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Bruno's (No History Required) Tour of the Past

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Historians construct and purvey inscriptions about passages of action 'in the past'. That 'past' exists in historians' discourse as the residual effect of all their textual manipulations and tracings. This much a Latour might utter, and with our approval. But, in his haste to put us out of business, he would omit, and indeed has omitted, the following.

Historians' inscriptions conform to certain rough standards and requirements of professional practice. To inscribe historical accounts professionally requires attention to two related genres of tracing. First, historians must manufacture models of what I shall call the 'inner contents' of actors - the cognitive/interest structures; the meaning/relevance structures of actors. These structures are imputed to actors at given moments in the process or interaction under study; that is, under construction. Secondly, historians must also manufacture models of relevant aspects of context - proximate or distant. That is, those aspects of context taken as relevant to the shaping, constraining and empowering of the actors with their 'inner contents'. (All this obviously involves layers of implicit theory concerning the nature of contexts and of contextual relations to actors.)

These models of 'insides' and of contexts are historians' *sui generis* professional constructs. Historians mobilize both sorts of tracing in accounts of passages of historical action. As such, these accounts obviously are simultaneously descriptions and explanations.

Historians, moreover, are interested in process and passage, themselves variously constructable. In negative heuristic terms this minimally means being alert to the stock pitfalls of Whig history - not only presentism but also the search for full-on, sudden heroic 'origins', as well as not explaining things through the billiard ball collision of block causes and effects.

As is well known, in his haste to constitute a hegemonic theory of 'technoscience' dynamics, Latour rejects these articulated professional standards, as he rejects the professional practices of other disciplines such as Sociology of Science and Political Economy. My argument is that the historiographical discourse that Latour then does supply is characterised by explanatory vacuity, tautology, naive Whiggism, and sophomoric empiricism.

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Indeed Latour advocates a pseudo-historiography which is structurally identical to the mythopoeic historiographies issued by grand methodologists such as Popper or Lakatos. Like them, Latour empties his explanatory space of 'contextual' forces and structures, and so he also thereby necessarily empties his key actors (Princes, entrepreneurs, innovators) of any internal socio-cognitive texture. In the end, one is left with rational, clear-sighted heroes who participate in inherently Whiggish 'just-so' stories of triumph, in which everybody instantly recognises 'hard' facts, 'too large' costs, and 'too many' allies, and judges, acts and enrols accordingly. One is left in principle not with bad history writing but with writing that bears no serious relation to what we customarily and appropriately accept as historical inscription at all.

Latour makes many shrewd observations. He is correct, for example, in insisting that the status and fate of a fact as a fact is entirely in the hands of subsequent users; or in his observation that since facts and machines have no inertia, their stability over rounds of usage requires explanation every bit as much as would their alteration, rejection or renegotiation.

Latour puts such unexceptionable insights to work in the service of his grand alternative vision of science and technology dynamics as an agonistic field: the winner is the one who can establish harder facts, who can mobilise and keep in line the greater number of (human and non-human) allies.

'Who', he asks, 'will win in an agonistic encounter between two authors, and between them and all the others they need to build up a statement S? Answer: the one able to *muster on the spot the largest number of well aligned and faithful allies*.'

'This definition of victory', he insists, 'is common to war, politics, law, and I shall now show, to science and technology.'[2] Whatever wins, establishing the stronger and longer network, is for the time being a 'correct' dominant piece of science or technology.

Now I grant that historians of science can be somewhat seduced by this vision, and Latourian language creeps into and mingles with our own. I've recently experienced this in writing a paper on experimental natural philosophy in the eighteenth century.[3] But, I still contend that Latour's approach is vacuous, tautological and Whiggish, and that it only gets used meaningfully when one mingles it with one's own pre-existing repertoire of historiographical discourse. The real danger lies in Latour's filling up the relatively empty minds of novice historians of science, of his creating the illusion for them that he is saying something really dense

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2 B Latour, 'Visualisation and Cognition; Thinking with Eyes and Hands' *Knowledge and Society: Studies in the Sociology of Culture Past and Present 6*,1986, p.5.

3 J Schuster & G Watchirs, 'Natural Philosophy, Experiment and Discourse in the 18th Century: Beyond the Kuhn/Bachelard Problematic', in HE Legrand (ed.), *Experimental Inquiries* (Reidel, Dordrecht,1990), pp.5-42.

and useable about how professionally to speak the historicity of science. This underlying vacuity and poverty of Latour's model appears most clearly when we look closely at exactly what is supposed to happen in that elementary unit of machination - the 'rhetorical situation' - the smallest stitch of networking.

Of this elementary unit of action he writes,

> this movement is quite simple: when your advance on one front is stalled, explore new possible allies which would be unexpected enough to tip the balance of forces; bring them together so that they act as one single force; make them have a bearing on the struggle at hand.[4]

What happens in these agonistic situations, these elementary units as it were of scientific action, decision and networking? The aim of an intending innovator or Prince is to muster more allies and harder facts on the spot in the moment and place of encounter. Latour tells us things like the following:

The name of the game is thus always to solve the quandary of how to control those that are enrolled...[so in general] ...make your environment such that whatever other human or non-human actors think or do, they are either kept at bay or else they help strengthen your position, making the world safer, more predictable and more enjoyable for you..[5] Once one competitor starts building up harder facts, the others have to do the same or else submit.[6] One place gathers in all the others and presents them synoptically to the dissenter so as to modify the outcome of an agonistic encounter.[7]

Since allies can be human and non-human, the issue of well-aligned, powerful allies is the flip side of the having of hard facts. Facts only become hard in such well-aligned networks. In the unit encounter, therefore, only two things count and are taken into account - the hardness of one's opponents' facts (which is a function of his alliance network), and the cost to you of not enrolling (or the benefit to you for enrolling.)

This might be fine, if Latour did not make a disastrous but necessary move at this point: his model of action assumes, and it must assume, that all contenders make essentially the same evaluations and judgments of the state of play in the agonistic moment or rhetorical situation. Latour does of course recognise that costs and risks may be different for different actors, and that this affects their movements and tactics; but he tends to assume that everyone has a clear/objective

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4 B Latour, '*The Prince* for Machines as Well as for Machinations' in B Elliott (ed.), *Technology and Social Process* (Edinburgh University Press, Edinburgh, 1988), p.29, citing *Science in Action: How to Follow Scientists and Engineers through Society* (Open University, Milton Keynes, 1987) at this point.

5 *Ibid.*, p.29.

6 Latour, 1986, *op.cit.*, p.13.

7 *Ibid.*, p.16.

view of his own and his opponents' strategic position, cost/benefit profile , and the hardness/softness of the facts in play. This latter point of course contradicts his correct declaratory view that hard facts don't win - winning facts are hard.

The reason Latour must have such clear-eyed, objective calculating machines for actors at this point is that if he did not, he would have to admit what is obvious to everybody else: the so-called 'rhetorical situation' or 'agonistic encounter' does not consist in contestants confronting each other with texts/figures/diagrams which are objectively and consensually read as containing harder/softer facts. Either the dissenter's criteria, interests and their weightings differ from those of the innovator and so the dissenter reads the innovator's inscriptions differently than the innovator intended. Or the dissenter accepts precisely the version of the inscription that his opponent offers. In that case they must both be well socialised members of a sub-culture shaping similar patters of interest, interpretation and judgement.

In either case the actors come into the unit encounter with historically reconstructable and imputable internal grids of cognition/interest and value. And where, in historical accounts, do those grids come from? Do actors drop in as *dei ex machina* miraculously gifted with inner socio-cognitive contents? Obviously not. Historians here appeal to the existence of contexts - whether mediate or quite macro, which have shaped, constrained and variously empowered those actors and their inner contents. Historians can and must make judgments about what context(s) and what models of such context(s) are to be mobilised in their accounts. It is typical of mythopoeic method-centric accounts of history of science that they similarly conjure away such inner contents and outer contexts: they happily leave all the little rational actors to agree straightway on the latest falsifying test, or the degenerating state of such and such a research program.

Latour tells us that 'we must eventually come to call scientific the rhetoric able to mobilise on the spot more resources than other ones.'[8] Again, as if all rational actors will acquiesce when shown a case of 'more resources on the spot'.

Latour surely knows that rhetoric comes into play precisely when we cannot mystically assume that the audience shares our own assessment of claims against the background of a shared assessment of 'given' costs and benefits. Rhetoricians have to impute structures of knowledge, interest and priority to audiences. And, to understand a rhetorical interaction we historians have to impute inner contents to rhetorician and audience members alike, as well as construct and mobilise models of the relevant contextual constraints, resources, empowerments. This is why a rhetorical view of science claim-making and breaking is preferable to a method-centric one.

Latour likes to illustrate a course of innovator's action, of successful networking, through his socio-technogram. This is a hieroglyph for his view that neither nature nor society exist until strong networks have been built by innovators. Nei-

8 Latour, 1987, *op.cit.*, p.61.

ther nature nor society explain the meandering, ever-moving flow of negotiation, encounter and enrolment pursued by the innovator.

I'll concede that the sociogram/technogram in *Science in Action*, pp.138-9, is instructive in the sense that it makes clear that at any given moment in the history of a fact or a machine, we can describe the supporters and allies of the fact/machine in its present state, and we can describe the present technical/conceptual specifications of the fact/machine. And, the diagram illustrates the diachronicity of these relations; for at any moment the fact/machine lies at the intersection of the two interrelated systems - allies and specifications. The diagram points up that facts and machines do not possess inertia - they do not without cause subsist identically through time. All this is one way of capturing and broadening the sense of the social construction and historicity of facts and technical artefacts. But, of course we knew all this already, before Latour tried to hijack the discipline.

Where Latour starts to go wrong is in his insistence that an immediately acting entrepreneur must always be present at the moving centre of the diagram. He must insist on this because it is absolutely necessary to the homogenisation (and trivialisation) of the social world as we usually conceive of it, a homogenisation that is, as Mark Rix observed, the core of his theory and the ground of its inanity. For my money, all this fetishistically invoked figure does is compound the historical impossibilities of his unit of action - by purporting to capture a diachronic course of action. There are two key point to make in deconstructing this mystical emblem:

(1) Princes and innovators are not always there in the centre networking. Facts and artifacts can have histories outside the concrete networking of a key Prince. Diesel is no Pasteur. The Curies are not Edison and his associates. The former do not ongoingly construct and control the nets in which the things conventionally linked to their names later existed.

Consider Claude Bernard, a weak reed according to Latour because he was a poor network-builder. Nevertheless, Bernard's 'facts' survived well in the professional community of physiologists and he could cash that fact for his own career prospects. Bernard did not intend to play the science game (war) the way Pasteur (on Latour's telling) did. How are we to understand an actor who is not a builder of concrete systems? Answer - by understanding how this actor works and machinates within an already existing sub-culture or domain of discourse - in this case the world of professional physiological research in late 19th century Europe. But that requires that we historians theorise about the sub-culture; about Bernard's inner states of knowledge and aims within it; and about the larger society of which that professional sub-culture was a part - three things Latour forbids us to do - so that we may remain mesmerised by the networking Prince, a genius of objective machination in his context of homogenised mush.

Galileo provides another example - this time of the partial presence of a networking innovator, but one who fails. For Galileo's Latourian machinating in the Vatican led first to the farce of the 1616 condemnation of realist Copernicanism and later contributed to the tragedy of his trial and condemnation. But wait - it cer-

tainly is true that Galileo's writings did have wide success out in that wide, diffuse sub-culture of educated lay opinion.

Now perhaps the key element in Galileo's success for Copernicanism was the fact that this larger audience contained some of the most important future natural philosophers of the next generation - your Mersennes, Gassendis, Hobbes and Descartes. Their conversions were decisive in the long run - as the triumph of mechanism later was the triumph of Copernicanism. But also consider this: Galileo did not plan this; he did not machinate for it as such inside the sub-culture/community of natural philosophers, and indeed he showed little taste for that enterprise in general. To understand this big, diffuse and crucial passage of action, we historians had better understand the social geography of the vernacular reading public, and the socio-cognitive dynamics of that 'field of discourse' in which natural philosophers contended for hegemony. If Galileo hit our young future mechanists, we need to try to see how readings of his books could resonate their inner contents - at particular reconstructed moments of interaction.

Latour will have none of this - a situation without an entrepreneur, attention to the society and its sub-cultures, attention to the mental maps of actors, etc, etc, etc. The young mechanists must have just seen harder facts, or more allies amassed, or too great costs in not becoming Copernicans.

So, not all passages of historical action - fact making/breaking action - are carried out by the present networking of the Prince. Sub-cultures exist, intersecting sets of sub-cultures, offering rules and resources for players to take, as it were, brief but noticeable swipes at the social-technical shaping of facts or machines as they circulate in the infrastructure - cognitive/social - of the sub-culture. And, if you have to talk sub-cultures, you have to talk big macro-structures of which they are parts - societies, states, dominant forms of discourse, etc.

Latour's feeble preemptive answer to this sort of argument is to invoke the mystical meaning of the socio-technogram once more:[9] society and technology are two artefacts created symmetrically and simultaneously by analysts who have too narrow a definition of power to track down the powerful. No! The omnipresent (and it transpires almost omniscient) entrepreneur is the artifact of Latour's theory - a model which desiccates history and society of any inner articulation and hence of any non-entrepreneur pushed process.

(2) This leads us to the deeper problem with the diagram - even in those Edison/Pasteur type cases where there arguably is a Prince upon whom to focus, the history is ahistorical, vacuous, tautological, professionally inept, and hopelessly Whiggish.

Latour tells us that the transformation of a project by a Prince is a fluid, continual process in which the tactical challenges and machination imperatives always include technical, scientific, social and economic aspects. This process, Latour

9 Latour, 1988, *op.cit.*, pp.22-23.

says, 'never stops' being the resultant of a four fold strategy oriented around the key questions:

1 Whom should I convince?
2 How strong is the resistance?
3 What new resources should I enrol?
4 What transformations should the project undergo?

To which we have to say 'so what?' unless and until the content and context of these questions and their answers are supplied for each contingent turn and moment in the process. Otherwise we are granting the heroic Prince perfect positive knowledge. There is a right answer to these questions in the sense that the right answers, rightly executed, will succeed in the necessary encounters; that is, opponents will see the issue, costs/benefits, the hardness of facts in the same way. It's the mythic mechanics of the unit encounter strung out into a just-so story of Whiggish triumph.

Latour must attack the requirements of the historian's craft, because to allow attention to inner contents and to contexts, to sub-cultures and to Princeless passages of action, would destroy his own theory. His arguments against the existence or explanatory utility of macro actors - of big contextual features - are accordingly fatuous and jejune. There are three such arguments.

The first is that bad contextual history has been done. That is true - we don't recommend that students emulate straight Zilsel or Hessen. But Latour pretends this is an issue of theoretical principal - society, the economy, the state don't exist for explanatory purposes - or perhaps do not exist at all. For historians the issue is one of craft judgment and practice - Hessen is too ham-fisted - but, that doesn't mean the commercial capitalist economy of early modern Europe did not exist and cannot be fed, skillfully, into explanations of many and sundry courses of action in early modern Europe.

Latour's second argument seems to be that society, economy and state are the crystallised products of earlier successful passages of network building, so until we tell those stories we can't mobilise the products in explaining things that came later. But, we have yet to see, and can't imagine what Latour's history of the world would look like - so until then, historians can continue to model the states, economies and societies of the past, and deploy those inscriptions in accounts.

Finally, we have the curious claim that, for example, the economy after all is the inscriptive product of econometricians so how can we use it to explain science or technology. No, No, No - an 'economy' is the product of econometricians; do we conclude that since no econometricians worked in 17th century France it had no economy? Or better, since no worthwhile econometrics can now be done on 17th century France, that it lacked an economy? Of course not. Historians of various specialised skills can variously theorise about that economy, and those models and inscriptions can be mobilised in accounts of passages of action in the past.

Latour is desperate for none of this to happen; he is in short desperate to displace the entire world of professional historical inscription, because his theory, he rightly senses, cannot co-exist with it.

To conclude let me give a further example of how Latour cannot apparently even read historical writing without turning it into the jejune nonsense of his own theory. Latour is seeking to illustrate that his innovator/Prince does not favour non-human above human allies or vice versa. He does this by appealing to Marc Bloch's classic study of 'The Advent and Triumph of the Water Mill'.[10] Latour writes,

The discussion of the Prince's moves is as much stifled when a privilege is granted to non-human allies as if they were the best and only way to win the day. This is never the case. In a study that is not outmoded because it has the sharpness of an origin myth, Marc Bloch has illustrated this point beautifully. The grinding stones, the gears, the wheels and the rivers are good unexpected allies that, once tied together in one mill, makes (sic) a formidable stronghold. But their efficacy stops there. A stronghold can be in the middle of a battlefield, thus bearing on the issue of the battle, or away from the battle field. If each household goes on grinding corn by hand, the Prince who holds the mill will hold nothing but wood, water and stones. The mill will become a stronghold only if the Prince fetches the militia, enforces the King's ruling, the Church's teachings and compels every household to break their hand-grinders and to pass through the miller's stones.[11]

What shall we say about this if we read Bloch through the spectacles of a professional historian?

(1) Bloch is interested in showing that the water mill was invented in antiquity, a fairly rapid analogical development of the rotary grain grinding mills typically then worked with lavishly available human muscle power. This meant that it was little exploited at that time. Leaving aside environmental conditions necessary for installing water mills, Bloch stresses that the key factors in its later wider spread in Medieval Europe depended upon social forces and variables. Water power would generally be favoured in a society with more scarce and more expensive labour supplies than Greco-roman civilization, and this conditioned a general tendency toward their spread. Overlying this process was the emergent manorial system and accompanying system of seigneurial rights (less or well entrenched in law and custom in different parts of Europe). This tended to place potential monopolies of local water mills in the hands of the landed proprietors - a monopoly similar to others they came to enjoy. Mills only made sense if a sufficient throughput could be achieved by enforcing a seigneurial monopoly on the local peasantry, a monopoly that, given the transportation conditions of the time, also allowed high charges to be imposed. Peasants resisted, passively employing their individual hand mills; and much less successfully at law, variously and sporadically over the entire period from the 11th to the 18th century. The issue died not so much with steam mills, but with the legal eroding of feudal rights. The issue never turned on the King's ruling, or on fetched militia, nor on the church; it depended locally and

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[10] M Bloch, 'The Advent and Triumph of the Watermill' in *Land and Work in Medieval Europe: Selected papers by Marc Bloch*, trans. JE Anderson (RKP, London, 1967), pp.136-168.

[11] Latour, 1988, *op.cit.*, p.32.

variously on interpretations of customary seigneurial rights, often legally enforceable despite the relative weakness or distance of 'the king' and indeed often entrenched for that very reason. The matter never began or ended; Bloch is studying the contours of a process, one that by its nature shows the variable effect on trajectories of technological development of differentially applied social/legal/discursive resources and constraints.

(2) The case has nothing to do with Latourian heroes and their super-rational networking achievements. In the case Bloch is talking about there is no 'Prince'. This was not an innovator-led networking manoeuvre, nor even a class of innovators' networking manoeuvre. The matter certainly was not as simple as one or many innovators, or the innovators as a class successfully calling in powerful human allies. Latour hypostatises the process and its delicacies into some vague, general act of innovation. It appears in his account as something with a block origin and an end - whereas Bloch is talking about long, interweaving sets of processes, for all of which we need the attribution of inner contents and models of relevant context, and from which we learn that the history of technology bears no relation in this case to Latour's fairy tale.

Well, I think we can say that in this example Latour certainly manages to turn some highly skilled and persuasive inscriptions of Marc Bloch into a mass of homogenised Latouro-pap. And, if Latour can do that to the doyen of French economic historians, imagine what a mess he can make out of you.