Hot and Cold Techniques in the Longue Durée of Media

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In 1927, Marcel Mauss gave his definite answer to Henri Bergson’s concept of ‘homo faber’:

Homo faber, says M. Bergson. This formula signifies only the obvious or too much at once... But it has the merit of reclaiming for la ‘technique’ a place of honor in the history of mankind... And we will adopt it, but under one condition: ... the invention of the technical movement or instrument, the tradition of its use or the use itself, the practical art is essentially a social matter...The techniques are thus arbitrary, and particular to a community that generates them. Etymologically, the artificial is derived from art and artifice, and technique derives from ‘techné’. But, at the same time, more than any other social phenomenon, the arts are made to exceed the limits of societies. Techniques, technical instruments and procedures travel. Throughout they are social matter that is genuinely expansive. By nature, techniques tend to become general and to multiply across human populations. They are the factors and causes, means and ends of what is called ‘civilisation’, and moreover of a progress that is not only social but human (i.e. a matter of mankind). And this is why. Religion, law, economy are limited to each society.

Even when they spread, they are the means for a community for acting on itself. In contrast, the techniques are the means, and a material means, for a society to act on its environment (milieu). Thus, they are a compromise between nature and mankind (l’humanité). Because of this fact, this extraordinary, this extrasocial position, they are of a general nature concerning humanity itself. Yet, even here, ‘Homo’ is ‘duplex’, but he is duplex in another manner than in law or in religion. In religious ecstacy, in moral sacrifice man and society always stay themselves within their limits and their faults. In the practical arts, man pushes
these limits outwards. He progresses in nature, and at the same time in his own proper nature, because he adjusts to nature. He identifies himself with the mechanical, physical and chemical order of things. He creates and at the same time he makes himself, he creates at one stroke his means of living, purely human things, and inscribes his thinking into these things. Here, the genuine practical reason is elaborated. (Mauss, 2012: 287-291, tr. E.Sch.)

This is Mauss at his most optimistic, and at his most generous concerning Bergson’s homo faber. As Francois Sigaut has reconstructed in a long paper on the controversial relationship between Durkheim and Bergson, French anthropologies of technology or rather, of techniques, developed from this Maussian compromise between Durkheim and Bergson, between Homo faber and Homo duplex (Sigaut, 2013). And there are many things that we might find exciting in this passage, or even prophetic. Nevertheless, I think we have to contradict Mauss in many respects too, and we have to supplement Mauss on his own terms. After all, this is the theorist who gave us the concept of ‘body techniques’, and this is the theorist who went back to the Greeks and Aristotle and re-adopted the concept of techniques by what the Greeks called ‘techné’.

If we take Mauss’s reference to ‘milieu’ seriously, we might also go back to the beginnings of ecological thinking, to the French distinction of a ‘milieu externe’ and a ‘milieu interne’, and we could say that there are techniques for both: For the ‘milieu externe’ we have biological, chemical, physical techniques to act upon the biological, chemical and physical environment and to be acted upon in return, i.e. by the physics of weaponry, by bio-medicine acting on our bodies and by the chemistry of drugs and other chemicals. The ‘Anthropocene’ would be a nice word for an ugly fact: human action transforming its ‘milieu externe’, irreversibly. And it would be a nice word for an uncanny fact: human action rebounding on itself physically, chemically and biologically.

But for the ‘milieu interne’ we have techniques too, especially the ‘techniques of the body’ that Mauss defined, but also the elementary techniques of concerted action with others, which is not only verbally coordinated and initiated at each step, but is indistinguishable from verbal action in general. Thus, how important the ‘self techniques’ that Paul Rabbow characterized may be for us and our self-understanding, the techniques of concerted action remain more important, and they affect the
body, as ‘body techniques’, our minds, as ‘verbal techniques’, and our living together, as ‘interaction rituals’ or ‘ritual techniques’. And after all, the ‘self techniques’ were based on techniques of rhetoric and disputation which means, on codifying interaction (Rabbow, 1954).

How do these techniques differ from the chemical, physical and biological techniques within and without the sciences? First, there is a different direction and indirection. As Mauss has described it, in the material techniques, we act upon the ‘milieu externe’ and thus become part of this ‘milieu externe’ to be acted upon and experience our mechanical, biological and physical modifications. In the bodily, verbal and interaction techniques we act upon ourselves and on our togetherness - our body and the intercorporeality of our bodies, our language and the mutual ‘recipient design’ of our dialogues, our mutual interaction and the way we initiate improvised sequences of efficient concerted action. And only through these techniques are we able to act upon the ‘milieu externe’.

Where does that leave the theory of technological and scientific ‘progress’? Here we must try to translate what is meant by ‘progress’, and what former and future generations will have understood progress to be. Let’s just leave the ideological question of progress aside. What is the technical core of technical ‘progress’? I think it is very simple, and has been there ever since the Stone Age, in any kind of lithic age and later metal age: the idea of technical progress depends on the much simpler and more neutral idea of the accumulation and incremental implementation of techniques within techniques. That’s why, in accordance with Claude Lévi-Strauss, I would like to call this group of techniques the ‘hot techniques’, for two reasons (Lévi-Strauss, 1983).

First, material techniques can be incrementally built into each other, which also means they need more energy, the more they are accumulated in one artefact or in one result. And indeed, in the long run, the material techniques did not only produce, but did and do consume higher and higher amounts of energy. After the invention of fire, after the consumption of food from domesticated plants and animals, and after the use of fossil energy sources we are still escalating the energy consumption on this planet by incorporating techniques into techniques, especially, as we all know, by the domestication of cattle and grain, or the consumption of beef; by our land and air vehicles; and by the rising energy consumption of computing. But because we build our material technologies through the incremental implementation of old techniques into new
That’s why Lévi-Strauss called our societies ‘hot societies’, but for several reasons I’d rather refer to ‘hot techniques’. After all, the distinction that Lévi-Strauss drew was a technological one too. Lévi-Strauss himself acknowledges there are no ‘cold societies’, which means there are no societies that are not based on the accumulation of technical skills and making the most of accumulating practical knowledge about their environment, and altering their environment by practical knowledge. But if there are no ‘cold societies’ in the strict sense, it doesn't make sense to carve out a section of ‘hot societies’.

Still, there is a possibility that Lévi-Strauss forgot when he characterized ‘hot societies’ as those societies following the path of technical accumulation and energy consumption. There may be no ‘cold societies’, but what about ‘cold techniques’? And indeed, I do believe that it makes sense to distinguish ‘hot’ and ‘cold’ techniques. ‘Hot techniques’ are those that accumulate and combine operational chains, and experiment with the possibilities of incremental implementation. These possibilities are facilitated and enhanced by modular units: by parts and wholes, by functional substitutes and open slots, by spatial parts and temporal operations that can be separated and may be separately combined. ‘Cold techniques’, for instance in sports and body techniques, in rhetorical composition and the fine arts, and in the ritual sequencing of ritual events, may also resort to modular units in time and in space.

Thus, modular units and their recursive combinations are pervading both ‘hot’ and ‘cold’ techniques. The difference is that in cold techniques you easily reach a threshold where accumulation fails, so that it doesn’t make sense to assume you can endlessly or even arbitrarily design verbal, bodily or ritual techniques by just incorporating one technique or one artefact into another technique or its artefact. If you try to accumulate several cold techniques by combining them in a new technique, however hard you work on it, the result will not be an accumulation, but a hybrid, a modification or just failure. Body techniques, but also verbal techniques, or let’s call them ‘languages’, and the techniques of interaction and ritual interaction, let’s call them ‘rituals’, do not accumulate.

Let me try to elaborate this proposition by giving some examples. (1.) First, with cold techniques, if you incorporate techniques into other techniques, the technical reality you create remains on the same level of complexity as before or
even sinks - in any case, there is no definable criterion to call it more or less complex or technically superior or inferior. For instance, if you render grammatical a vernacular and raise it to the standards of a grammatical ‘high language’, or if you teach a foreign language by teaching the formal rules of grammar, the result will be a new linguistic variant or even a new ‘language’, but there is no necessity of a technically superior verbal behavior or even knowledge for those you teach. People have combined body techniques too and worked on a similar ‘grammaticalisation’; for instance, by taking elements from Indian Yoga and combining them with exercises from European gymnastics with its focus on muscle movements and the upper body, the result being Pilates. Draw your own conclusions.

In the long history of the Eucharist as the central Western Christian ritual, the priests worked hard on excluding the laymen from the center of ritual activities, and the laymen invented their own accompanying para-rituals called ‘sacramentals’ to participate in the realm of distributing grace as the source of life, health and well-being. They incorporated these rituals into the ritual calendar and thus incorporated the eucharist into their accompanying activities. It was some kind of a millenial class struggle between priests and laymen, certainly adding to the complexities of Catholic ritualism, but probably neither enhancing nor diminishing the overall complexity of ritual life and knowledge. Thus, incorporating cold techniques in other cold techniques doesn’t imply a gain of complexity, it might even be a loss. Which brings us to the second point:

(2.) Second, with cold techniques there is no certain way to tell what is a reduction of old techniques, and what is a new technique of the same order of complexity. On the verbal or linguistic side, there is the well-known case of pidgin languages turned into creoles, that means, of a reduced hybrid lingua franca with simplified grammar and lexicon turning into a full-fledged language with all the complexities of natural languages. And there is the idea that all natural languages are born as pidgins and creoles; and on the media theoretical side, we could say, that written languages, or writing itself, evolves from pidgins to creoles – that’s basically what we call ‘literacy’.

On the side of body techniques, we could say the same happens in modern sport, because modern sport has a special kind of training that has its counterpart in or even derives from military training, which means drill: modularizing muscle movements and repeating them endlessly in purposeful combinations. But
then, becoming a professional athlete involves so many aspects of intercorporeality, of psychology and even of downright magic that body technique turns into a ‘fait social total’.

With ritual practice, of course, you can take one sequence of a ritual and strip it down to its bare essentials, but then this reduced sequence can be as meaningful as any full-fledged ritual, for instance, when a coronation ceremony is parodied or re-endorsed as a ‘baby shower’ or as a ‘birthday ceremony’. In fact, many of our current "rites of passage" may have been derived from Royal Coronations, which explains why Royal Coronations and Weddings (and Funerals) are such popular media events - after all, our personal rites of passage and birthdays are certainly as important as any royal Coronation or Wedding. Thus, if we are to speak of a reduction of existing rituals, languages or body techniques or of creating a new and ‘unprecedented’ ritual, language or body technique, remains arbitrary. Why? I guess, the answer will be facilitated by the next dictum:

(3.) If you accumulate ‘cold techniques’ beyond a certain threshold of accumulation, they will tend to counteract either the accumulation itself, or the material carrier of that accumulation - which could be called its ‘medium’. You start as a gifted sportsman, you become a professional athlete, and after twenty years of incessant training and injuries you are what? An invalid, or a cripple, respected or not. That means, body techniques may be accumulated in certain respects, but constantly working at the threshold of accumulation, the body will have its revenge. You are trading one kind of accumulation for other kinds of (body technical!) loss.

Ritual knowledge can certainly be accumulated, and ritual specialists, i.e. shamans, may become virtuosos and accumulate a diversity of small and ritually efficient practices; but in the long run, their fate is that of athletes too, especially because they are spiritual warriors and have to live with the side effects of a professional ‘critical paranoia’ trained to detect mischief, rivals and danger. And accumulation of knowledge remains ambivalent, and may be counteracted by gossip and secrets, as in our very own oral societies and socialities.

Concerning linguistic secrets in general, let me quote one more of my favorite coding theorems, which I think applies to every kind of verbal, cognitive or even philosophical cleverness: ‘Everyone knows that debugging is twice as hard as writing a program in the first place. So, if you’re as clever as can be
when you write it, how will you ever debug it?’ (Kernighan and Plauger, 1978: 10).

This may sound like a witticism, but let me just try to explain the practical wisdom of this statement: Cognitive virtuosity provokes acts of reduction, and it often becomes efficient only in its reduced versions, in its ‘Abbau’ or ‘debugging’. And the prime example of linguistic complexity leads me to *Finnegans Wake*, and actually turns Joyce’s novel into a kaleidoscope of Pidgin and Creole neologisms, or of debugging being twice as hard as any code you would like to write for the words and sentences and plot of this book. But the generative principle of *Finnegans Wake* is none other than the one that turned graphic notations into full-fledged written languages in China, Egypt, Mesopotamia and Mesoamerica: the ‘rebus principle’ of being able to write two or more homonymous morphemes in one sign, and then continue ‘bootstrapping’ these units until each and every verbal utterance of a language could be transcribed (DeFrancis, 1989). Which means, the utmost complexity of linguistic virtuosity meets the most elementary procedure of semiotic disambiguation and of terrible pidgin violence.

Let me recapitulate: First, with cold techniques, if you incorporate techniques into other techniques, the technical reality you create remains on the same level of complexity as before or even sinks. Second, with cold techniques there is no certain way to tell what is a reduction of old techniques, and what is a new technique of the same order of complexity. And third, if you accumulate cold techniques beyond a certain threshold of accumulation, they will tend to counteract the accumulation itself, once they exceed their ‘carrying capacity’.

This is not meant to deny that certain forms of accumulation are possible and efficient in the realms of cold techniques. After all, especially in India, by formalising parts of cold techniques certain forms of accumulation have been accomplished, and the consequences are with us, in our bodies, our languages and our rituals. They have been especially pertinent:

- in Sankrit and especially Sanskrit Grammar, with its enormous impact on modern linguistics, and, via Whitney, Bloomfield, Chomsky, even on modern coding;

- in Yoga and some other East Asian Body Techniques derived from Indian Yoga or akin to it;
- in Indian Ritualism; at least in the forms of ritualism that J.F. Staal has described as the only forms that could be called a real ‘Science of Ritual’, because it follows syntactical structures with generative rules; comparable to Sanskrit grammar in this respect; and maybe even comparable to the analytic and synthetic work of Yoga, which of course is not a ‘body technique’, but a discipline of methodically pursued cognitive, spiritual and bodily purification (Staal, 1989).

Thus, it is possible indeed to incorporate ritual sequences, linguistic rules and meta-rules, and even body techniques into formalized sequences of like operations, and to refine and formalize these relationships, and to work on this formalized incorporation for centuries with striking effects. But nevertheless, it remains impossible to incorporate the complexity of one language into another language, one verbal art into another verbal art, one social organization into another social organization, one ritual formation into another ritual formation, one body technique into another body technique, without forming a new language, a new body technique or a new ritual. The arbitrariness of languages, body techniques, and rituals seems to place strict limits on their accumulative refinement and integration.

What are the consequences for ‘hot techniques’ once we acknowledge the existence of ‘cold techniques’, and once we acknowledge that our most basic human techniques remain bound to thresholds of accumulation and refinement we cannot exceed? On the one hand, all our hot techniques are still bound to the skills of our cold techniques; and these skills are embodied in our intercorporeal behavior, they are bodily skills still bound to the irremediable indexicality and sociality of our linguistic skills. We can accelerate and slow down, enlarge and miniaturize, condense and attenuate our chemical, physical and biological environment and its parts and wholes in any dimension and with respect to any parameter we may be able to define, but the ultimate reference point for our concerted action is where our bodies, interaction rituals and linguistic skills meet: in front of a monitor or a written page or an instrument that can change hands and can mutually be monitored and pointed out:

- ‘This, here’, says a practitioner designating the window of some instrument with his or her forefinger.
- ‘I don't see anything’ a colleague retorts.
- ‘But yes surely here, see this spike?’
- ‘Ah, yes this is what you mean, that’s great, I now see it.’ (Latour, 2008; Ms., 2007: 11)
So hot techniques are still learnt and taught by cold techniques; and thus they are constantly transformed by the exigencies - or the ‘affordances’ - of cold techniques. But of course, on the other hand, the cold techniques are enhanced and extended by hot techniques, which means that linguistic, bodily and ritual processes are constantly extended by hot techniques.

Do they ‘heat up’ in the process? Do they become ‘hot techniques’? No, they remain cold. But that doesn’t mean they stay the same, or that they stay invariant. Because something has changed indeed in modernity, and thus the cold techniques have changed as well, not by ‘heating up’, but in their relationship with science and technology, in the relationship of ‘hot and cold’. And I think we do have to acknowledge that there is a life of techniques ‘before and after science’. We can easily discern that development by looking back at the concepts of ‘techné’ and technology before the 18th century and after the 18th century, by leaving the century itself blank: until 1700...after 1800. So what happened to Science and Technology in between ‘before 1700’ and ‘after 1800’?

And this is where we should stick to the contrast between ‘hot’ and ‘cold’ techniques. Looking back at the history of techniques and technology, we tend to forget the most important fact: The techniques that for more than two millenia were the most prominent occidental techniques and defined ‘technique’ and ‘artifice’ for all the other arts and crafts, for industries and uncodified practices alike, from the Greeks to the 18th century, before the separation of artisanship and industry, tinkering and technology, fine arts and artisanal crafts, were the verbal and linguistic arts, rhetoric, grammar and logical reasoning. Thus, if you really want to go back to a general concept of ‘technique’, there’s no avoiding the longue durée dominance of verbal arts or linguistic techniques in the history of techniques and even of the early concept of technology ‘in the West’.

As Reviel Netz has shown for Greek mathematics and its tradition in Europe, this verbal or linguistic bias was indeed what distinguished traditional mathematics and the concept of ‘theoria’ from modern applied mathematics (Netz, 2003). It would be possible to claim similar differences for pre-modern chemical, physical and mechanical forces too; or rather, for alchemy compared with modern chemistry, for nature as a medium between God and Man, and for the long history of physical imponderables like magnetism, electricity, gravity, light and ether. Which is why the old cosmology certainly
made room for the ‘extrahuman’, but not for the ‘extrasocial’: divine order was a collective order, it was very social indeed, and discovering this divine order was a social process and a form of verbal sign, speech, writing, ‘logos’, ‘verbum’ and ‘communication’ in more dimensions than just the human.

Where does that leave Mauss’s insistence on the ‘extrasocial but human’ nature of chemical, mechanical, physical technology? On the one hand, in historical respects, as long as the verbal arts were the paradigmatic techniques or ‘technique’, chemistry, mechanics, physics, and even and especially mathematics, were not necessarily or even could not be conceptualized as ‘extrasocial’. So, this conception of the ‘extrasocial’ as the privileged territory of science and technology is a very recent idea, at least in its dominance; and identifying the ‘extrasocial’ with the ‘nature’ of the sciences in both meanings of the term, the ‘nature out there’ (outside the social) and the ‘essence’ of its laws and universal regularities (outside the social), is a quite recent phenomenon.

Obviously, this is what Bruno Latour has identified as the crucial riddle of the moderns and the modern world. I see no reason to contradict his diagnosis: this is the most striking riddle of the cosmology of the moderns, and all of us are committed to it every day by entering the university and following the unified classification scheme laid out for the world outside and for the internal groups of experts that we are: the humanities and social sciences on the one hand, and the sciences and engineering on the other. The proof of identifying the ‘extrasocial’ with the ‘nature’ of the world lies in the classification of mathematics: obviously one of the humanities and the only science dealing with things nobody but humans could have created for themselves and through concerted social activities, but reclassified as a science - even as a natural science - because our practical knowledge of the chemical, physical and mechanical aspects of the world depends on its development, because the forms of knowledge of the ‘soft problems’ have come to rely on mathematical reasoning.

So, what is the clue to this strange riddle of the modern split between ‘nature’ and ‘society’? At least one of the clues is that ‘technē’ was firmly anchored in the ‘cold techniques’ of language and body, before modern ‘technology’ turned out to be the handmaiden of ‘hot’ science. It is only recently that a historian of science called Guillaume Carnino has solved a crucial riddle in the constitution of modern ‘technoscience’: Around 1850, when technoscience becomes the standard for all the sciences, in other words, when the sciences become
‘laboratory sciences’ and have to rely on constantly improved and newly invented instruments, the project of a ‘science of techniques’, of a true ‘techno-logia’, is abandoned (Carnino, 2015). Between 1650 and 1850, in the wake of the ‘New Science’ or the ‘Scientific Revolution’, for instance in the French Encyclopédie, ‘techné’, ‘technai’ and all the arts and crafts, including the verbal and herbal arts and techniques, are supposed to become a unified subject of a future science, a ‘techno-logia’. Around 1850, this project is given up, and a scientific discipline dealing with each and every technique never evolves. Carnino has a simple explanation for this strange gap: When Science became ‘Technoscience’, scientific theorizing had to focus on the incessant improvement of chemical, physical and biological entities, but could not document, discuss or even theorize the incessantly changing infrastructures of instruments and equipment, let alone the technical skills involved, because the complexity of this task would have stopped scientific theorizing in its tracks. Thus, exactly when and where Science became Technoscience, ‘techno-logia’ was abandoned. And what are these ‘infrastructures of instruments of inscriptions’ but ‘media’, the media of cooperative action, knowledge and documentation, or of data production, transmission and storage?

Thus, if we come back to the distinction between ‘hot’ and ‘cold’ techniques, I think the really ‘hot media’ are those ‘media of science’. As a result, the hard sciences and hot techniques are always new, and the cold techniques and their forms of judgment are always messy, and we can always discern their ‘family resemblances’ with older techniques of their kinds. But this view of new media technologies is an illusion. The problem is that our societies were deeply ‘primitivist’ in the past; and that despite protestations to the contrary, this primitivism - or Evolutionism - never stopped. Let me try to explain.

Primitivism as an aesthetic practice was totally arbitrary: it took whatever it needed, for whatever reasons were at hand, atmosphere, prejudice, knowledge, beauty, sexual arousal, you name it. That’s why Primitivism as an aesthetic practice was exciting, it could be more radical than any other practice, and it was successful in creating new aesthetic realities. But as an ideology, or as a way of thinking, it failed dismally because it worked under the assumption, or purported to work under the assumption, that there was a allochonic ‘substratum’ somewhere in us, out there, or out of our minds and in them, ‘something’ that one could identify with the help of a typology of archetypes, or a morphology of elementary forms, or a
foundational moment of genealogies. But there was nothing of that kind. That’s why Primitivism as a practice certainly changed the world and for the better; but as a theory it was bound to mislead even the best of theorists.

Media theory, I am sorry to say, unfortunately, had its own brand of Primitivism or Evolutionism, and it was called ‘orality and literacy’, with ‘orality’ as the placeholder of the former ‘prelogical mentality’ or ‘the primitive mind’, as Jack Goody, Eric Havelock and others have openly admitted. And thus, ‘orality’ was supposed to contain a ‘substratum’ too, or a typology of archetypes, a morphology of elementary forms, or a foundational moment of genealogies.

But cold techniques do not contain that kind of ‘substratum’. The motto of cold techniques could read like that: “Plus c’est la même chose, plus ca change!” Exactly because they are not built to encompass each other or to incorporate technical sequences in hierarchies of standardized classifications, they are bound to differ from each other, and to differ from themselves. It takes a lot of effort to reduce cold techniques to standardized sequences, i.e. to standard dances, to standard pronunciations, or verbatim repetitions of rituals, because it is much easier to vary the sequences, to play around them or to shift them sideways without paying much attention to the identities or non-identities of repetition. And even and especially in repetition, there is endless variation, of listening, of remembering, of difference.

Thus, the crucial effort in standardizing cold techniques goes into their reduction and the repetition of that reduction. If, by any chance, we would lose all our writing because of a gigantic computer crash that destroys all our digital traces after the paper books and scripts have been abandoned, and three of us would walk into the jungle to see what awaits us, we could easily invent a new language, or at least our children could do that, and live with that new language happily ever after. The potential is always there, it’s just suppressed by our incessant training in standard language grammar, morphology, pronunciation and writing. Our standard languages are an economical and administrative necessity, heavily subsidised because their loss would result in unimaginable losses of power and money. But once these economical and administrative necessities go overboard, there is not much of an invariant left.

That’s why Classical Media Theory (CMT) gave us the wrong picture or impression of what cold techniques are about. In the version of CMT, ‘orality’ or ‘synaesthetic orality’ or ‘acoustic
space’ was the invariant; the series of media innovations were the independent variables; and practices, aesthetic sensibility and socialising were the dependent variables. This functional arrangement was working fine, as long as it was supposed to hammer home the one theoretical point, that new media were new messages. But the idea of the ‘invariance’ of oral techniques and of synaesthetic rituals, body techniques like dancing included, was bogus. There never was an invariant, permeating, archaic, unspecialised repository of ritual, linguistic, or bodily means that could be identified for prehistory, past and present alike. Because these techniques, the verbal, oral, bodily, ritual techniques remain the ones that are unable to step into the same river twice, or even once, and that’s their strength.

By way of contrast, what exactly is new about our technological and media technological accumulations? Our ‘hot’ technical accumulation rests upon the incorporation of old techniques into much older techniques, but along some very old criteria and parameters, especially criteria of acceleration and standardization, or reversibility and modularity, and not much else. In a very strict historical sense, hot techniques follow an archaic path. What appears to be new in the newest of technologies and media technologies is the archaic process of escalating the same parameters all over again, and again. There is nothing more modern than the First Emperor of China with his Terracotta-Army, the modular production of its soldiers, the modular simulation of individuality, but also his political standardization of money, coins, weights and lengths, and the grids of canals. The same applies at the origins of Sumer, in Uruk and Ur. The construction of ‘immutable mobiles’ is most perfect in the beginning of a dynasty or a new empire, and then it breaks down, slowly but inexorably. There were brand articles in the Uruk system to guarantee the quality of long food chains, and then it takes thousands of years to have that kind of system reappear in the 19th century (Wengrow, 2008). And the capacities of mathematical calculations were used to predict the future on the basis of sound scientific observations and their mathematical regularities; like today - with the exception that in Mesopotamia people took the most complicated and most empirical cosmic regularities they could calculate with; and today people take whatever regularities they can calculate in people’s behavior to calculate people’s behavior. And again, it is astronomers or astrophysicists and pure mathematicians who do some of the most sophisticated computing, to decide about the fate of financial products. Let me avoid the question which kinds of calculations are more or less ‘irrational’ or ‘scientific’. Let me just state the obvious: what seems to be newest news
about our technological civilisation has the most archaic roots, and vice versa: what seems to be archaic (i.e. ecstatic dancing, trance) is the only candidate for being new ‘each next first time’.

The process of technological accumulation has reached such a high degree of path dependence that its parameters will quite likely stay the same in the future. And it is striking that in popular histories of technology and of media technologies, the parameters for technical accumulation shrink to the ever same criteria of speed and invariance, action at a distance and superior materials, or of ‘immutable mobiles’. Yes, after so many years of consulting the popular histories of technology, I believe they are right in this one aspect though wrong in every other respect: if you reduce the history of technology to one ongoing process of accumulation, the criteria of accumulation are the same from the First Emperor of China and the Uruk World System until today. Throwing the bone and transforming it into a spaceship, ‘throwing fire’ (Crosby, 2002) and ending with the Bomb, the moral is:

Plus ca change, plus c’est la même chose.

So, to conclude: where are the media in this story? Well, they were there all the time, in the middle, in the muddle, in the micro of the macro, where cold techniques and hot techniques meet, where hot techniques are socialised by cold techniques and their display, interfaces, instruments of inscriptions, and where cold techniques are enhanced or extended by hot techniques, as in writing becoming a medium for the scribes and their whole life, or in printing too, or in modern media leaving the offices and laboratories and becoming everybody’s Coney Island and Shangri-La. Thus, media are exactly there: wherever cold and hot techniques meet, which means where the cold techniques are enhanced by hot techniques, and where the hot techniques depend on their socialisation in cold techniques, on ‘techné’.

The digital world or the digital parts of our world are in fact the most extreme cases of this dependence of material techniques on the existence and continuity of bodily, verbal and interaction skills. After all, we do not reconstruct old software any more, we are only emulating it, or simulating the processes we want to recover: ‘saving the appearances’. Because once a community of practice of coders, of programming, has been dissolved or become obsolete, it does not make sense to recover the historical code by studying and reconstructing the old code, to study and reconstruct its arbitrary and incremental con-
stitution, but it is much easier and the only economically feasible solution to emulate the processes and their results and interface appearances. Old code is invariably ugly; and its reconstruction is a waste of money and effort.

Thus, the digital world has turned out to be an extreme case, but certainly no exceptional case in its dependence on communities of socially embodied and verbally transmitted skills, that can easily be lost and are not feasible to be recovered in detail, and in this case: in any detail of the past. Which basically means that computing has turned out to be the most unambiguous case of embodied skills in the history of technology, ‘embodied’, irreversible, historically contingent, and strictly human. Because when programmers do not understand what their common tasks are, these common tasks do not exist, and they cannot be recovered by reconstructing the coding or the code itself, without verbal explanations, without physical references or without referring to embodied experience. The whole stability of our infrastructures, and in fact of all our infrastructures, now depend on this very fragile continuity of ‘communities of practice’, of communities of coders who are unable to step into the same river twice, or even once. And future historians of our digital devices will have to deal with the fact that already now, old software is never reconstructed but only emulated, which means we have given up on the exact constitution of our historical sources. The future retrieval of our present digital sources will be done in some arbitrary new format, and certainly not in our source code.

Concerning media theory and the theory of technology alike, I have only one arrow for both: that modernist media theory painted the wrong picture of what is new and old, or ‘archaic’ and ‘modern’ about the innovations that we create for ourselves. There is no ‘archaic core’ to look for in our ‘cold techniques’, because there is no accumulation or reverse accumulation we could use to reconstruct this core. Eighty percent of all archeological artefacts and images are without any linguistic or mythological tradition that could explain them. There is no typology of archetypes and no logical morphology that could deduce meaning for them. But there is an archaic core of power and ingenuity built into the latest innovations of our ‘hot techniques’, that we can easily identify as the heritage of old city states, of the belief in a technological superiority that seems to be as old as civilisation, not our civilisation, but any civilisation after the flood and before the next war. Whereas what we think is archaic in the ‘cold techniques’ can only be re-invented ‘each next first time’, there is probably nothing as
archaic in our societies as the belief in the next ‘technological fix’. I remember how much it moved me to read the Gilgamesh epic for the first time. And you probably remember what Gilgamesh says once he knows that life is not forever and his friend Enkidu has died and the snake has left with the secret of rejuvenation:

O Ur-shanabi, climb Uruk’s wall and walk back and forth! Survey its foundations, examine the brickwork!
Were its bricks not fired in an oven?
Did the Seven Sages not lay its foundations?
A square mile is city, a square mile date-grove, a square mile is clay-pit, half a square mile the temple of Ishtar:
three square miles and a half is Uruk’s expanse.

At least the Gilgamesh epic gives us good reasons for motivating this speech and the belief in the technological fix (Gilgamesh, 1999: 99). Once in a lifetime. And forever.—

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P.S. At the Lüneburg Conference, Tim Ingold remarked that my talk was basically about the ‘irreducibility of skills’, as explained by Francois Sigaut in his brilliant article on ‘Technology’ (Sigaut, 2002). I do agree. The dichotomy of ‘hot’ and ‘cold’ techniques is just another way of saying that skills are irreducible, and that any technology remains bound to skills. I was surprised to find out, in re-reading the Gilgamesh epic, that the epic starts with a panegyric devoted to Gilgamesh that quotes the end of the epic, which is Gilgamesh’s final speech to Ur-shanabi (see above). Thus, what had been a panegyric to Gilgamesh becomes a panegyric to Uruk the city, and to Uruk’s technology; and the epic that started with an invocation of Gilgamesh’s virtues and a critique of his imperfection turns into his final speech and becomes a loop (Gilgamesh, 1999: 1f.; 99).

References


