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The media-anthropological turn of cultural techniques

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(Cf. Figures 1, 2, 3 in the original publication)

"Cultural techniques—such as writing, reading, painting, counting, making music—are always older than the concepts that are generated from them. People wrote long before they conceptualized writing or alphabets; millennia passed before pictures and statues gave rise to the concept of the image; and still today, people sing or make music without knowing anything about tones or musical notation systems. Counting, too, is older than the notion of numbers."[1] [*] Ubiquitous in current German media theory, the concept of *Kulturtechniken* (cultural techniques) promises, as in Thomas Macho's dictum, to reach back before the reification of nouns and devices – in order to allow access to verbs and operations, out of which these nouns and artifacts first emerged: writing, painting, counting, making music, and many more.

This basic idea is perhaps the only common thread in the latest discussions of cultural techniques and in its application, with a privileged reference to media. One précis reads: "To summarize the contours of a 'culture-technical perspective': cultural techniques are 1. operational processes for dealing with things and symbols, which 2. turn on the dissociation of the implicit "knowing how" from the explicit "knowing that," and thereby 3. should be understood as bodily habitualized and routinized abilities that become effective in everyday, fluid practices, while 4. they can likewise provide the aisthetic, material-technical basis of scientific innovations and novel theoretical objects. The 5. media innovations connected with the transformation of cultural techniques are situated in an interrelation of text, image, sound, and number, that 6. opens up new scopes of perception, communication, and cognition."[2]

Put another way, but no less practically minded: "The methodological approach in the field of cultural techniques can be characterized by its emphasis on the *praxis*-aspect within media-historical analysis: media become describable as cultural techniques when practices are reconstructed – practices in which media are

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[1] Thomas Macho, "Zeit und Zahl. Kalender und Zeitrechnung als Kulturtechniken." In: Krämer, Sibylle and Horst Bredekamp, eds. *Bild, Schrift, Zahl*. München: Wilhelm Fink, 2003, 179-192.
[*] Translator's note: The English rendering of this Macho quotation is taken from: Siegert, Bernhard. "Cacography or communication? Cultural techniques in German media studies." *Grey Room* 29; Winter 2008: 26-47. (Translated by Geoffrey Winthrop-Young.) Following Siegert and Winthrop-Young, *Technik* is translated here as technique, though the German *Technik* encompasses notions of technique, technology, and "technics." Bruno Latour notes in *Pandora's Hope* (a work cited later in this article) that technique is a "lousy noun"; *Technik* is a perfectly good one, however, some part of whose meaning may be lost in translation.
[2] Sybille Krämer and Horst Bredekamp, "Kultur, Technik, Kulturtechnik: Wider die Diskursivierung der Kultur." In: Krämer and Bredekamp, *Bild, Schrift, Zahl*, 11-22, here 18.

embedded, that configure media, or that, in a fundamental way, generate media. These practices reach from ritual acts and religious ceremonies to the methods of generation and representation of 'objective' scientific data, from pedagogical methods to the political, administrative, anthropological, and biological 'designs of the human.' "[3]

This emphasis on the "*praxis*-aspect" and its mediatization, however, inevitably leads – through an inspection of the corresponding institutional and ritual activities – to the true obstacles in the concept of "cultural techniques." Without a doubt, the concept embraces the very oldest up to the newest media (as well as every other system of signification that may not always be called "media"), but it also encompasses a series of further practices: "The concept of cultural techniques cannot however be limited to the techniques of image-, text-, and number- usage. The concept includes just as much the uses cultures make of the body ('body techniques'): to these belong rites, customs, and habitual acts, as do training and disciplinary systems, the use or tabooing of drugs, or practices of hygiene and disease control."[4] But historically speaking, it was actually the other way around: the German concept of "cultural techniques" invokes on every occasion the founding document of Marcel Mauss, the consequential extension of material techniques through "body techniques,"[5] along with its redefinition of the technique concept. The *body techniques* therefore stand at the beginning of the whole undertaking and at the same time define the present limits of discussion. The only apparent extension of the concept of cultural techniques to body techniques leads to a whole series of complications in its theoretical framing that remain problematic to this day.

The matter at hand is the choice – and the risk of an increasing lack of choice – of concepts: which *concept of media* is one supposed to choose, as soon as body techniques are classified under cultural techniques (or even, as Marcel Mauss himself does, establishes one upon the grounds of the other)? Does the media concept then have to be so transfigured that it enfolds the morphology – always only provisional, besides – of the whole field, and doesn't it then coincide with a new *total concept of "techniques"*? Or should one instead, in a counter-move, limit the "cultural techniques" to the *media techniques* that one knows, either through the dominance of the primary media (text, image, number) or with the exploratory aim of gathering all additional media in the course of time and, in the meantime, letting an open list develop?

Some kind of delimitation of the scope of cultural techniques will be unavoidable, as soon as we try to define its correlation with "media" in precise terms. I now want to briefly cite two existing proposals and then outline my own position.

(1.) Christian Kassung has provided me with a preliminary attempt at

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[3] Bernhard Siegert, "Was sind Kulturtechniken?" www.uni-weimar.de/medien/kulturtechniken/kultek.html, Accessed on November 16, 2005.

[4] Ibid.

[5] Marcel Mauss. "Body techniques." In: *Sociology and psychology. Essays*. Trans. by Ben Brewster. London, Boston, and Henley: Routledge & Kegan Paul, 1979.

clarification (drawn up in collaboration with Thomas Macho): "The concept of cultural techniques in no way refers to all techniques that are practiced within a culture. But how does one differentiate such techniques, which allow a culture to develop concepts of itself – in other words, cultural techniques in a strict sense – from techniques like agriculture, nutrition, stockpiling, economy, or sports? Cultural techniques differentiate themselves from all other techniques through their potential self-reference. This pragmatics of recursivity is made possible through two further characteristics of cultural techniques: they do symbolic work and to that end, they always require a medium, whether an object/apparatus or a person. In this sense, cultural techniques are from a systematic point of view always also techniques of the self."[6]

Kassung and Macho's characterization has an important virtue: it emphasizes the *recursivity* involved in the carrying out of cultural techniques. And this emphasis can help us to understand more precisely what was postulated in the characterizations cited earlier: the (historical and/or practical) *priority* of the uncomprehended over the comprehended, of the comprehended over the fully conceptualized operation, of the verb over the noun. In other words: an assumed and/or deepened *divergence* of "knowing-that" and "knowing-how." Consistent with its original (Fregean) definition, in which recursivity is understood as the possibility of "performing the same operation on the results of an operation," recursivity here requires no conceptual and often no comprehended activity; it merely requires orientation to the appropriate guideposts of operative cycles, whether those of counting, writing, painting, making music, or dancing (or in scraping, scratching, shoveling, and sawing). "Recursivity" and its resultant "self-reference" therefore seem like a thoroughly well chosen criterion for the definition of the technical element of many cultural techniques, namely in their symbolic, material, and ritual aspects.

Even so, no cultural historian will successfully exclude other techniques – say, "agriculture, nutrition, stockpiling, economy, or sports" – from this narrower definition of "cultural techniques" with its proposed criteria of recursivity, self-reference, and symbolic work. What can one say to such an attempt upon surveying the granary of the Dogon people, the antique and modern Olympic games, the hunting traditions of the Australians or of our hunters, the culinary triangle, gift exchange, or the very etymology of "cultura"[7]? Recursivity, self-reference, and symbolic work abound in the techniques just mentioned, and they are found precisely not only in the ritual or communicative "media" of these activities, but also in the routinized and monotonous acts that one might like to present as counterexamples. All attempts at distinctions of this kind run into impossible difficulties upon examination of concrete examples.

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[6] Cf. the remarks in: Thomas Macho. "Die Bäume des Alphabets." In: *Neue Rundschau*. 115 (2), 2005: 66-80.
[7] Siegert, see footnote 3.

(2.) Bernhard Siegert's précis "Was sind Kulturtechniken?" contains no such reduction and instead makes do with a double concept of media. On the one hand, the conventional notion of media is presupposed and then expanded for the purpose of media research: "these include, on the one hand, the classical cultural techniques of writing-, image-, and number- mastery; on the other hand, however, these also include more specific cultural techniques, that may be classified into three general types: 1. ordering- and representation- systems, such as diagrams, grids, catalogs, maps, etc., 2. operative techniques, such as the graphic operations in art, or the metrological process in analog and digital data processing in the context of the natural and human sciences, 3. topographical, architectonic, and medial dispositifs of the political."[8] However, as soon as the "body techniques" and all the "rites, customs, and habitual acts" – as already quoted – are included, another concept of "media in the broadest sense" enters into the game, a concept of medium that, without doing much violence, can be identified with Michel Serres' *Parasite*.[9] "Every culture begins with the introduction of distinctions: inside/outside, sacred/profane, speech/speechlessness, signal/noise. The fact that they are able to generate a world is the reason why we experience the culture in which we live as a reality and, more often than not, as the "natural" order of things. Yet these distinctions are processed by media in the broadest sense of the word (for instance, doors process the inside/outside distinction), which for this reason belong to neither side of the distinction, and instead always assume the position of a third. These media are eminent cultural techniques."[10]

To be clear, I find this double concept of media and its concluding identification with cultural techniques successful and am one of its adherents. All of "these media are eminent cultural techniques."[11] This declaration at least faces a problem head-on – and it seems to me, is the only attempt to do so – that is merely conjured away in other versions of the relationship between "cultural techniques" and "media": namely, that through the concept of cultural techniques, the concept of *culture*, along with that of *medium*, and (as already in Mauss) that of *technique*, are all at stake. There is no historical or phenomenological boundary-setting that could prevent the collective re-negotiation of these three terms upon consideration of "cultural techniques." And furthermore, there is no criterion that would allow privileged "medial" techniques – whether as "media" per se or as privileged symbol-processing cultural techniques – to be contained within the realm of human techniques or excluded from a realm of different techniques.

The concept of "cultural techniques" is therefore intrinsically redundant. *All*

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[8] Siegert, see footnote 3.

[9] Michel Serres. *The parasite*. Trans. by Lawrence R. Schehr. Baltimore: Johns Hopkins University Press, 1982.

[10] Siegert, see footnote 3. [Translator's note: taken with slight alteration from: Siegert, Bernhard. "Cacography or communication? Cultural techniques in German media studies." *Grey Room* 29; Winter 2008: 26-47, 30.]

[11] Cf. especially on the "door" as medium: Jim Johnson [Bruno Latour], "Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer," *Social Problems* 35 (3), 1988: 298–310.

techniques are cultural techniques. Techniques are culturally contingent, they are culturally (not genetically) transmitted, they are a product of *education and invention*.[12] This comes about through learning and teaching, in other words through symbol-processing and both uncomprehended and comprehended practice. Techniques are culturally acquired techniques and are mediated by cultural techniques. It therefore makes no sense to hope for a special justification for cultural techniques; what is demanded is rather a general *theory of technique* [*Techniktheorie*], as Mauss had to sketch out to justify his "body techniques." And Mauss simply makes do with a return to the antique "techné" and the recategorization of the body techniques and all techniques from this unified concept.[13] In brief: techniques, "téchnai," are – through instruction, imitation, and training – learnable and teachable useful practices of all kinds, in which one knows what one does and does what one knows, without having to or being able to justify them beyond their usefulness. This holds regardless of whether these techniques are material, verbal, medial, or ritual.

But then, one doesn't want to ignore the knowledge gains that have been sparked by recent German discussion around cultural techniques and their media. I will continue to use the expression ("cultural techniques"), too, and not just out of politeness, but because the expression was created precisely to emphasize the cultural contingency of the discussed techniques and to refer to the Maussian genealogy of the theory of technique. The question therefore remains: which theory would be in a position to accurately describe the relationship between cultures, media, and techniques, whose three concepts – as stated unambiguously by Bernhard Siegert – are up for renegotiation through the concept of *cultural techniques*? It is my belief that only a *media-anthropological turn* [*Kehre*] of the relevant theories can succeed (a turn that faces the paradigms of ethnological and cross-cultural theory, rather than ignoring their insights), and that the only historiography that can succeed will be one that faces the demands of more recent scholarship in universal history (rather than fixating on an ever more illusory Eurocentrism). "Cultural techniques" should be open to a media-anthropological and ethnological foundation, and they should likewise find their place in the latest formulations of universal history. These two challenges have been taken up only very timidly in the German discussion, and they demand another reception in international scholarship within the realm of technique theory (not only, but also certainly within Science and Technology Studies, Actor-Network Theory,[14] and especially their French genealogy), universal history (in the tradition of Fernand Braudel and William H. McNeill), and cultural and social anthropology (in the

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[12] On "education and invention" as the grounds for the concept of culture, see Claude Lévi-Strauss, *The elementary structures of kinship*. Boston, MA: Beacon Press, 1969, 30ff.

[13] Mauss, see footnote 5, 202-206.

[14] Cf. the first German anthology: Andréa Belliger, David J. Krieger, eds. *AN-Thology. Ein einführendes Handbuch zur Akteur-Netzwerk-Theorie*, Bielefeld: transcript, 2006. - This German anthology inspired a corresponding French anthology edited by the protagonists of French ANT: Madeleine Akrich, Michel Callon, Bruno Latour, eds., *Sociologie de la traduction. Textes fondateurs*, Paris: Presses des Mines de Paris, 2006.

tradition of Marcel Mauss and Claude Lévi-Strauss).

In the following, I will present six heuristic principles, from which a media-anthropological theory in harmony with a universal history of cultural techniques can proceed. Two of the principles come from French *technique theory* and anthropology of techniques; two principles are taken from *ethnological* theories and serve as a corrective to ethnocentric biases in the treatment of media; and two of the principles are of a *historiographic* nature and correspond to practices in more recent universal history. The first of these principles (already addressed at some length above) has in the meantime become firmly established in the German discussion of media and techniques; I include it here nonetheless, because it has had other, sometimes more radical applications outside of the German discussion. The heuristic principles can be summarized as:

1. the priority of operational chains
2. the priority of recursive over simple operations
3. the cyclical approach to the technical derivation of signs, persons, and artifacts
4. the equal status of artificial worlds
5. the asymmetry of universal and accumulative history
6. the historical explanation of discontinuity from continuity

A clarification of these principles requires recourse to widely different research literatures, which on closer inspection converge in only a few international alliances and French genealogies. My portrayal cannot deal with these principles exhaustively; indeed, on the contrary, it will reduce them to their commonplaces, in order to formulate new and still open questions about cultural techniques.

1. The Priority of Operational Chains

That which is implied in the German discussion of cultural techniques was put to the test and radicalized in French technique theory and anthropology of techniques in the tradition of Marcel Mauss: a heuristic, historical, and practical *priority of operational chains* over the variables configured by them, and in fact over *all* variables involved, whether these be artifacts, persons, and signs, or technical objects, practices, and forms of knowledge. All "tools exist only as part of the operating cycle. They provide evidence of the cycle because they generally carry significant traces of it, but no more so than a skeleton of a horse does of the swift herbivore to which it once

belonged."[15] "The tool is adapted to the gesture and not vice versa."[16] For technical and material artifacts, this understanding was hard won – against the appearance of a transmission of tools, against the resulting, mostly chronological determinism and against the modern privileging of a dichotomization of science and technique and the terminological privileging of "technology," whose break with the older "téchnical" world of French technique theory since Marcel Mauss (including the works of André Haudricourt, François Sigaut,[17] Bruno Latour, and Pierre Lemonnier) is fundamentally up for questioning.

For *media*, it seems easier – in contrast to non-media – to trace the priority of operational chains, because media ultimately only become media in their operative function. And from the time of the Second World War, this operative function gained a firm name for itself, one that mediated between mass-medial and technological research: "communication." Having said this, it can be argued that a priority of (medial) operational chains over the fixing of their artifacts, organizations, and sign-types has been carried out most elegantly in three scientific sectors:

> I) in the *invention history* of media, inasmuch as this traces which operations came together historically (and how), in order to eventually be coordinated and replicable in a "black box";
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> II) in the analysis of *disturbances and accidents*, through which such a "black box" must be re-opened and all the variables of a given medium coordinated once again along the desired operational chain;
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> III) and in many cases, precisely wherever a concept of media (and the word "medium") is *absent*, and a organizational, categorial, or technical undertaking was central to study, as for instance in Bruno Latour's meticulous tracing of the organization of scientific reference and its medial "chain of translation."[18]

The hope remains that a consistent application of the principle of the "priority of operational chains" might further revise the prevalent opinions of the entities involved, such that this priority will no longer be seen merely as precondition, but rather just as much *as result* of technical and medial operations. In a series of essays, Bruno Latour has dealt with the medial facts that underlie categories such as those of "reference," "substance," and "magnitude" (of a standard measurement) as the results

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[15] André Leroi-Gourhan. *Gesture and Speech*. Trans. by Anna Bostock Berger. Cambridge, Massachusetts and London: MIT Press, 1993, 237.

[16] André Haudricourt, *La technologie, science humaine. Recherches d'histoire et d'ethnologie des techniques*, Paris: Éditions de la Maison des sciences de l'homme, 1987, 158, original sentence: "L'outil est adapté au geste et non inversement."

[17] On "technology": François Sigaut. "More (and enough) on technology! *History and Technology* 2, 1985: 115-132; as well as, by the same author: "Haudricourt et la technologie." In: Haudricourt (see footnote 16), 9-36.

[18] Bruno Latour. "The 'Pédofil' of Boa Vista: A Photo-Philosophical Montage," *Common Knowledge* 4 (1), 1995: 144–187.

of corresponding operational chains, and has thereby systematically described the medial "chain of translation," through which a scientific or mass-medial reference, substance, or standard formation can first be created.[19] The usual classification of media could hardly have helped him here, and Latour's method therefore raises the question – as does, fundamentally, the entirety of recent history of science and organization-ethnographical research – whether one shouldn't abandon the classification of individual media entirely in many future studies, in order to reconstruct and sort them in new ways through the comparative study of many, far more detailed medial "chains of translation."

2. The Priority of Recursive Over Simple Operations

If a unified treatment of media-anthropological questions with a universal history of cultural techniques is to be sought, one soon learns that such a model has already been put into action – a model that has migrated into studies of culture [*Kulturwissenschaften*] in widely various ways: André Leroi-Gourhan's *Gesture and Speech*.[20] And Leroi-Gourhan is undoubtedly the historian and theorist to whom the latest sketches for a priority of operational chains must refer, since he postulated, in technical-anthropological terms, this priority in *Gesture and Speech* and put universal history into practice. Can the model implemented by Leroi-Gourhan still be used today? The devil lies less in the details – for in the details, one can always and often decisively learn something from Leroi-Gourhan – than in the overall design. In point of fact, Leroi-Gourhan uses one single principle of explanation, he outlines one single cumulative history of inventions, and he outlines one unified history of media. But the brittleness of all three of these axes has been demonstrated in the meantime. Leroi-Gourhan's media history reduced itself to the progress of storage techniques, and the unified cumulative history was guaranteed by a cumulative intensification of the principle of "exteriorization."[21] Leroi-Gourhan's historiography is indeed the first systematic and homogeneous implementation of a priority of operational chains, but at a high price; this priority is used only as a means to an end for Ernst Kapp's philosophy of "organ projection"[22] translated into Leroi-Gourhan's evolution of "exteriorization."

Equating a cumulative history of invention with an increasing exteriorization proves itself to be naive and (on the whole) misleading in the study of concrete sociotechnical organizations and invention histories, and in fact equally so for the

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[19] Bruno Latour. *Pandora's hope: Essays on the reality of science studies*. Cambridge, Massachusetts: Harvard University Press, 1999, esp. chapters 2, 4, 5, and 6.

[20] Leroi-Gourhan, see footnote 15.

[21] Leroi-Gourhan, see footnote 15, esp. chapters VIII and IX.

[22] Ernst Kapp. *Grundlinien einer Philosophie der Technik*. Düsseldorf, Stern-Verlag Janssen, 1978 [1877].

history of tools, of domestication, and of media. "Exteriorization" happens – if and when it happens – reciprocally and recursively. Leroi-Gourhan's exteriorization history describes how, in turn: 1. the organ exteriorizes itself as tool, 2. the *gesture of use* becomes a gesture in the tool, 3. the motor [*Motorik*] takes on a life of its own in the tool, 4. the *memory* (the "storage") of gestures is shifted to machines, and 5. the *programming* of technical processes can be automated as well.[23] These five steps with their many different technical inventions remain evident; the development of such human "steps" is guided less in general by a historical sequence of operations, than by looking at a series of chosen artifacts: manual tools, machines (like mills), automata, looms, computers. In reviewing the historically transmitted operational chains associated with these artifacts, it can be easily demonstrated that through every apparent exteriorization, a *reciprocal* exteriorization and with it a new interrelation between artifacts and technicians appeared, the latter forced to reorganize herself and himself and his or her activities as "tool of the tool," "gesture of the gesture," "motor of the motor," "memory of the memory," and "programming of the programming," to train other persons and organizations, and to arrange the division of labor accordingly. The exteriorizations postulated by Ernst Kapp and Leroi-Gourhan never took place, even if they no doubt correspond all too well to the rhetoric of technical promises of the 19th and 20th centuries and the wishful thinking of early *artificial intelligence* (contemporary to the first appearance of Leroi-Gourhan's book).

The concept of a step by humankind toward the *exteriorization of the motor* shows itself to be naive (to say the very least) when one knows the history of slavery after the introduction of the treadmill.[24] And the notion of an increasing *exteriorization of memory* just as much, as soon as one goes into the history of various forms of socialization to writing systems.[25] Each exteriorization happened in a recursive form, with boomerang effects and new forms of coupling and specialization. The *domestication* of animals and humans take place as interactions as well, since they force the domesticators to add to the characteristics that were lost in the process of domestication, in other words to reorganize pieces of the (now "exteriorized") behavior of the previously wild animal and socialize them in a human context.[26] It holds equally for technical inventions, domestications, and media history, that each exteriorization has an effect on the exteriorizer, and a widely branched series of contingent interrelations – between humans, animals, artifacts, and media – is unleashed. *Exteriorization happens recursively or not at all*; and its consequences cannot – namely also, and precisely, not in the evidence of accumulative steps of technical invention – be understood as part of a history of

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[23] Leroi-Gourhan, see footnote 15, chapters VIII and IX.

[24] François Sigaut. "Technology." In: Tim Ingold, ed. *Companion Encyclopedia of Anthropology*. London and New York: Taylor and Francis, 1994, 420-459, esp. 449-451.

[25] Cf. for instance Jonathan Parry. "The Brahmanical tradition and the technology of the intellect." In: Joanna Overing, ed. *Reason and Morality*. London and New York: Taylor and Francis, 1985, 200-225.

[26] André Haudricourt. "Domestication des animaux, culture des plants et traitement d'autrui." *L'homme* 2, 1962: 40-50.

evolutionary stages.[27]

Leroi-Gourhan's equation of an all-encompassing technical accumulation with an *increasing* exteriorization therefore leads us astray – as all historical applications to concrete socio-technical organizations will show. And that means: their reconstruction requires another principle of explanation, an antidote. The *priority of operational chains* can suffice here, since it posits (already in its terms) that operations chain each other together, that *operations* are used *on* (the results and initial steps of) *operations*. The concept of the "operational chain" therefore already contains a possible recursive turn: that (and provided that) "the same operation is applied to the results of the operation," and this is indeed the wording of a definition of the *recursivity of operations*. The boomerang effects of domestication, the memory training of storage media specialists, the reciprocal "motorization" of mills, machines, animals, and slaves, the political history of the bellwether, the diversity of the "mask" medium: all these findings make more sense if one accepts the priority of operational chains over all of their variables, and therefore also notes that *the very same operation is applied to the results of the operation* – and in different ways to all of the relevant resulting variables.

In conclusion: in the study of the methodological priority of operational chains (i.e. of the chain-linking of operations), a *priority of the recursive over the (methodologically isolated) simple operation* is required. And the manifold historical correction of a one-sided history of exteriorization by André Haudricourt,[28] François Sigaut,[29] Bruno Latour,[30] among others demonstrates that this priority must be taken into account for every single "step toward exteriorization," including for the – invoked by Leroi-Gourhan's universal history, but insufficiently represented – technical steps of an instrumentalization of the tool, of the operating gestures for exteriorized gestures, of the motorization of the motors, of the memory techniques for artificial storage and of the programming of programmers and users.

This thought leads to a further basic point regarding the technization of artifacts, humans, animals, and media. *Instrumentality* seems like a simple matter of certain means-end relations. That the operations and artifacts won through instrumentalization are available to other instrumentalities seems to be another purpose, one that makes use of an already established means-end relation, a *misuse,* or to use the German idiom, an alienation of the (original) purpose [*Zweckentfremdung*]. In

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[27] For more on this dictum, I recommend an essay on the medium of the "bellwether" (in connection to Haudricourt [footnote 26]) and its political zoology: Yutaka Tani. "Domestic animal as serf: Ideologies of nature in the Mediterranean and the Middle East." In: Roy Ellen, Katsuyoshi Fukui, eds. *Redefining nature. Ecology, culture, and domestication*. Oxford: Berg, 1996, 387-415.

[28] Haudricourt, see footnote 16.

[29] Sigaut, see footnote 24, passim.

[30] Latour, see footnote 19, chapter 6.

reality the technical (and the medial) misuse precedes every intended end [*Zweck*],[31] since, in questions of instrumentality as well, the priority of recursivity holds. "Misuse" is simply the application of the means-end relation on itself, on its own means-end relation.

> In formulaic terms: ([(means 1)/for end 1) (as) means 2]/for end 2)

This relation and the battle over the re-definition of ends and means, the "reciprocal abuse"[32] described by Michel Serres in *The Parasite*, is the normal case for all technical and organizational power struggles, compromises, and negotiations. In every exacting historical study, the primacy of recursive instrumentality, of the "misuse before use," proves itself. And this holds as well for the anchoring of the history of invention and the implementation of techniques in economic, military, political, and ideological organizations of power. These organizations necessarily stand – as Michael Mann's recent theory of power foregrounds with enviable clarity[33] – in a relation of reciprocal misuse, anyway, through their organizational forms and operational chains, regardless of whether, in the service of their respective ends, they ally themselves or feud, augment or thwart each other.

Wilhelm Wundt already gave a name to this *priority of misuse* more than one hundred years ago with the remarkable concept of a "heterogony of ends." On both the macro-level of large (military, economic, political, and ideological) organizations and their socio-technical purposes and means adjustments and the micro-level of a history of invention and a history of the users of new technical "means" (in other words, new operational chains), Wundt's principle proves itself to be indispensable.

3. The cyclical approach to the technical derivation of signs, persons, and artifacts

Bruno Latour has pointed out a trichotomy that has increasingly formed the basis for European knowledge production since the 17th century: our inquiries divide themselves into *sciences*, *social sciences*, and *humanities*, or into *Natur-* and *Ingenieurwissenschaften*, *Sozialwissenschaften*, and *Geisteswissenschaften*, and with yet other slight shifts in other languages and other countries.[34] An analogous trichotomy is

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[31] Cf. Siegert, see footnote 3: " 'Emerging from the focus' on practices, technologies cannot be understood as open (not determined) systems, which yields first and foremost a concept of media that thinks through the 'misuse' –so constitutive for media history – of technologies from the very first."

[32] Serres, see footnote 9.

[33] Michael Mann. *The Sources of Social Power*. Cambridge and New York: Cambridge University Press, 1986, esp. the theory of power in volume I, chapters 1-3.

[34] Bruno Latour. *We have never been modern.* Trans. by Catherine Porter. Cambridge, Massachusetts: Harvard University Press, 1993, esp. chapter 3.

retained in all of these translations, and Latour has correspondingly attributed a trichotomy of operations to this internal classification of academic disciplines, that has found a more radical justification and application since the 17th century:[35] "making natural," "making social," and "making discursive." In this trichotomy, the stakes are the most important cosmological classification of modernity and our system of knowledge – "cosmological," as defined by Durkheim and Mauss.[36] That is, a categorization in which the classification of a native (scientific and everyday) social order and the classification of its (human and non-human) environment are mediated together through these same operations and attributes. Put another way: at stake is a "primitive classification" in the sense of Durkheim and Mauss and the basis for our scientifically justified and, in reality, presumably unjustifiable ethnocentrism.

As far as techniques and cultural techniques are concerned, their investigation involves an analogous trichotomy. Our foci, meaning the modern foci, distinguish "material techniques," "media," and "social relations" and their respective techniques: techniques associated with the formulation and usage of signs (through media and their operational chains), of artifacts (through tools and their operational chains), and of persons (through social processes, only rarely called "techniques," more often called "rituals," "rites of passage," and socialization) (see figure 1: *The modern triad*). Clearly, in our division of the *world* and its phenomena, of *techniques* and their operational chains, and of *scientific disciplines* and their stated goals through a series of analogous acts of classification, each classification remains calibrated to the others. And one of the most effective means in this calibration is the threefold "focusing", diagnosed by Latour, of *making natural*, *making social*, and *making discursive*: to regard and approach *material production* as if "things were made from things" (artifacts from artifacts); to regard persons (individuals and social organizations) as if "social relations were made from social relations"; and to regard *signs* (*or media*) as if "signs were made from signs." Examining the processing and production of material artifacts through artifacts, of persons through persons, and of signs through signs is also central to socialization in related scientific undertakings; at stake are the practiced "focusings" – and cultural techniques – of scientific procedures, but also those of everyday categorization.

[Figure 1 here. *The modern triad* (L to R) Persons...Signs...Material Artifacts]

Figure 1. *The modern triad*

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[35] Cf. the modification of Latourian reflections by Richard Bauman and Charles L. Briggs: *Voices of modernity. Language ideologies and the politics of inequality*. Cambridge: Cambridge University Press, 2003.
[36] Emile Durkheim and Marcel Mauss. *Primitive Classification*. Trans. by Rodney Needham. Chicago: University of Chicago Press, 1963.

As soon as we take a step back, change the culture or work historically, and as soon as we take Wundt's "heterogony of ends" even a little bit seriously, we learn very quickly that these strict "focusings" generally give rise to fictions. No single technique operates on only one of these variables (artifacts, persons, signs); each and every technique and cultural technique always operates with the help of, but also through the transformation of, all three of these variables.

One could preserve this trichotomy by showing that even though, in every technical procedure and adjustment, all three variables are involved and affected together, the "focusing" of the technique itself, i.e. the "goal" of the respective operational chains, remains stable at least (see figure 2: *The three techniques*). True, the three variables would then be incessantly transformed by the same technical progressions, but at least the result of the process would remain disjunctively focused: at one point, signs would be created ("media" would be at stake here), at another point, material artifacts (and material techniques would be at stake), and in other cases, persons would be transformed (and these occurrences should then be termed "socialization" and "rituals" and no longer necessarily "techniques").

[Figure 2 here. *The three techniques* (L to R) ritual techniques (socialization)... sign techniques (media)...material techniques]

Figure 2. *The three techniques*

It is undoubtedly scientifically productive to make use of the trichotomy in this way and thus to re-focus the corpus – but one should not overestimate the results. Wundt's "heterogony of ends" prevents any strict implementation; and not just for cultures that would be unable to (or do not want to) recognize such a trichotomy, but also for our own cultures and their aspirations, which must always follow their particular "heterogony of ends" and therefore – against the grain of their own classifications – continually and mutually misuse the reciprocal artificiality of their material techniques, sign techniques, and ritual techniques. *Persons, artifacts, and signs are formed through operational chains that affect and transform persons, artifacts, and signs in equal measure.* Media, material techniques, and rituals cannot be understood disjunctively, neither through their means nor through their "focusing," neither in foreign nor in our own societies and cultures – all the more interesting for an anthropological study of the forms that the belief in these disjunctions takes.[37]

For a universal-historical and media-anthropological study, then, the necessity arises to pose the question of a threefold "focusing" anew and at least develop a preliminary heuristic, one that puts the conventional divisions up for renegotiation and thereby also continually re-sorts the existing corpus of investigations. We cannot

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[37] Roy Wagner. *The invention of culture*. 2nd revised edition. Chicago: University of Chicago Press, 1981, 21-34.

ignore our own ethnocentrism – and in this case, the irrevocable ethnocentrism of our own division of scholarship is at issue – we can only reflect on it – and partly revise it – via a *critical ethnocentrism*. This will be outlined using the simplest possible – and at the same time, maximally complex – example.

The procurement of food through hunting is a material affair; the artifacts that serve here are instrumentally related to the procurement of food (capture, killing, and butchering). So far, so indisputable – the fallacy begins at the moment when the entirety of the *tools of hunting* (like weapons and traps) are classified as material techniques and excluded from a history of symbolic cultural techniques, that is, of "media." Media history too, to say nothing of media theory, would suffer from this exclusion, for how shall we then arrive at a properly universal-historical understanding of the development of media through modern military technology and ancient ballistics?[38] Marcel Mauss cites the following hunting technique of the Australians in his sketch of the "body techniques": "a ritual formula both for hunting and for running. As you will know, the Australian manages to outrun kangaroos, emus, and wild dogs. He manages to catch the possum at the top of its tree, even though the animal puts up a remarkable resistance. One of these running rituals, observed a hundred years ago, is that of the hunt for the dingo or wild dog among the tribes near Adelaide. The hunter constantly shouts the following formula:

> Strike him with the tuft of eagle feathers (used in initiation, etc.)
> Strike him with the girdle
> Strike him with the string round the head
> Strike him with the blood of circumcision
> Strike him with the blood of the arm
> Strike him with menstrual blood
> Send him to sleep, etc.

"In another ceremony, that of the possum hunt, the individual carries in his mouth a piece of rock crystal (*kawemukka*), a particularly magical stone, and chants a formula of the same kind, and it is with this support that he is able to dislodge the possum, that he climbs the tree and can stay hanging on to it by his belt, that he can outlast and catch and kill this difficult prey."[39]

Mauss comments: "The relations between magical procedures and hunting techniques are clear, too universal to need stressing."[40] And he lays accent for this example on "the confidence, the psychological *momentum* that can be linked to an action which is primarily a fact of biological resistance, obtained thanks to some

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[38] Alfred W. Crosby. *Throwing fire. Projectile technology through history*. Cambridge: Cambridge University Press, 2002.

[39] Mauss, see footnote 5, 102-103.

[40] Ibid., 103.

words and a magical object."[41] In summary: "Technical action, physical action, magico-religious action are confused for the actor."[42]

If these remarks are present already in the founding document of German "cultural techniques" and French anthropology of techniques, in the "body techniques" of Marcel Mauss – what do they mean for media anthropology and a universal theory of techniques [*Techniktheorie*]? In the just cited Australian hunting techniques, *verbal techniques* (of autosuggestion and acts of magic), *material techniques* (of climbing with the belt, for example) and *ritual techniques* (the autosuggestion is a kind of ritual prayer that at the same time invokes other ritual situations, such as circumcision and menstruation), but also *verbal, material, and ritual artifacts* (a belt and a rock crystal, and the latter on the tongue) are mutually attached and generate a single operational chain that decreases the "biological" resistance of one's own body and that of the prey. The mediatization, but also the material technization and the ritual preparation of the person (and the prey) are not only intertwined; it makes little sense to consider them apart from each other. And yet exactly this happens, in that the belt ends up in the archive and the museum for hunting artifacts, the rock crystal in a display case for ritual or "holy objects," and the hunting chants (and songs) in a phonogram archive or linguistic investigation. In such cases, only our scientific "focusings" differentiate *media* (or signs), *material production* (or in this case: material appropriation), and *social relations* and their respective techniques. The involved operational chains do not do this, and neither does an adequate téchnical representation of the artifacts concerned.

In historical, ethnological, and anthropological comparison, then, a much more difficult exercise is required: a *media-anthropological turn* (see figure 3: *The media-anthropological turn*), the *lectio difficilior* of our shared world. Not to look for the mediatization and the media in the focusing on signs and sign techniques, but instead – as practiced by Mauss – in the cyclical approach to the téchnical derivation of persons, things, and signs. Likewise, "media" in the conventional sense are deducible from the conditions of their cyclical attachment, theoretically, historically, and in their present-day manifestations.

[Figure 3 here. *The media-anthropological turn*. (L to R) Ritual techniques ... sign techniques ... material techniques]

Figure 3. *The media-anthropological turn*

The "body techniques" outlined by Mauss are a good exercise for the study of such cyclical attachments (e.g. what in our society is called "sports," "fitness," or

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[41] Ibid.
[42] Ibid.

"wellness"). The main part of Mauss' "body techniques" has all too often been understood merely as a list, which then evaporates as miscellany. But in principle, Mauss purports to give a unified structure for the body techniques[43] whose focus is the "notion of person"[44] and its ritual equipment: (A) a structure according to *gender*, *age*, and *upbringing*, (B) through the biographical question, according to the *life cycle*, and (C) of the *daily cycle* of body techniques. These two cycles, through which the learning and use of body techniques are configured by acts from the relatively unremarkable to the most elaborate "rites of passage," interweave material, medial, and ritual techniques that can be studied in oneself every day, for example in "body care" and its disturbances. Hardly anyone would dream of not demanding a cyclical approach of observation, a "media-anthropological turn," for these domains – the question remains, however, of where the opportunities and obstacles might lie for a *media-anthropological turn* in media history.

4. The equal status of artificial worlds

The difficulties seem to lie in the categorization of the relationship between an immutable human nature and a contingent history of accumulating technical inventions. But this might be just a preliminary assessment, and everything will in fact depend on seeing through and undoing the deceiving aspect of such a polarization. Human universality and human contingency, human "nature" and "culture" do not allow such polarizations or oppositions,[45] for the only constant of human techniques and media techniques remains the *arbitrariness* of inventions.

Nevertheless, independent of any particular present, we will project the history of accumulating technical inventions as a *progressive history*. The belief in an accumulating media history, and in its extension to an accumulating mediatization and an increasing medial artificiality of our life-worlds [*Lebenswelten*], is difficult to avoid for two reasons. First, media are seen at present as a central piece, if not the core, of the growth dynamic of scientifically dominant societies; at stake in this belief, then, is an elite-academic as well as culture-defining ethnocentrism. Second, the aforementioned dynamic rests on an intensification of accumulating inventions, in other words, what since the 19th century has been interpreted as "technical progress" within the media and concerning their history. *Belief in progress* is the belief in the dominance of a very particular accumulative history and above all in the dominance of specific *organizations* that profit from such an accumulative history, and at the same

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[43] Mauss, see footnote 5, chapters 2 and 3.
[44] Cf. Marcel Mauss. "A category of the human mind: the notion of person, the notion of self." In: *Sociology and psychology. Essays*. Trans. by Ben Brewster. London, Boston, and Henley: Routledge & Kegan Paul, 1979, 57-94.
[45] Lévi-Strauss, see footnote 12, esp. chapter 1.

time particularize and universally disseminate this history for their own ends.[46]

For the body techniques, it is relatively easy for us – certainly not for all, but for some of us – to forego a progressive history or to limit this to certain subfields in modern medicine. If the arbitrariness of the techniques laid down by Mauss is inspected: midwifery, weaning, sleep, rest, movement, walking, dancing, jumping, climbing, swimming, scrubbing, washing, soaping, care of the throat, eating, drinking, sexual intercourse – and even if only in Mauss' text – an attempt to structure these according to the criteria of accumulating inventions will quickly be abandoned. There have undoubtedly been energetic (and centuries-long) efforts in many cultures to improve body techniques through an accumulation of technical insights, as in yoga and its adaptations or in modern sports and sports medicine. A universal intensification of the adapted body techniques did not result; the contingency of such a claim remains overwhelming. It seems that the body techniques, therefore, represent a "cold" technical field – in the sense of Lévi-Strauss's projected "cold societies."[47] And in the case of such fields, it will be particularly easy to analyze their "mediatization," in the sense of the hunt (cited by Mauss), as a continuous *cyclical attachment of material, medial, and ritual artifice* – as hard as that may be in the study of individual cases of "body techniques."

For *media* in the conventional sense, the cyclical approach of observation presents itself as a much more difficult task, not at all because the individual analyses are harder to conduct (the opposite may be the case), but instead because, in the case of media history since the 18th century – or since the invention of the printing press, according to media historiographical claim – we are confronted with a history of accumulating inventions that doesn't seem to permit any "cold" perspective. The study of media history – an *accumulative media history* – seems to demand a self-assessment that amounts to the following: to qualify the societies and cultures of the present as the most artificial and mediatized that have ever existed, or as the ones that are capable of the most intense form of technical artificiality and mediality that was ever possible. Only when this self-assessment – which in its pure form is probably only expressed in the works of technical utopians, advertising specialists, and cultural apocalyptics – is so hyperbolized can we find our way to a radically opposing position, to a position that will be productive for a media-anthropological turn. *All societies have been equally artificial and mediatized.* They are (and have been) equally artificial and mediatized to an equal extent, but this doesn't (and didn't) necessarily concern the same artificialities. "Artificiality" – and above all the artificiality of media worlds – is just a synonym for the arbitrariness of human inventions. If an irreversible intensification in the "artificiality" of human environments and of the media that dominate them is claimed, this can only mean that one *isolates* one or several of the

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[46] Claude Lévi-Strauss. *Race and history*. Paris: UNESCO, 1952, passim and chapters 5 and 6.
[47] Claude Lévi-Strauss. "The scope of anthropology." In: *Structural Anthropology, Volume 2*. Trans. by Monique Layton. Chicago: University of Chicago Press, 1976, 3-32.

objectives of one's own "artificiality" and makes them the – no less arbitrary – *measure* of all others.

Only a cyclical approach to the technical derivation of persons, artifacts, and signs in the observation of old and new media can avoid the fallacy that results from the arbitrary measures of our own technical development. A media-anthropological turn can rely on several tools of observation, especially on a focusing of those techniques, for whose reconstruction a history of accumulating inventions makes little sense, but which remain indispensable for the study of media use and of media techniques, especially *speech*, *body techniques*, and *ritual techniques*. Body techniques do not accumulate, nor do they in the form of "exteriorizations"; the creativity of speech and of languages has not accumulated, nor has it in the form of its "exteriorizations"; ritual techniques do not underlie any accumulative history of invention.[48]

This skepticism, regarding whether *accumulating* inventions are possible within the dimensions of body techniques, linguistic virtuosity, and ritual formation, can be framed as a "problem of translation." Insofar as one can assess these things at all, the operational chains of a language, a social organization, a ritual order, a body technique can be thoroughly intensified and refined. A certain accumulative improvement in the sense of technical accumulative invention – defined as *inventions that presuppose prior technical inventions* in the formation of their operational chains *and incorporate them in new processes* – is therefore also possible in these areas. The transmissions in these areas are teachable and learnable, they are "culture," and thus they remain available to the attempt to work through a principle of accumulation. But only to a certain degree. It seems 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 *at random* and in this sense to "accumulate" them. This also holds for the technical media of such a language, art, organization, formation, or corporeality.

The arbitrariness of languages, body techniques, and rituals seems to place strict limits on their accumulative refinement and integration. The constructive principles of the diversity of languages, rituals, body techniques, and social organizations only partly complement each other, and beyond these overlaps they end up in contradiction. In the enforcement of these principles, these techniques do not accumulate, but instead dismantle each other or else "creolize" – from which new languages, rituals, body techniques, and social organizations can (and probably also must) emerge.[49]

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[48] There are certainly specialists, also in the field of ritual techniques, who have an interest in writing a history of progress or decline, whether theologically or secularly motivated; but their construction does not withstand a historical examination. And insofar as socialization remains dependent on ritual techniques, this holds for techniques of socialization as well (and equally for those of the oldest and newest media).

[49] Wagner, see footnote 37, esp. 10.

Conclusion: In the history of media, a *non-accumulative arbitrariness* is not merely part of the reality under investigation. Rather, it is already in many ways, namely *in verbal, bodily, and ritual aspects*[50] at the very least, an indispensable – necessarily non-cumulative, but all the more contingent – condition of study.[51] And as the example of the Australian hunt demonstrates, many elementary cultural techniques have been subjected to nothing less than a systematic (archival) amputation – in this case: a reduction of the hunt to a sign-free and ritual-free technique to procure food, which it never has been and never will be – in order to forestall the acknowledgement of an anthropological *equal status of all artificial worlds*. Every more precise study of the bodily, verbal, or ritual constitution of cultural techniques and media leads us back to the dictum that all societies are (and have been) *equally artificial and mediatized*. Only the observance of this dictum will make possible a concept of media that subjects the prejudices of our history of accumulative inventions to a "critical ethnocentrism."

5. The asymmetry of universal and accumulative history

The conditions for the project of a universal history of cultural techniques have undoubtedly been made more favorable by the emergence of a new history of globalization and its universal-historical controversies since the 1960s.[52] And media history already has a secure place in this universal history, especially in the form of the unified study of *transport and media history*, common since the 19th century.[53] Moreover, recent universal histories have steadily revised and refined the link initially diagnosed by Harold Innis between the implementation of medial techniques of domination and the continuity of *empire building* since the "Axial Age."[54] As far as media history is concerned, most of the reflections and findings of recent universal history might seem like *business as usual* – but only until one enters into the details and controversies of historical research.

Most of the usual media histories whose arguments span millenia work with the

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[50] In the reservations about an "accumulative history," a trichotomy arises that is analogous to the Latourian triad of "making social" (in its ritual aspect), "making discursive" (in its linguistic aspect), and "making natural" (in its bodily and ecological aspects). Which in turn demonstrates that even a "critical ethnocentrism" cannot escape our own "primitive classifications" – and that it can draw on insights in the natural sciences, social sciences, and humanities.

[51] On the resulting epistemology of a necessary "under-determinacy" of every scientific or non-scientific explanation of these fields (rituals, body techniques, speech), cf. Hans-Peter Duerr. "Können Hexen fliegen?" In: *Unter dem Pflaster liegt der Strand*. 1975, 55-81.

[52] On the corresponding historiography, cf. Jürgen Osterhammel. *Geschichtswissenschaft jenseits des Nationalstaats. Studien zu Beziehungsgeschichte und Zivilisationsvergleich*. Göttingen: Vandenhoeck & Ruprecht, 2001.

[53] Esp. Peter J. Hugill. *World Trade since 1431: Geography, Technology, and Capitalism*. Baltimore: Johns Hopkins University Press, 1993. And by the same author: *Global Communication since 1844: Geopolitics and Technology*. Baltimore: Johns Hopkins University Press, 1999.

[54] Cf. for instance Michael Mann's re-analysis of the Roman Empire (footnote 33) with that of Innis.

evolutionary notions of "steps" and "stages," which are separated from each other by breaks and connected to each other by a steady intensification of the same principles: from the space of "interaction," over the space of "communication" with storage media, to the development of "telecommunications," and finally to the space of computation and of computable communication machines – all these spaces understood as spaces that, in their implementation as a linear succession, displace, destroy, and above all dominate themselves and each other.[55] A universal history of cultural techniques and their media can trace this idealized sequence – one that says much about our contemporary ideas about governance and domination and much less about the historical and everyday organization of power – as a possible genealogy of accumulative inventions, to be sure. However, this history must then recognize the inconsequentiality of this evolutionist notion – or of the "time lapse" and "zoom" of such a "panoramic" history[56] – for almost all of the times and spaces that it traverses. For the appraisal and representation of concrete historical spaces and their centuries, the notion provides very little help.

Using the example of the space of the Mediterranean across two millennia, I will briefly illustrate this dictum. Recent globalization history demands, too, and precisely in the appraisal of the contemporary surge in globalization and its historical and more recent localizations, the study and appraisal of at least five spaces[57] and their intersections:

I)   the first *worldwide settlement* of the planet by humans (from Africa to the settlement of America)

II)   the *Eurasian unity* and its migratory movements of persons, artifacts, and signs (often, but not only, in the east-to-west direction, up to the marginal "collecting basin" of Europe)

III) the *Mediterranean space* with the Levant (as a segment of the space in II), also in comparison with other cases of large-scale maritime networks (esp. the case of the Indian Ocean)[58]

IV) the *shift from a Mediterranean to an Atlantic "world system,"* as diagnosed by Braudel

V)   the first large *"surge in globalization"* in the 19th century (up to World War I) and its various *upheavals* of the spaces in III, II, and I.

It stands to reason that the world history of these five spaces could be written

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[55] Friedrich Kittler. "History of communication media." In: *C-Theory*. http://www.ctheory.net/articles.aspx?id=45
[56] Cf. Bruno Latour. *Re-assembling the social. An introduction to Actor-Network Theory*. Oxford: Oxford University Press, 2005, 187-190.
[57] Cf. Jürgen Osterhammel and Niels P. Petersson. *Geschichte der Globalisierung*. Munich 2003.
[58] K. N. Chaudhuri. *Asia before Europe. Economy and civilization of the Indian Ocean from the rise of Islam to 1750*. Cambridge: Cambridge University Press, 1990.

as the story of one steadily intensified interaction and interrelation, with the media and transport history given a leading role in this intensification of interrelation. This is exactly what William H. McNeill, a doyen of recent universal history, has done in a recent synthetic work,[59] and it is likely that this concept will establish itself as a genre within (one-volume) histories of globalization. But the most striking aspect of reading McNeill's history of intensified interrelations (in contrast to his world-historical accounts of plagues, body techniques, and military organizations)[60] is its peculiar sterility. The book adds nothing new to the literature it analyzes and leaves the history of regional spaces largely untouched – unlike in all of McNeill's other books. On closer inspection, this history of a single "expanding" and "thickening web" for all millennia and localities, including even recent times, leaves in doubt whether "intensified interrelation" could have been a decisive factor at all in the historical actions of the involved social and technical organizations. This doubt is stoked further as soon as one turns to a much more informative opposing model, namely the Mediterranean research of Horden and Purcell,[61] a recent universal history that arose as a commentary to Fernand Braudel's subtle representation of the Mediterranean (and its threefold articulation in "longue durée," "conjunctures," and "history of events").[62]

Without a doubt, the basis for all later globalization movements – for the shift from the Mediterranean to the Atlantic system and everything that was made possible by that shift – lies in the *Mediterranean space* itself: a Greek, Roman, Near Eastern, North African, and triply monotheistic space. But in this space, one finds no real foundation between 500 B.C. and 1500 A.D. for an evolutionist or even a merely statistically demonstrable history of steadily intensified interrelation. At stake here is a space of eternal fluctuations and various economic booms and busts, a space in which the decisive factors of economic, political, and technological actions lie in the region's population scarcity, in its micro-ecological intensification and the creation of smaller regions. These smaller regions were interlinked only by the large medium of the Mediterranean, which ensured a constant redistribution of surplus and scarce goods and persons. In these two millennia, the Mediterranean therefore ensured – with many political interruptions – a maximal, and perhaps even globally unique,[63] exhaustion and regeneration of the unfavorable ecological conditions of its catchment

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[59] J. R. McNeill and William H. McNeill. *The human web. A bird's eye view of world history*. New York and London: W. W. Norton & Company, 2003.

[60] William H. McNeill. *The pursuit of power: technology, armed force, and society since A.D. 1000*. Chicago: Chicago University Press, 1984; *Plagues and peoples*. Harmondsworth: Penguin, 1985; *Keeping together in time. Dance and drill in human history*. Cambridge, Massachusetts: Harvard University Press, 1995.

[61] Peregrine Horden and Nicholas Purcell. *The corrupting sea. A study of Mediterrean history*. Oxford: Oxford University Press, 2000.

[62] Fernand Braudel. *The Mediterranean and the Mediterranean world in the age of Philip II*. Berkeley and Los Angeles: University of California Press, 1995.

[63] Horden and Purcell do not advocate in earnest for such a claim to uniqueness, nor do they contend otherwise.

area. But this certainly did not occur because of a historically traceable, steady intensification of interrelations and above all, not because of the intensification of an accumulative history of inventions in the sphere of production or of media techniques.[64] Focusing on such an accumulation – or a single series of such accumulations – in the determination of actions in the Mediterranean space between 500 B.C. and 1500 A.D. leads astray (according to Horden and Purcell), whether this accumulation is taken as the central motivating factor for a historical conjuncture or for a historical caesura.

Through this radical and more realistic diagnosis of an ecological and demographically determined *technological "coldness" of the Mediterranean space*, one arrives at wide-reaching – and highly speculative – thoughts concerning the shift diagnosed by Braudel from the Mediterranean to the Atlantic system. The *technological leap* that came about in the wake of this shift, in clear interaction with the establishment of the printing press, is in no way due to a new (in other words, discontinuous) "ingenuity," but instead has probably indispensable demographic and ecological prerequisites. In the shift from a system that could never effectively manage its population scarcity and thus could never effectively (speaking macro-historically) recombine its accumulating inventions into a surge in technology,[65] to a system that gathered together many more people on three continents by military, political, economic, and ideological means and thus also made room for the experimental social organization of a technical accumulation of inventions (and of a much later, reciprocal *substitutability of automated and manual activities*): a worldwide space of organizing invention. But only gradually, and with clear regional differences that correspond strikingly to the shift from the Mediterranean to the Atlantic system. The technical inventions after the shift from the Mediterranean to the Atlantic system were neither "more accumulative" than before, nor was there a new ingenuity that should be called more "scientific" than its predecessor (when compared with China, this is simply not true until well into the 18th century, anyhow). The difference lay in ecological and demographic conditions of socio-technical organization, that only then – namely by virtue of their already globalized re-organization – could be perceived as at once "universalized" and "Europeanized" conditions. (This is my hypothesis, which I hope to falsify or confirm through Horden and Purcell's next book.)[66]

However this history of globalization might end up being written in the coming years, one of its premises will remain that the essential basis for the appraisal of a history of accumulating inventions and the intensification of interrelations and inventions must be found precisely in times and spaces in which such an accumulation could not have played any (or any important) role. Horden and Purcell have posed the question anew that was stressed for didactic reasons in Lévi-Strauss's

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[64] Horden and Purcell, see footnote 61, chapter VII.7 and 594-597.
[65] Horden and Purcell, see footnote 61, chapter IX.5 and passim.
[66] Peregrine Horden and Nicholas Purcell. *Liquid Continent*. [Translator's note: Not yet in print.]

distinction between "cold" and "hot" societies, and they have repositioned this question at the geographical center of the emergence of our technical "history of progress." *An "accumulative history" of cultural techniques and their media cannot explain historical change*; it requires the counter bearing of a non-cumulative history, of a history of regional "fluctuations" (in the sense of Horden and Purcell) and collapsing "conjunctures" (in Braudel's sense) and apart from that, as demonstrated above, a history of cultural techniques in which the non-intensifiability of verbal, ritual, and body technization is considered.

Only through the counter bearing of such a "non-cumulative history" will a realistic history of globalization (with its five spaces) and a more realistic history of cultural techniques and their media become possible. To conceive of such a history is a difficult task, one that has not yet been carried out, and it cannot be sketched out or replaced by the usual evolutionist histories of media.

6. The historical explanation of discontinuity from continuity

The result is ultimately – like the other heuristic postulates put to use here – a commonplace. A universal-historical study can integrate the history (or histories) of particular accumulations of inventions, but not the other way around. No universal history (of the five aforementioned spaces and their interrelations) can emerge from a history of particular accumulative inventions, but the contrary is possible.

In their strict application, such considerations seem to move a universal history of cultural techniques into the realm of utopian projects. What can such a history depend on, if it leaves behind the hard-won narrative of accumulative inventions and their apparently linearly branched effects (effects which are in fact more contingently, fluctuatingly interrelated)? On the fundamental principle of recent universal-historical historiography, I believe: *historical discontinuities are to be explained using continuities and not the other way around.*

Jared Diamond has given a textbook example for the implementation of this principle in his global history of the domestication of animals and plants.[67] The geographical, climatic, and ecological conditions for domestication processes were unequally distributed at the beginning of the history of domestication – already through the presence of various animals, plants, and migrants; and from these conditions, the differential speeds at which various domestications and their technical inventions were propagated can be explained. If one takes these factors into account, "culturalist" or "culturalizing" explanations of the differential success or failure of domestications fall away. Or they become so beside the point that, even in the

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[67] Jared Diamond. *Guns, germs, and steel. The fates of human societies*. New York: W. W. Norton, 1997.

recognition of real cultural differences, they cannot be presented as causal. As far as the domestication of animals and plants is concerned, human ingenuity and disposition to invention can be presented as a temporally constant and spatially continuous variable; the variables of unequal ecological and demographic distribution and rates of diffusion suffice to plausibly integrate all later discontinuities – and that means above all: the unequal distribution of power within the military, political, and economic organizations that arose from domestication processes. *Continuity explains discontinuity, not the other way around.* The continuity of the factors concerned (ecology; ingenuity and disposition to invention; the constant goal of further empowerment by the economic, political, and military organizations that grew out of domestication – in other words, by no means *all* organizations of power, and by no means all societies)[68] and their contingent interrelation explain the discontinuities and unequal distributions of forms of domestication, but also the discontinuities that resulted from the encounter of social organizations created with the help of these discontinuities, up to and including the development of a worldwide distribution of rich and poor that proceeded from European imperialism.

If Jared Diamond has been able to write such a synthesis – using only one principle of explanation – for an entire domain of cultural techniques, might this someday also be possible for media? For selected domains within *media history*, a direct transfer of the model makes sense, and Diamond has indeed undertaken this in his book (not with all the subtlety of his analysis of domestication, however).[69] At any rate, the *forms of writing* that are still in use today emerged exclusively in societies after successful domestication, in whose political centers there developed a permanently entrenched administrative demand. One can thus cross-check and find, in societies whose subsistence did not rest on domestication processes, either no writing or only the project of "counter-scripts" to those of powerful states.[70] Thus one arrives at a relatively crude, but not yet falsified correlation of post-Neolithic organizations of power with the development of writing specialists – the correlation that Claude Lévi-Strauss already diagnosed in his "writing lesson";[71] and to still valid cross-checks through historical and recent hunter-gatherer societies. Any further attempt at generalization breaks down, however, in the face of the relentless "heterogony of ends," which underlie scripts in their implementation, and in light of the fact that the history of scripts and writing specialists over millennia has been a rather "fluctuating" one and certainly not a history of ever greater accumulation.

The transfer of the model of domestication history is thus only possible within

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[68] Cf. Michael Mann, see footnote 33, chapter 2.
[69] Diamond, see footnote 67, chapter 11.
[70] Cf. Michael Harbsmeier. "Inventions of writing." In: Gledhill, John, Barbara Bender, and Morgens Trolle Larsen, eds. *State and society: the emergence and development of social hierarchy and political centralisation*. London: Routledge, 1988, 253-276.
[71] Claude Lévi-Strauss. "A writing lesson." In: *Tristes Tropiques*. Trans. by John Weightman and Doreen Weightman. New York: Penguin, 1992, chapter 28.

certain limits, and Diamond himself succeeds only in part. The attempt nevertheless demonstrates that one can successfully embed (and in so doing, relativize) a certain "accumulative history" of the media most familiar to us in a more universal history. He thereby succeeds in explaining discontinuity from continuity and its contingent entanglements.

For the modern history of media development, i.e. for the persistent *history of accumulative communication technology*, such a perspective is also possible in principle, as Brian Winston's history of modern media demonstrates.[72] Against talk of a "digital revolution" and a boilerplate series of modern "media revolutions," he places the social-determinist perspective of a three-hundred-year-long continuity of scientific and technological development (of a particular social organization among other things) and of modern organizations of power: of political, military, and economic organizations, and especially the *lingua franca* of all cultural techniques that have become effective in modern organizations of power: "bureaucratic domination" in its organizational and medial metamorphoses. When one takes into account this continuity, most notions of a modern media history structured by caesuras and "revolutions" become untenable, like foam on the waves of a river's flow (or flow chart).

Winston's structure of the process of accumulation[73] of modern media inventions is simple. He distinguishes:

> (i.) the emergence of "prototypes" in the isolation of scientific or industrial *laboratories,* from
>
> (ii.) the reference to implementable "inventions," which only become possible through the intervention of "supervening social necessities," that is to say: through the instrumentalization of continuous modern organizations of power. A clear indication for the intervention of "supervening social necessities" lies in the *argument over priority* of "simultaneous inventions" – for how could one argue about an invention, if a common social definition did not already underlie it?[74] In this process, further "spin-offs" come about from the prototype and its socialized "invention" – through the ineluctable "heterogony of ends," it might be added – but these too become
>
> (iii.) subject, together with the first or simultaneous "invention," to an inevitable social control, a strict choice and delimitation of possible applications, mostly through direct censoring and manifold self-censoring. The *implementation phase* of a "new medium" thus demonstrates for Winston, against all public rhetoric (and against the fact of the awarding of divided copyright)

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[72] Brian Winston. "Breakages unlimited." In: J. Thornton Caldwell, ed. *Electronic media and technoculture*. New Brunswick, N.J.: Rutgers University Press, 2000, 77-89.

[73] Winston, see footnote 72, 80ff.

[74] Ibid., 84.

the continuity of extant organizations of power and of the conformism of our culture above all else[75] – except where it leads to the construction of not yet recognized "prototypes" or develops into a surprising "heterogony of ends."

Winston's concept has the advantage of brevity, and historiographically speaking, it is an effective antidote to the unique modern desire to derive historical discontinuities from other – and in fact, usually from the especially striking – historical discontinuities – as if anything could emerge from such considerations apart from a secularized form of miracle (or a form of individual and collective "genius"). In any case, any careful application of the concept to individual cultural techniques and media will demand the unraveling of Winston's crude social determinism through a cyclical approach to the technical derivation of persons (organizations), artifacts, and types of signs.[76] The embedding of a history of accumulative media inventions in universal-historical observations, as I have outlined only very briefly here with the works of Jared Diamond and Brian Winston, can thus only be one resource on the way to the calibration of media anthropology with a universal history of cultural techniques. This does not by any means replace all of the other means and methods that may produce this calibration, especially the diversity of new media-ethnographic studies and their translations into historiographical methods, and it does not allow us to foresee the heuristic form that the media-anthropological turn may take on in the future.---

Translated by Alice Christensen.

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[75] Ibid., 83f.

[76] Cf. the exemplary implementation of such a cyclization in Alex Preda's short history of the stock ticker: Alex Preda. "The stock ticker." In: Latour, Bruno and Peter Weibel, eds. *Making things public. Atmospheres of Democracy*. Cambridge, Massachusetts: MIT Press, 2005, 622-627.