is not to solve arduous problems, only to displace them. For such an encounter with objects to take place, other circulating entities have to be granted back some rights of citizenry, so that they, too, can have a seat with the older members. But aren't sociologists of

[328] Claverie, *Les Guerres de la Vierge*



the social proud of having dissolved all those exotic objects? Do we really have to bring back the gods when talking of religion, masterpieces when analyzing art, and objective facts when studying science? Is this not exactly the obstacle that social science is proud of having left behind? By invoking the existence of non-social circulating entities, is this not taking the most reactionary, backward, and archaic move possible? This is where the Ant wins or loses. Can we anticipate a social science *that takes seriously the beings that make people act?* Can sociology become *empirical* in the sense of respecting the strange nature of what is 'given into experience', as zoologists do with their zoos and botanists with their herbariums? Can we trace social connections shifting from one non-social being to the next, instead of replacing all entities populating the world by some ersatz made 'of' social stuff? Even simpler: can social science have a *real object* to study?

Before answering emphatically 'no', consider for a minute what it would do to the sensitivity of our instruments were we to change the default setting and consider objects first, rather than beat around the bush in search of social explanations. Then, compare it with the ways in which religion was mishandled in the example just mentioned. Take works of art, for instance.[329] Apart from religion, no other domain has been more bulldozed to death by critical sociology than the sociology of art. Every sculpture, painting, *haute cuisine* dish, techno rave, and novel has been explained to nothingness by the social factors 'hidden behind' them. Through some inversion of Plato's allegory of the Cave, all the objects people have learned to cherish have been replaced by puppets projecting social shadows which are supposed to be the only 'true reality' that is 'behind' the appreciation of the work of art. Nowhere has social explanation played more the role of a negative King Midas transforming gold, silver, and diamonds into dust. And yet, as one sees in religion, if you are listening to what people are saying, they will explain at length how and why they are deeply *attached, moved, affected* by the works of art which 'make them' feel things. Impossible! Forbidden! To be affected is supposed to be mere affectation.[330] So what should we do if we keep the old setting? Well, here again, as for religion, science, and politics, people are made to delude themselves by the 'scientific' grasp of social science: they are transmogrified, once more, into believers! And here again, as always, some people, infuriated by the barbarous irreverence of 'social explanations', come forth and defend the 'inner sanctity' of the work of art against barbarians. And sadly—the slope is steep, the outcome

[329] I have already shown in Part I what it did to the study of science.

[330] I am following here Antoine Hennion (1993), *La passion musicale: Une sociologie de la médiation*.

inevitable—we end up swinging gently between 'internalism' and 'externalism', esthetic and social explanations, all the way back to kindergarten.

Of course, this is not what is empirically given because the beings to which we are attached via the mediation on the works of art, if they never resemble the social of sociologists, *never look* like the insulated 'object' of esthetics with its 'inner core' of 'ineffable beauty'. While in the old paradigm you had to have a zero-sum game—everything lost by the work of art was gained by the social, everything lost by the social had to be gained by the 'inner quality' of the work of art—in the new paradigm you are allowed a win/win situation: the more attachments the better.[331] Is this not the most common experience? You watch a painting; a friend of yours points out a feature you had not noticed; you are thus *made to see* something. Who is seeing it? You, of course. And yet, wouldn't you freely acknowledge that you would have not seen it *without* your friend. So who has seen the delicate feature? Is it you or your friend? The question is absurd. Who would be silly enough to *deduct* from the total sum of action the influence of pointing something out? The more influence, the better. And if you are allowed progressively to influence the quality of the varnish, the procedures of the art market, the puzzles of the narrative programs, the successive tastes of collectors making up a long retinue of mediators, then the 'inner' quality of the work will not diminish but, on the contrary, be reinforced.[332] The more 'affluence', the better.[333] It is counterintuitive to try and distinguish 'what comes from viewers' and 'what comes from the object' when the obvious response is to 'go with the flow'. Object and subject might exist, but everything interesting happens upstream and downstream. Just follow the flow. Yes, follow the actors themselves or rather that which makes them act, namely the circulating entities.

In the pre-relativist definition of the social, what had been brought to the foreground was the human participant and then, through a sharp discontinuity, the social world of beyond. Nothing was allowed to encounter humans unless it was made of social ties. Such was the etiquette of this odd diplomacy. In the new definition it's just the opposite: human members and social context have been put

[331] See Antoine Hennion and Geneviève Teil (2003), 'Le goût du vin: Pour une sociologie de l'attention' and Joseph Leo Koerner (2004), *The Reformation of the Image*.

[332] The treatment of masterpieces by some art historians, see Svetlana Alpers (1988), *Rembrandt's Enterprise: The Studio and the Market*, is an excellent model for treating the rest of the social, even for those who like Francis Haskell (1982), *Patrons and Painters: A Study in the Relations Between Italian Art and Society in the Age of the Baroque* don't indulge in any explicit social theory whatsoever

[333] Neologism in Yaneva, 'L'affluence des objets'

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or loses. Can we anticipate a
s that make people act? Can
of respecting the strange
as zoologists do with their
Can we trace social connec-
to the next, instead of re-
l by some ersatz made 'of'
ce have a *real object* to study?
nsider for a minute what it
ients were we to change the
rather than beat around the
n, compare it with the ways
ie example just mentioned.
from religion, no other do-
y critical sociology than the
g, *haute cuisine* dish, techno
hingness by the social factors
version of Plato's allegory of
arned to cherish have been
dows which are supposed to
ie appreciation of the work of
d more the role of a negative
id diamonds into dust. And
istening to what people are
N and why they are deeply
art which 'make them' feel
ected is supposed to be mere
ve keep the old setting? Well,
politics, people are made to
sp of social science: they are
s! And here again, as always,
irreverence of 'social explan-
ner sanctity' of the work of
slope is steep, the outcome

the study of science
, *La passion musicale: Une sociologie de*

into the background; what gets highlighted now are all the mediators whose proliferation generates, among many other entities, what could be called quasi-objects and quasi-subjects. To take up and reverse the rather unfortunate astronomical simile rendered even shakier by Kant's use of it, instead of objects turning around social aggregates as in the pre-Copernican sociology, various social aggregates are emanating out of the many attachments which now occupy the center of the social universe. No matter how hesitant the metaphor, it is such a shift in perspective that ANT is looking for. Things, quasi-objects, and attachments are the real center of the social world, not the agent, person, member, or participant—nor is it society or its avatars. Is this not a better way, to use another of Kant's expressions, of rendering sociology able at last to 'walk onto the sure path of science'?

The reader might remember that in the very first pages of this book, when I had to define as sharply as possible the difference between sociology of the social and sociology of associations, I had to say, following Tarde, that the first had simply confused the *explanans* with the *explanandum*: society is the consequence of associations and not their cause. At the time, this trenchant distinction could not be very convincing because it simply reversed the direction of causal efficacy. I might now be in a position to offer a more precise definition: there are many other ways to retrace the entire social world than the narrow definition provided by standardized social ties.

I could of course maintain the simplified argument and claim, for instance, that it's not science that is explained by social factors, but scientific *content* that explains the shape of its *context*; that it's not social power that explains law, but legal practice that defines what it is to be *bound*; that it's not technology that is 'socially shaped', but rather techniques that grant extension and durability to social *ties*; that it's not social relations that 'embed' economical calculations, but economists' calculations that provide actors with the competence to behave in an economic way, and so on. Although every one of these inversions would be right in terms of ANT, they would remain partial because I have kept the two positions of what explains and what should be explained intact, simply substituting one for the other. In this first formulation it's not the social that accounts for associations but rather associations that explain the social.

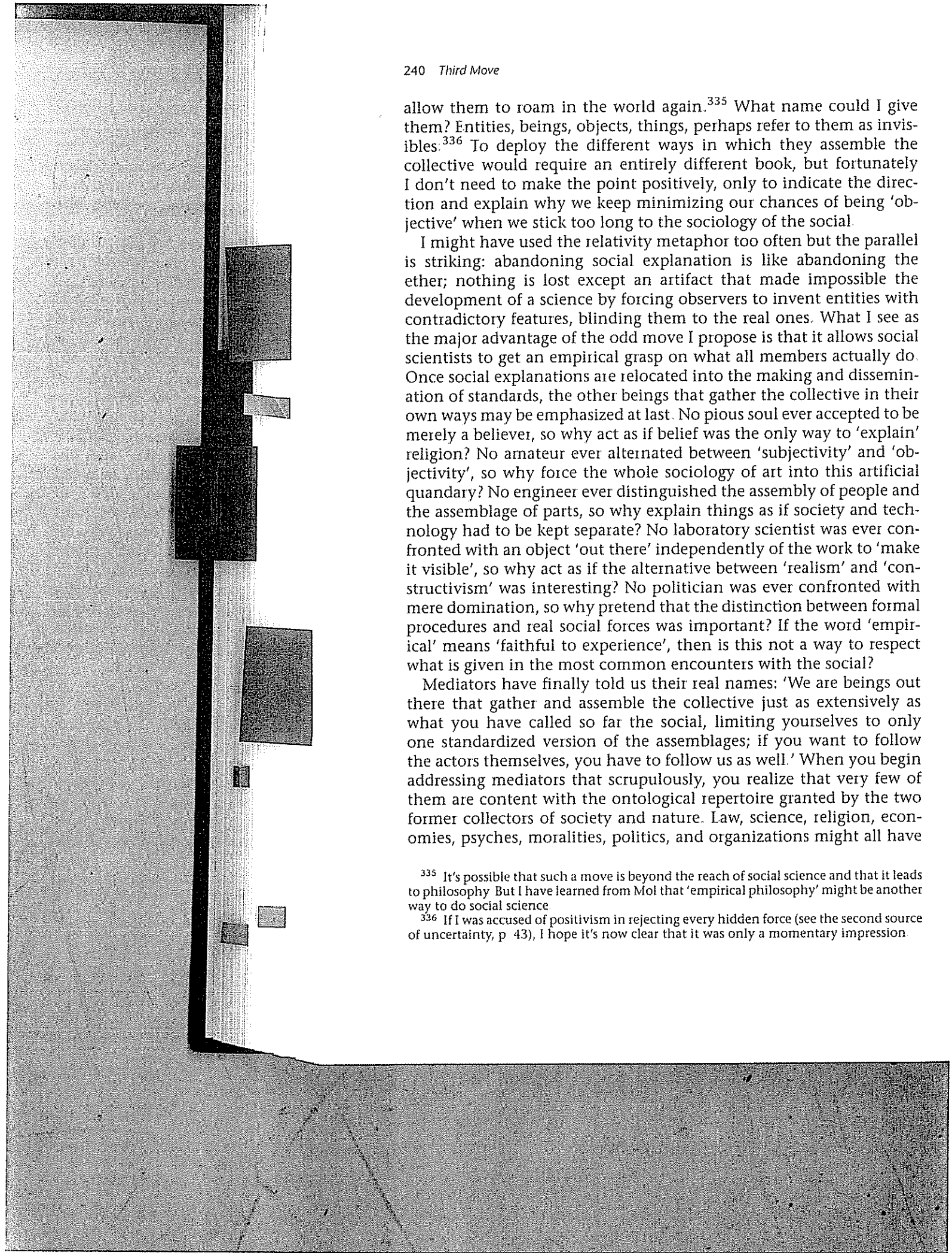
But now that we are getting used to traveling in the new flatland, the two positions themselves have vanished together with the very urge for a social explanation that would appeal to the stock of already stabilized social ties: social is not a place, a thing, a domain, or a kind of stuff but a provisional movement of new associations. This change of topography allows for the same ANT argument to be now presented in a more interesting light, offering, so to speak, landing

strips for other entities to enter the collective, entities just as complete, ubiquitous, respectable, and empirical as the social of sociologists but not as thoroughly followed by them.

It's not only that law, for instance, is unexplainable by the influence social forces exert over it; and it's not even true to say that law has to explain in turn what society is, since there is no society to be explained. Law has much better things to do: one of them is to circulate throughout the landscape to associate entities *in a legal way*. Science cannot of course be explained by its social context, but nor does it really have to be used in order to explain the ingredients of social relations. It, too, has much better things to do: one of them is to circulate throughout, tying entities together *in a scientific way*. Although it would be pretty empty to explain religion as a fanciful embodiment of society, doing the reverse would be only slightly better because religion does not even aim at explaining the shape of society either. It, too, has much more potent things to do, namely gathering all the same entities as law and science did but tying them together *in a religious way*. Since explaining politics by power and domination is a moot point, there would be no sense either in simply reversing the argument, since politics has a much more important task to fulfill, namely to trace again and again the paradoxical shape of the body politic in *a political way*. And the same could be said of many other types of *connectors* which are now center stage because it is their displacements that trace social connections—an expression that, as we know, does not mean 'connections made of social', but new associations between non-social elements.

Now comes the tricky part as here comes the straw that breaks the camel's back: displacement yes, but *of what*? What does it mean to speak of legal, religious, scientific, technical, economical, and political 'ways' of associating? And how could this be comparable with the traces left by the calibrated definitions of social ties? This is where the simile of the Copernican revolution is but a meek understatement; this is where the real rupture is going to occur with any sort of 'social' science if we don't modify for good the meaning of this adjective—and this is where the few readers I have managed to keep until now may well abandon the theory for good.[334] To understand what I take to be the ultimate goal of ANT, we have to let out of their cages entities which had been strictly forbidden to enter the scene until now and

[334] This is also the place where I have to part company finally with Tarde, who never thought it necessary to differentiate the types of threads with which he was weaving his definition of the social world. In this sense, Tarde maintained a substantive and not a relativist definition of sociology.



allow them to roam in the world again.[335] What name could I give them? Entities, beings, objects, things, perhaps refer to them as invisibles.[336] To deploy the different ways in which they assemble the collective would require an entirely different book, but fortunately I don't need to make the point positively, only to indicate the direction and explain why we keep minimizing our chances of being 'objective' when we stick too long to the sociology of the social.

I might have used the relativity metaphor too often but the parallel is striking: abandoning social explanation is like abandoning the ether; nothing is lost except an artifact that made impossible the development of a science by forcing observers to invent entities with contradictory features, blinding them to the real ones. What I see as the major advantage of the odd move I propose is that it allows social scientists to get an empirical grasp on what all members actually do. Once social explanations are relocated into the making and dissemination of standards, the other beings that gather the collective in their own ways may be emphasized at last. No pious soul ever accepted to be merely a believer, so why act as if belief was the only way to 'explain' religion? No amateur ever alternated between 'subjectivity' and 'objectivity', so why force the whole sociology of art into this artificial quandary? No engineer ever distinguished the assembly of people and the assemblage of parts, so why explain things as if society and technology had to be kept separate? No laboratory scientist was ever confronted with an object 'out there' independently of the work to 'make it visible', so why act as if the alternative between 'realism' and 'constructivism' was interesting? No politician was ever confronted with mere domination, so why pretend that the distinction between formal procedures and real social forces was important? If the word 'empirical' means 'faithful to experience', then is this not a way to respect what is given in the most common encounters with the social?

Mediators have finally told us their real names: 'We are beings out there that gather and assemble the collective just as extensively as what you have called so far the social, limiting yourselves to only one standardized version of the assemblages; if you want to follow the actors themselves, you have to follow us as well.' When you begin addressing mediators that scrupulously, you realize that very few of them are content with the ontological repertoire granted by the two former collectors of society and nature. Law, science, religion, economies, psyches, moralities, politics, and organizations might all have

[335] It's possible that such a move is beyond the reach of social science and that it leads to philosophy. But I have learned from Moi that 'empirical philosophy' might be another way to do social science.

[336] If I was accused of positivism in rejecting every hidden force (see the second source of uncertainty, p. 43), I hope it's now clear that it was only a momentary impression.

their own modes of existence, their own circulations. The plurality of inhabited worlds might be a farfetched hypothesis but the plurality of regimes of existence in our own world, well that's a *datum*.[337] Is there any reason why sociology should keep ignoring it?[338]

The problem is that the social sciences have never dared to really be empirical because they believed that they simultaneously had to engage in the task of modernization. Every time some enquiry began in earnest, it was interrupted midway by the urge to gain some sort of relevance. This is why it's so important to keep separate what I earlier called the three different tasks of the social sciences: the deployment of controversies, the stabilization of those controversies, and the search for political leverage. But before we take up this last question of political epistemology, I have to point out another puzzling feature that is the reason for writing this introduction. Contrary to all the other 'clamps' I managed to put in place, this one will break the continuity of the networks, the *terra firma* of traces and documents. This one will lead us back to the sea, the sea of our common ignorance.

Plasma: the missing masses

What a great relief it is to discover that we are not 'in' society—no more than we are 'in' nature. The social is not like a vast impalpable horizon in which every one of our gestures is embedded; society is not omnipresent, omniscient, ubiquitous, watching every one of our moves, sounding every one of our most secret thoughts like the omnipotent God of older catechisms. When we accept to draw the flattened landscape for which I offered a list of props, tricks, grids, and clamps, the social—at least that part that is calibrated, stabilized, and standardized—is made to circulate inside tiny conduits that can expand only through more instruments, spending, and channels. The total, that is the systematic or structural, is not ignored but rather carefully situated inside one of the many Omnimax theaters offering complete panoramas of society—and we now know that the more thrilling the impression, the more enclosed the room has to be. Society is not the whole 'in which' everything is embedded, but what travels 'through' everything, calibrating connections and offering every

[337] This is what renders so interesting a philosophy such as that of Etienne Souriau (1943), *Les différents modes d'existence*. To define and explore them is my next project, which I call an inquiry into regimes of enunciation

[338] Luhmann's masterly attempt at respecting the differences through the notion of autonomous spheres was unfortunately wasted because he insisted in describing all the spheres through the common meta-language borrowed from a simplified version of biology