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A philosophy of weaving the web: An interview with media theorist Sebastian Giessmann

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Unlike predictions, ‘networks’ are on their way out. The reason for this is the unprecedented concentration of money, power, and infrastructures in the hands of a few monopoly players. Instead of ‘social networks’ we speak of ‘social media’, and that is no coincidence. In fact, ‘network theory’ has followed this trend for some time and has been in relative decline for longer than we might be aware. We can consider the 1990s the golden period of network theory, dominated by a scientific-mathematical method (Barabasi, Watts) and also a social science approach (Castells). Since the crisis of the rhizomatic and productivist Deleuze and the subsequent rise of ‘dark Deleuze’ (Culp), the question has become: why connect, if machines will connect us regardless?

Traditionally networks have not been an object of interest for media studies. One of many beginnings could be located in sociology, where ‘social networking’ became an object of studies in the 1970s in order to understand social dynamics (such as inequality) and ‘networks of power’ (amongst elites and multinationals). Even though networks played an important role in the understanding of infrastructures such as railroads, highways, and electricity grids, social theory and infrastructural history mostly remained in separate fields. Architectures of computer networks emerged in the late 1960s but only gained presence in the early 1990s, first inside the telecommunications context and then, after the emergence of the World Wide Web, as (new) media. It took a long time before networks and media began to be

thought together – and arguably, this has yet to happen in a critical and systematic way. Despite all utopian claims networks as technical protocol, form, and social practice never reached the status of a hegemonic force. For a brief period the decentralised networks undermined the monolithic apparatuses of the media but then turned into centralised monopolies themselves, absorbing media structures without questioning the media sphere itself. It is time for a re-assessment of the dialectics between networks and media.

Sebastian Giessmann works at the University of Siegen and has published on the history of networks as a cultural technique. In 2014, Kadmos Verlag published an edited version of his doctoral thesis titled *The Connect- edness of Things – A Cultural History of Networks*.^[1] This is a very diverse piece of scholarly work in the tradition of German humanities and media theory. As is often the case with German theory we start off in Mesopotamia and ancient Egypt before moving on to Greece. Giessmann's approach starts off with the ancient material culture of fishing nets and goes on with the spider's web as a mythological motive that surrounds Arachne from antiquity to early modernity. Skipping some centuries, the book provides us with a beautiful case study of famous maps of the London Underground as drawn up by Henry Charles Beck in the early 1930s. From there we move on to cybernetics, ARPANET, and the genesis of the network protocols in the 1970s, entering familiar territory.

Geert Lovink: Would you agree with the thesis that in the age of social media networks start to decline?

Sebastian Giessmann: In some ways I do. Then there are other aspects of networking as a practice and cultural technique that seem to be pretty stable now. You might also call this old-fashioned, because throughout recent years so much operative network theory has become the foundation of social media platforms. While I was writing the book my original plan was to stop with the imposed standardisation of TCP/IP as the main protocol for the ARPANET. That is what the real contribution of the US military to the history of networking was in 1983, while Paul Baran's famous RAND paper series *On Distributed Communications* was actually rather unimportant. Yet the book now ends with Mark Lombardi's 'Global Networks', depicting the American 20th century in all its capitalistic and political entanglements. There is a short postscript on Snowden, who has reverse-engineered the contemporary network surveillance, which is absolutely based on graph theory and Social Network Analysis. I had a long moment of critical-

paranoid doubt while finishing the book but I am sure that networks are here to stay – as long as networking remains a cultural technique. Or, as Wendy Chun put it, networks are ‘belated too early’. This is both applicable for the black-boxed Social Network Analysis and even more so for the heterogeneous *acteur réseau* terminology of Actor Network Theory.

Admittedly, the current social media developments call out for different terminologies because platforms have become highly regulated and not-so-surprisingly bureaucratic environments and conditions for social networking. So this is what happened long after 1983 and Lombardi’s 1990s drawings: platforms (and the military-surveillance complex) took command of social network theory, and we still have to open the black boxes of these new data-based and algorithmic regimes. Let us not forget that US government-sponsored research has put a lot of money into ‘Network Science’. We are now surrounded by applications of this paradigm by corporate and state actors worldwide.

But let me come back to ‘starting off in Mesopotamia’, which is probably something I would rather associate with Canadian Media Theory and my recurring approaches to get back to Harold Innis. There is also a biographical background to this, because the book was developed within Berlin-based research on ‘cultural techniques’ and the *longue durée* parts of it were written while I worked at the TOPOI cluster, which actually focuses on spaces in ancient civilizations. So Berlin is a bit obsessed with Antiquity, and this has left its marks.

Lovink: You write very passionately about Arachne and the fascination for her spider webs. Your writing reminds me of Sadie Plant’s *Zeros + Ones* from 1997, about digital women and the new technoculture as she called it then, which is all about weaving. Should we read the stories about Arachne as allegories or analogies? Please tell us how to read Greek mythology through the eyes of the Facebook generation. We know how German professors in the 19th century described antiquity and how to get from Burckhardt and Nietzsche to Blumenberg. Recently, Sybille Krämer wrote about Hermes as the messenger and the relation between this figure and the ‘media’ concept. Please update us on the network myths!

Giessmann: Basically, I had to grapple with webs and nets being the material basis and result of networking practices and their strange objecthood between material culture and symbolic orders. Sadie Plant was actually one of the readings in my first seminar on Internet culture, and this always lurked in the background since then. But even in the mythological domains

my interest is more praxeological than Sybille Krämer's beautiful take on the media philosophy of the messenger. The long initial chapter on nets and webs both as traps and as figures of sociality in ancient civilizations is called 'Netze vor den Netzwerken' (nets before networks), because most mythological scenes no matter whether narrations of hunting and catching or weaving and enmeshment strikingly differ from 'modern' notions of the network as a decentralised relationality, a diagrammatic figure of knowledge, or as a territorial socio-technical infrastructure.

The myths my book starts with are already accounts of object-related agencies. Arachne is so important in this because she is one of the first human heroines of networking/weaving who is not a god or a king. In Ovid's depiction she is an embodiment of worldly skill. Before Arachne and some passages in the New Testament catching nets were mostly an instrument of the Mediterranean and Indo-Germanic gods and rulers. Its power was to be feared and sometimes even used as a deadly curse. Arachne's earlier Greek counterpart was Klytamestra in Aischylos' *Oresteia*, who trapped Agamemnon with a *dyktion*, a fishing net. Actually, most of these network myths and particularly the Old Testament show a highly refined sense of the different topologies of webs and nets. Already in the ancient Orient there is no such thing as 'one net' or 'one network' but a multitude of textile objects.

Interestingly enough, ethnography and cultural anthropology in the first half of the 20th century have re-appreciated this multitude in material culture. So my mythological readings follow André Leroi-Gourhan's catalogue of network objects in 'Milieu et Techniques'. I think that Michel Serres, being *the* philosopher of networking, understood its textile qualities early on – not just in his Hermes book series but particularly in the book on the *contrat naturel*, where ropes, ties, and chains figure prominently and in a highly reflexive manner both for mythologies, aesthetics, and practices of social order.

So this is one of the historiographical premises of my book *Verbundenheit der Dinge*: networks are almost always related to material cultures of nets and webs, which mobilize and symbolize the mediating qualities of textile objects. Thus, the oldest and newest forms of networking stand side by side. I wanted to trace this back within a genealogy along objects, diagrams, and infrastructures. What are all the modern notions of the network as a circulatory machine actually referring to? I should briefly contemplate this further, because it also explains the *longue durée* approach.



Fig. 1: L'Industria (Paolo Veronese, 1575-1577). Oil on canvas within a pan ceiling. Venice, Doge's Palace, Sala del Collegio (detail).

My first book on the topic, which was published in 2006, concentrated on France in Early Modern times. I would still suggest that the Enlightenment brings with it the first real 'take-off' in network thought – making explicit what was hitherto a tacit practice, therefore becoming a cultural technique. In a perfect world the short first book and the longish second one would have been written in one volume. By now I would love to read another thorough scholarly book on networking between 1500 and 1800, because *Verbundenheit* only briefly addresses the fundamental change which has

been developing throughout this period: the switch from material object-related notions of the network to relational and spatially-distributed ones, from object to a ‘quasi-object’.

Lovink: Throughout the book you mention the infrastructure approach of the Saint-Simonians who had visions of how to network the world through the construction of canals. Are you yourself a Saint-Simonian, if I may ask? How would it relate to the peer-to-peer philosophy of today? Recently I often think in the direction of some form of ‘infrastructure socialism’. This is a point one can easily get to if you start thinking about the ‘socialization of datacenters’ owned by Amazon, Facebook, Google, and other Silicon Valley monopolies.

Giessmann: I do not subscribe to the romantic social engineering idea, which is behind most of what the Saint-Simonians did in 19th century France, Algeria, and Egypt. I concluded my first book with Michel Chevalier’s enthusiastic networking tractate *Système de la Méditerranée*, which had been published in the internationalist newspaper *Le Globe* in February 1832. For *Verbundenheit der Dinge* I then dug deep into the Saint-Simonian archives in the Bibliothèque de l’Arsenal where their spiritual grandfather Saint-Simon also worked briefly as a librarian. Actually, the outcomes of the social and infrastructural utopian projects of the 1820s and 1830s were mostly colonial ideology abroad and a romantic-nationalist modernism for French canals, roads and railroads, telegraph, banks, and newspapers ‘at home’.

Chevalier himself pursued a high-profile career in the French administration. The sect’s charismatic leader Prosper Enfantin attempted to build the Suez Canal before Ferdinand de Lesseps but failed miserably – first in the 1830s in an expedition he led, then in creating an international expert group of French, English, and German-Austrian engineers. Enfantin’s treatise on the Colonisation of Algeria from 1843 is actually quite insightful because it openly spoke of a colonial ‘network of submission’ while meticulously charting out the police and settler posts to establish this sort of spatial hegemony.

The religious and socialist enthusiasm came with a high price. Therefore I would never like to be a Saint-Simonian, although I have been working as an Internet Policy Advisor. But yes, there still remains a fascination for all their ambivalent endeavours, including early visions of a peaceful Europe united by public and private infrastructures, economy, and shared liberal social values. Enfantin and Chevalier would probably be glad to embrace

some of the GAFA (Google-Amazon-Facebook-Apple) opportunities as some more conservative social democrats attempt to do even today.

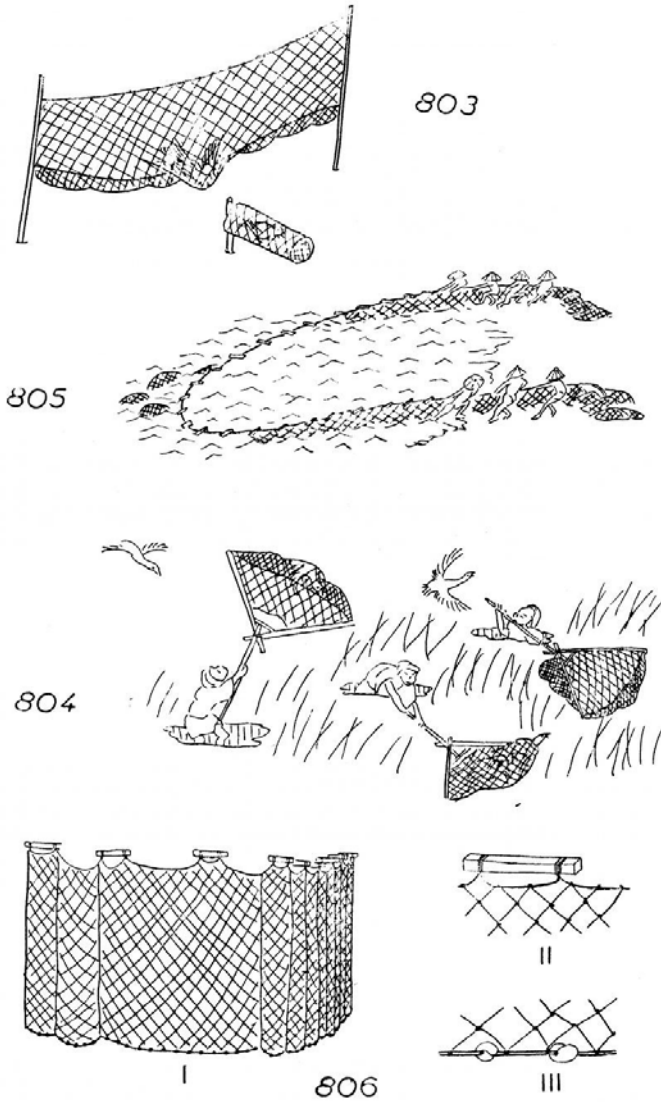


Fig. 2: Survey of material network objects in Milieu et Techniques by André Leroi-Gourhan, drawing, 1945.

But while GAFa platform economies rely on the long trajectories of materially-built network infrastructures since the 19th century, they mostly strive for privately ‘owned publics’ only. This is highly unusual even for the United States, a country with a long history of public infrastructure regulation, e.g. in the cases of the ‘Universal Service’ in the Bell system and the national postal service.

The important question to ask here is Susan Leigh Star’s and Geoffrey Bowker’s ‘When is infrastructure?’ and to reframe it as ‘When is an infrastructure in need of being understood and legally required to be public infrastructure?’ Current social media and data (quasi-)monopolies are grafting on existing infrastructures; they are perceived as delivering ‘just a service’, while in fact assembling a lot of computing power and partly owning the physical network infrastructure or at least forming strong alliances with the old and new Telcos.

How does one regulate platforms that strive for regulating mediation of social networks all by themselves with a lot of worldwide clickworking support from us, the users? I would not dare to give a general answer to this question because the relations between infrastructures and publics are almost always necessarily controversial. Few of the calls for Open Data, open APIs (Application Programming Interfaces), or open indexes (in the case of search engines) have led to significantly visible changes. But without those calls things might get worse quickly. Sadly enough, peer-to-peer networking itself has become more and more unpopular. Bitcoin seems to be an exception to this, but the blockchain technology seems to be appropriated by corporate players now. So I would rather revitalise the not-so-striving commons-oriented infrastructures to re-facilitate peer production. This can and must be publicly funded and should be possible even in a crisis-shaken Europe.

Lovink: A considerable part of your book is dedicated to the classic question of how visualisations relate to the world of (quasi-)objects and flows of people, goods, and services. If I understand it well for you there is a materiality of networks. Visualisations are not mere ‘eye candy’ to fool us. This is why there is a reality to the multiplicity of conspiracies. How does this work in the internet context of mind maps and API economies that are used to profile customers? Hasn’t info visualisation gone off into a weird parallel universe in which ‘data porn’ has become an object of pleasure in itself? Do you believe that maps are tools? For whom? In what struggle? In short, what is the image status of networks as we understand them?

Giessmann: Yes, to me network visualisation can be a figure of agency, still. Harry Beck's topological map of the London underground and its career as a global style guide for navigation is living proof. But within your question I sense a lot of doubt and frustration about the exponential use of network diagrammatics. This is certainly true for technologies like Facebook's Open Graph, and it also relates to using Social Network Analysis as a tool in digital media studies. Since network visualisation mostly developed in the sciences, in anthropology and sociology, and also in economics and conspiracy theory, it has always needed an expert, skilled vision and a lot of contextual knowledge. Then and only then the diagram is 'more than meets the eye'. Dealing with relations in such a visual manner cannot be generalised, no matter how universalist some ways of doing Social Network Analysis have become. Even if we agree on a joint language of networks every case and node-arc relation remains specific. This is even truer if we add an ANT-like understanding of heterogeneous networks which either tend to defy easy visualisation or have created the more interesting diagrams (just think of Michel Callon's and Bruno Latour's drawings).

As for the 'info porn' as a trope for so-called big data, well, it exists. I do not find most of it particularly appealing, if you compare it with Charles Joseph Minard's statistical maps of railroad and goods traffic, Beck's design for making the Underground a useful network, and Lombardi's narrative structures, which had a sincere documentary character. Do not mistake this for media nostalgia – digital visualisations tend to be useful, if they are able to depict agency, even if they focus on structural relations. Lothar Krempel, an outstanding network visualisation wizard from Cologne, knows what he wants to get out of numerical data – if the image is not adequate to that he manipulates the Ghostscript code by hand, which is amazing if you know this Pre-PDF printing standard's sign babble.

Lovink: In our social media age network diagrams and other forms of data visualisation are increasingly becoming ingrained into busy everyday life. We live and breathe our networks. In such a situation, why do we need visualisations in the first place?

Giessmann: Here's an anecdote from Lothar Krempel. When he was teaching his students how to visualise their Facebook data they reacted somewhat reluctantly. 'Why should one do that? All my networks are already there ...' In fact, the mobile social media interfaces themselves and the platform aesthetics lead up to 'living and breathing our data, and our networks'. Network visualisation tends to be insightful if it has a documentary

quality. But now, with platforms mediating the networking practices (by appropriating relational databases and graph theory), networks have gotten a timely quality of constant becoming or of pre-emption. This is why theoretical approaches like Anna Munster's have turned to Deleuze and Whitehead. Within the sociological visualisation community timing as opposed to structure has become quite an issue, which sometimes leads to complete omission of network imagery, more narrations, or just showing the data in tabulated form.

I want to come back to your question about the contemporary image status of 'networks as we understand them'. You seem to imply a rough consensus on 'what a network is' and what not, and a specific community of practice, but I leave that aside. Most of us are familiar with Tim Ingold's 'meshwork' as an alternative term for a mobile 'life along lines'. Once more emphasis is being put on mobilities, network imagery is actually moving from centerstage to backstage and connective sociotechnical practices look out for new kinds of imagination. I think that Adrian Mackenzie's book on 'Wirelessness' brought this up early on. While this is certainly true for mobile digital media use and their infrastructures I cannot close my eyes and not see the thousand pin boards with networked photographs, relations, and possible paths of action in every second television show around. Here, the network has indeed become more tacit agency than static structure.

Lovink: There is no chapter in your book on the Internet of Things. It is something one would have expected in a book with a title like this.

Giessmann: This is true. And I am glad you asked this question! There is no easy answer, since my original plan – stopping with 1983's TCP/IP standardisation – does not count as an answer. Let me make three remarks. First of all, I tend not to believe the hype. The current IofT or 'Industry 4.0' developments that I am aware of, they all come from a long-standing tradition of networked production, computing, and its political economy. So just adding up the buzzword to a cultural history is not such a good idea. Let us come back to this in ten years. And let us keep in mind the bureaucratic side of IofT, because networking objects is in dire need of accounting for its organisational practices. This is true for network protocols but even more so for the economic and organisational 'white collar' human actors in IofT developments.

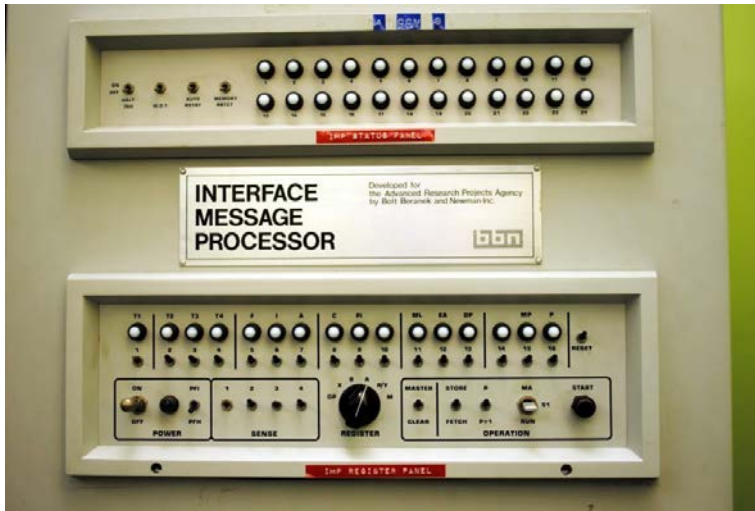


Fig. 3: First Interface Message Processor (IMP) of ARPANET. Kleinrock Internet History Center, UCLA. Installed in September 1969, photographed 29 September 2011. Source: FastLizard4, wikimedia.org, license CC BY-SA 3.0.

Second, and most importantly, classical materialist media theory loved historical-philosophical figures of a ‘Zu-sich-selbst-Kommen’ (becoming itself) of a media technology, the recognition of the specific mediality of a given medium, in short: its teleological qualities. So I could now happily celebrate all the new sensor systems as talking objects and quasi-objects in infrastructures and say this is what *Verbundenheit* was about all the long genealogical way – we are getting back to a material understanding of the network. But this would be an unforgivable universalist mistake and it would asymmetrically cut out human agencies from a cultural technique. Plus, let us not forget the foreseeable failures of IofT, the momentum of an installed infrastructural base, and the invisible work to keep things up and running.

Third, my new project is a media history of the credit card and digital payment systems. One reason to do this is to set things straight concerning the political economy of networked objects and the bureaucratic platforms they rely on. There is now a strong tendency to talk about these networked environments in a media ecological manner or historical epistemological way only. Personally I consider this a rather indirect way to go because it wipes out questions of socio-economic power and hegemony and all of the

everyday drama and agency of each infrastructure. Apart from media ecological macro perspectives we do need our microscopes set on media practices, good scalar devices, and a sense for the ecological niche – although I appreciate some good scholarly readings in media ecology.

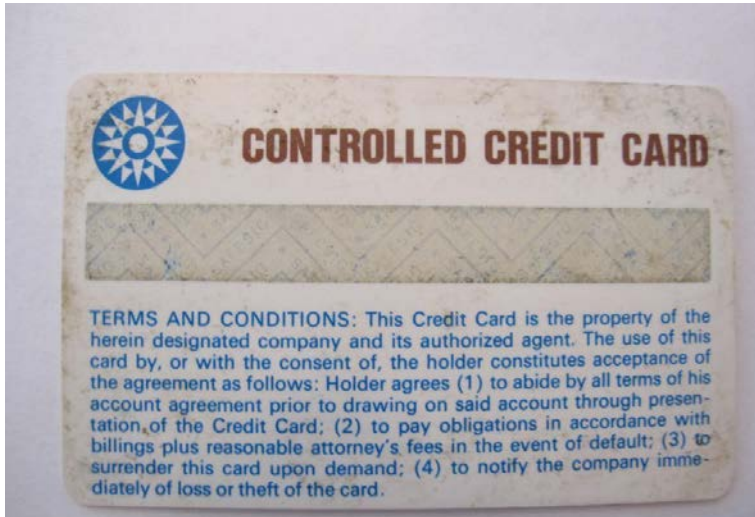


Fig. 3: Credit card prototype. IBM Information Records Division, 1971. Source: Arthahn, wikipedia.org, license CC BY-SA 3.0.

Lovink: You note that the German sociologist and system theorist Niklas Luhmann ‘wasn’t a friend of network thinking’. Let’s be serious. Who was? Or is? I don’t think Kittler was either. The architecture of old broadcast and print media is so much more accessible and readable for the humanities. These days I believe networks are being pulled even further into the background. They might even become part of a ‘techno unconscious’. How do you see this and what methods did you use to get a grip on this very fluid material?

Giessmann: If you look into the systems theory generation after Luhmann sociologists like Dirk Baecker and Urs Stäheli have delivered some late yet excellent contributions to social network thought. Luhmann’s scepticism was mainly referring to the irrational and clientelistic qualities of networked agency, namely its amodern qualities, its tendency not to stick to a social system. Kittler’s contribution should also not be underestimated. His *Aufschreibesysteme* have been translated as ‘discourse networks’ instead of ‘inscription devices’ – with the latter option he would have been closer to ANT and Science and Technology Studies thought of the 1980s. So the

shifting title is an excellent paradox of renaming, making Kittler more sociotechnical than he ever was. Let us look forward to see more publications from the Kittler archive in Marbach; there shall hopefully be some materialist network surprises beyond the early writings at the *Baggersee* which have been published recently. The Germanophone tradition was not the strongest in initiating network thought anyway, if you compare it to French anthropology of technology from Leroi-Gourhan to Latour – with Michel Serres still being my favourite. And if I may say this as a Siegen-based scholar: ANT has been successfully translated into German media theory by people like Erhard Schüttpelz and Tristan Thielmann, adapted and re-invented as actor media theory (*Akteur-Medien-Theorie*, 2013). Siegen has since moved on to Science, Technology, and Media Studies and a collaborative research centre on ‘media of cooperation’. The international history of computing community just recently reframed the history of the internet to be built upon a history of networking (cf. *Information and Culture* 50/2 2015, edited by Thomas Haigh, Andrew L. Russell, William H. Dutton). So I am in good company!

Networks becoming part of a background – yes, I do agree with that, although this is calling out for infrastructural inversion to bring them back to the foreground. A ‘techno unconscious’ – oh no, this would be old school media theory! An ‘infrastructural-unconscious’ then? Maybe. Yet billions of people are able to deliver accounts of their heterogeneous networks, if you just ask them. Media are created cooperatively and in practice. They are no teleological powers forming an unconscious, although media infrastructures admittedly are best used in a transparent and hands-on manner, like Susan Leigh Star and Karen Ruhleder have famously put it.

Since the German discourse on cultural techniques is mostly lacking methodological basics I had to invent some for the cultural technique I was writing about. For the book I ended up with a mixed-method approach between extended discourse analysis, material culture studies, and parts of actor network heuristics. The ANT part actually was the hardest, because it never wanted to use it in a ‘ready to run’ way. Actor network theory has severe weaknesses once you are doing real historiographical work in actual archives, inevitably lacking the possibilities of participant observation. So I developed my own vocabulary of network properties out of the historical cases and re-applied it to the other infrastructures. Hence the chapter on synchronisation in the London Underground Network became the starting point for thinking about synchronisation and timing in the other infrastruc-

tural networks. And in turn questions of switching agencies in networks developed out of the telephone switching chapter, making it part of a recursive stratification of networking practices and properties. Questions of objecthood and visualisation are also present in each case study. By now I would position my historiographical methodology within grounded theory approaches. In fact, most of Germanophone media studies is still built on semiology and poststructuralist thought and is therefore in a largely unacknowledged methodological crisis. So we constantly have to re-invent appropriate methods for digital media cultures and for a new media history without the *a priori*.

Authors

Sebastian Gießmann is speaker of the working group History and Ethnography of Cooperative Media Practices at the collaborative research center Media of Cooperation (University of Siegen). His current research deals with the media history of the credit card, political economy, and digital payment. Forthcoming: Susan Leigh Star. *Grenzobjekte und Medienforschung* (Bielefeld 2016), co-edited with Nadine Taha. Homepage: www.netzeundnetzwerke.de | Twitter: @sebgießmann.

Geert Lovink is a media theorist, internet critic, and author of *Dark Fiber* (2002), *Zero Comments* (2007), *Networks Without a Cause* (2012), and *Social Media Abyss* (2016). Since 2004 he is a researcher in the Faculty of Digital Media and Creative Industries at the Amsterdam University of Applied Sciences (HvA) where he is the founder of the Institute of Network Cultures (www.networkcultures.org/).

Notes

- [1] Giessmann, Sebastian. *Die Verbundenheit der Dinge, Eine Kulturgeschichte der Netze und Netzwerke*. Berlin: Kulturverlag Kadmos, 2016 (2nd edition, 1st edition 2014).