2. Doing Experimental Media Archaeology

Epistemological and Methodological Reflections on Experiments with Historical Objects of Media Technologies[1]

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Abstract

The aim of this chapter is to outline experimental media archaeology as an alternative method to a sense and object-oriented technology and media historiography. The epistemological potential of an object and sense-oriented experimental access to the field of the history of media and technology will be discussed here on the basis of experiences in the history of science and historically informed music performances. The heart of the chapter is formed by a discussion of a series of media archaeological experiments executed by the authors in search for alternative ways to draft historical statements on past media practices. In these experiments, they focus on the materiality of past-media devices, beyond their function as

1 This chapter follows up on our 2013 article 'Experimental Media Archaeology: A Plea for New Directions', which appeared in *Technē / Technology*. Expanded and amended versions of this plea were written by Andreas Fickers in 2015 in 'Hands-on. Plädoyer für eine experimentelle Medienarchäologie, in *Technikgeschichte* 82. Annie van den Oever expanded on the plea with further reflections on hands-on experiments with devices in the film archive in her book with Giovanna Fossati, *Exposing the Film Apparatus. The Film Archive as a Research Lab*. We would like to thank Dr. Jo Wachelder, Dr. Susan Aasman, Tim van der Heijden, and Tom Slootweg for the fruitful discussions that were held on the type of experimental media archaeology in the context of the project 'Changing Platforms of Ritualised Memory Practices: The Cultural Dynamics of Home Movies', funded by the Netherlands Organization for Scientific Research (known by the Dutch initials NWO), in which Andreas Fickers was involved. We would also like to thank the members of the Network for Experimental Media Archaeology (NEMA) for their contributions to discussions on the topic, in particular Prof. Giovanna Fossati, Head Curator of Eye Film Institute the Netherlands in Amsterdam; and Prof. Benoît Turquety of the University of Lausanne, for sharing his expertise on the complex history of film technologies with us, and Bernd Warnders and André Rosendaal of the pilot project on Curating Media Heritage at the University of Groningen.

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sign and evidence of the past, and on the heuristic possibilities offered by an experimental approach to these devices.

Keywords: Experimental Media Archaeology, Hand-on History, sensorial-focused history of technology, user perspectives

Initial Considerations: In Search of the Past User

Working on the apparatus collections in technology museums and media archives may create a growing awareness of the epistemological and methodological problems confronting researchers in the fields of technology and media history.[2] Paradoxically, the acute awareness of the historical gap between now and then is clearly deepened by the material presence of the 'leftovers' of past media practices: magic lanterns, cameras and projectors, radio sets, video recorders, and television sets with old manuals taped on the back. One reason we seek a physical, sensual engagement with these historical artefacts is to stimulate our imagination of the past: to reflect critically on the hidden or non-verbalized, sensorial, corporal, and tacit knowledge that informs our engagement with media technologies. In this chapter, we will reflect on ways of doing experimental media archaeology, to plead once again for an integral and sensual approach towards media technology.

The point of departure of the present approach is the search for alternative ways to draft historical statements on past media practices. The main question is how historical objects of media technology can be used as sources for a sensorial-focused history of technology and the media. This chapter focuses on the materiality of past media devices, beyond their function as a sign and evidence of the past, and on the heuristic possibilities offered by an experimental approach to those devices.[3] Although the approach to the material leftovers falls under the traditional craft of the historian of technology, especially when reappraising and presenting scientific and

2 The authors of this chapter have worked in technology museums and film and media archives respectively. Andreas Fickers worked in the *Deutsches Museum* in Munich and Bonn with a long-standing tradition of tinkering with technical devices. He is currently Director of the *Centre for Contemporary and Digital History* at Luxembourg University. Annie van den Oever is Head of the Film Archive at the University of Groningen; the archive has a long history of hands-on experiments developed for educational purposes; see (Accessed 8 September 2016) http://filmarchief.ub.rug.nl/root/?pLanguage=en.

3 Cf. Fickers, 'Design als "mediating interface"', pp. 199–213.

technical heritage in a museum context,[4] the sensual and experiential potential of technical objects, which we have argued in our plea for a new research agenda in media appropriation histories,[5] has hardly been broached hitherto in technology or media historiography beyond a purely aesthetic consideration.[6]

On the other hand, in recent years, media and technology historiography has frequently put the question of forms of appropriation and ways of using media technologies at the forefront of research. Instead of concentrating on production and invention narratives, technology historiography has focused increasingly on the processes of social construction, social appropriation or rejection, and on the symbolic significance of technology and technological artefacts.[7] Similar changes of perceptions in media historiography resulted in

4 Cf. 'Zwischen Inszenierung und Zeitgeist – Technikmuseen', Chapter 4.3, pp. 92–110.

5 See Fickers and Van den Oever, *Technē/Technology*. For a reflection on the perceptual imprint of 'technische Medien' in the sense of Kittler, see also a dialogue between Geoffrey Winthrop-Young and Annie van den Oever in *Technē/Technology*. See also Van den Oever, 'The Medium-Sensitive Experience and the Paradigmatic Experience of the Grotesque, "Unnatural" or "Monstrous"', pp. 88–89.

6 This dimension is not addressed in the classical introductions to the history of technology in the German-speaking world at least. Cf. Heßler, *Kulturgeschichte der Technik*; König, *Technikgeschichte*. Already in 1958, the French philosopher Gilbert Simondon attempted to sketch a philosophy of the history of technology beyond the duality of form and function. However, Somondon's works were scarcely appreciated outside France. Simondon, *Du monde d'existence des objets techniques*. For the history of the media, Jochen Hörisch presented a study motivated by the history of the senses entitled 'Der Sinn und die Sinne', which, albeit inspiring, is often restricted to associative outlines. In the Anglo-Saxon world, an interest in the experiential and aesthetic effects of film technologies (as opposed to film per se) emerged from early film studies and New Film History, in particular in reflections on the early sensations created by the cinematograph and the phonograph (e.g. see Gunning, 'Re-newing Old Technologies'. Read online (Accessed 8 September 2016): http://web.mit.edu/m-i-t/articles/index_gunning.html). We will return to this later in this chapter. In France, since the 1920s, philosophy and the sub-discipline of aesthetics (e.g. Paul Valéry c.s.) nourished an interest in the aesthetic impact of technological devices following the so-called birth of the cinema. Valéry's perceptual-aesthetic perspective famously affected Walter Benjamin's seminal essay *The Work of Art* (see *Technē/Technology*, pp. 29–50), whereas Benjamin's experiential perspective fed into the re-conceptualization of the early film era in terms of an investment in the experiential dimensions of early film technologies performed in early film shows as 'attractions' in their own right (see Gunning and Gaudreault, 1986). A new and noteworthy branch on the French tree in this context was proposed by Edmond Couchot in the late 1990s under the label of 'techno-aesthetics' (see *Technē/Technology*, pp. 29–50). See also the reflections on media art experiments assembled in Noordegraaf *et al.*, *Preserving and Exhibiting Media Art. Challenges and Perspectives*, touching upon the aesthetic experiments of (media) artists with media technologies; we will return to these reflections below.

7 Cf. representative of this trend, albeit in a more polemical undertone than others, Edgerton, *The Shock of the Old. Technology and Global History since 1900*.

describing and analysing users of media technology with the more assertive, action-oriented concept of 'user', instead of the socio-economic and media studies categories of 'audience' and 'consumer'.[8]

The keen awareness of the 'user' in media research was partly created by the changes in media use in the 1990s: the term 'new media' (which now seems a bit corny) was aptly coined in opposition to the old (news) media – television and newspapers – whose practices of use were, to a large extent, automated: the materiality of these old media technologies and the strategies of use had become so familiar they were more or less invisible (or 'transparent', if you will) to the user themselves. In sharp contrast, the new (social) media of the 1990s were remarkable, visible, exciting, and material for debate. These new social media triggered new forms of use, which needed new forms of media research, including a shying away from 'the milkshake mistake'. The term refers to a type of research mistake named after a failed research project on McDonald's milkshakes: while focusing solely on the product and how to improve it, all but one expert completely failed to observe that commuters had started to buy milkshakes as breakfast on the go. With respect to social media research, the shift in focus from product to usage was crucial, as Clay Shirky argues in his 2010 book on how the digital technologies of the 1990s first turned consumers into social users, then into collaborators.[9]

A challenge for all approaches to reception and user history – both for the history of the media in the broad sense and a history of media technologies in the narrow sense – is the question of sources and, by implicit extension, historical hermeneutics: how are historically relevant statements on ways of appropriation, ways of use, or rejection strategies of media technologies constituted in retrospect?[10] And how constitutive are certain types of sources in the semantic construction of certain types of users or categories of ways of use? Monika Röther addressed this issue systematically in her dissertation 'The Sound of Distinction' (2012), where she linked four different

8 Ellis, 'TV and Cinema: What Forms of History Do We Need?' pp. 12–25; Oudshoorn and Pinch, (eds), *How Users Matter: The Co-Construction of Users and Technologies*; cf. also the contributions in *Technikgeschichte* 3, no. 76 (2009) which deal with the relationship of the history of design and of technology.

9 See Clay Shirky on the milkshake mistakes in social media research in his book *Cognitive Surplus. How Technology Makes Consumers into Collaborators*, pp. 12–20.

10 There is, of course, a long tradition of reception research in the history of the media, which focuses on consumer behaviour or the appropriation of media products (programmes, formats). However, the question of technological requirements and the conditions of media appropriation usually play no role in this research tradition. On the history of reception research, cf. Méadel, *Quantifier le public*; Butsch, 'Audiences. Publics, Crowds, Mass', pp. 93–108.

dimensions of sound technologies to the analysis of certain types of sources: first, the analysis of the materiality of the object itself; second, the interpretation of sources, in which manufacturers and professionals enact potential appropriation strategies (e.g. in advertising); third, the analyses of expert discourse found in product-test magazines and consumer magazines; and fourthly, those documents and sources that provide information on the actual appropriation and use of media technologies – e.g. ego documents and oral history interviews.[11]

In developing Röther's systematization further, eight (user) perspectives will be presented below, under which the relationship with different types of sources and specific user categories and discourses can be further differentiated and broadened. These eight perspectives are intended to provide a more complex vision of the diverse and alternative constructions of users in specific types of sources, and thus an increasingly effective approach to the actual historical complexity in the (scholarly) historical re-enactment of past ways of using media technologies. Only one of the suggested user perspectives will be explored in greater depth here, namely that proposed by experimental media archaeology under the label of 're-enacted users', since it is expected to make an interesting contribution to a media and technology historiography that draws inspiration from the *sensing* of the past.

Needless to say, the 'types of users' presented here are ideal-typical constructions, which may (and should) fall victim to historical re-enactments in individual cases. In spite of the different semantic meaning, 'user' and 'use' are not differentiated in the typology that follows, but these terms are used as synonyms, as in the source material. The following 'types of users' will be discussed here: first, the 'imagined users'; second, the 'configured (or prefigured) users'; third, the 'expert users'; fourth, the 'amateur users'; fifth, the 'remembered users'; sixth, the 're-enacted users'; seventh, the 'artificial (or artistic) users'; and eighth, the 'simulated users'.

If we look at the types of sources used in previous studies for the historical reconstruction of users, expert sources are clearly dominant in historical technology oriented reconstructions (e.g. *Technikgeschichte*). Expert-made sources, such as perception reports, laboratory reports, (production) logbooks, and publications in expert journals are typically driven by production-oriented and purpose-oriented questions and they tend to be directed at other expert users.[12] However rich in terms of their wealth of test

11 Röther, *The Sound of Distinction*, pp. 34–62.

12 For example, see the chain of expert discussions in the field of the production, dissemination, implementation, and use of expert projections facilities, being tested in follow-up experiments

User perspectives	Characterization of user types	Types of sources
Imagined users	Imaginative, utopian, or dystopian projections of past and future ways of use	Science fiction and fantasy literature and film, comics and cartoons, radio plays, television series, games
Configured (or prefigured) users	Strategies of use configured and prefigured, pre-planned and promoted by the industry, manufacturers, and marketers	Advertisements, posters, billboards, commercials, manuals, patents apps ('applications')
Expert users	Possible ways of use based on a scientific, empirical, and experimental assessment conducted by expert discussion (promises of performance based on testing)	Technical literature, test reports, perception reports, logbooks, laboratory records, product-test magazines, (online) expert publications
Amateur users	Forms of the actual appropriation and user tactics discussed in exchange-oriented publication media	Popularizing periodicals, fan sites, blogs and vlogs, how-to manuals, videos, club magazines
Remembered users	Remembrance of certain ways of use constructed in oral history interviews, e.g. subjective description of user experiences recorded in ego documents	Oral-history interviews, diaries, ego documents, surveys, historical and ethnographic documentation/ documentaries
Re-enacted users	Ways of appropriation and use generated by re-enactment in experiments; or teasing out tacit knowledge within experience through re-enactment	Objectives, devices, re-enactments, ethnographic records, scripts, laboratory records
Artificial users (or Artists)	Media technologies re-enacted and repurposed by artificial appropriation; usually focused on the perceptual and mimetic potential (reality construction dimension) of media devices	Artificial installations, objects, devices, audio and video installations
Simulated users	Re-enactment of user behaviour through computer aided simulations and statistical assessment of possible scope for actions and processes	Simulation software, statistical data, user profiles

material, an expert's main focus, or expertise, is not at all the *actual use* of a technology in the socio-cultural context of the day, or its actual place in technology or media history. If this is a concern to them at all, expert and expert inventors may be rather too positive, if not utopian, about the future of their device. Needless to say, this is a problem for media history. The many

in cinemas by teams of projectionists suggesting technical amendments to the expert producers / inventors.

milkshake mistakes made by expert inventors predicting the futures of a technology in utopian terms are abundant in media history, and they are indicative of the theory-induced blindness of the expert-technicians with regard to actual user practices, and the 'conceptual fog' surrounding this problem: 'imperfectly defined explanatory notions [...] so loosely derived and so mutually irrelevant that they mix together to create a sort of conceptual fog that does much to delay the progress of science', in the words of Gregory Bateson.[13]

Ironically, the milkshake mistakes created exquisite material for alternative and amusing media archaeologies; moreover, they begged for a critical take on expert-induced blindness. In many ways, media archaeology responded to this, not so much by theorizing actual user practices, but rather by an epistemological critique of the knowledge produced in a media historiography leaning on production-driven narratives and utopian fantasies; and by constructing alternative narratives and quirky and marginal media histories (plural) or what Siegfried Zielinski emblematically and programmatically called 'variantology'.[14] The 'alternative' sources are most often used to describe the historical and contemporary potentiality of media and communication technologies, but not to reconstruct their actual dissemination or appropriation or historical use. Therefore, many media archaeology studies are primarily interested in those types of sources that allow the imagined or configured users to come to the fore, as is the case, for example, in literary presentations, advertising,[15] or patents.[16] This media archaeology of the imaginary or even utopian potential, which is ascribed to all new media and communication technologies, has led to numerous historical-discourse studies, which have made an important contribution to the cultural history of the media and media technologies.[17] Reflection in terms of media archaeology is also encountered in the field of the artistic

13 See Bateson, *Steps to an Ecology of Mind*, pp. xxiii–xxxii (quotation from p. xxvi).

14 See Zielinski, 'Media Archaeology', published online in *CTheory* (1996), Accessed 8 September 2016, http://www.ctheory.net/articles.aspx?id=42. See also the discussion of approaches and methods assembled under the name of media archaeology in an overview article by Strauven, 'Media Archaeology: Where Film History, Media Art, and New Media (Can) Meet', pp. 59–80.

15 Interesting examples are to be found in studies by Huhtamo, e.g. 'From Kaleidoscomaniac to Cybernerd. Towards an Archeology of the Media', pp. 221–224 and 'Elements of Screenology: Toward an Archaeology of the Screen', pp. 31–82.

16 As an example of a media archaeological study, which is, in essence, based on patents as a type of source, see: Kümmel-Schnur and Kassung (eds), *Bildtelegraphie. Eine Mediengeschichte in Patenten (1840–1930)*.

17 See e.g. Sconce, *Haunted Media*; Sturken, Thomas, and Ball-Rokeach (eds), *Technological Visions*; Flichy, *The Internet Imaginaire*; Buschauer, *Mobile Räume*; Huhtamo, *Illusions in Motion.*

appropriation of past and present media technologies.[18] A shared feature of most works on the history of technology and media archaeology study is that they use almost exclusively textually and visually argued types of sources in their reconstruction of media practices.

In sharp contrast to the expert users, amateur users typically provide valuable source material to historians of technology and media historians interested in *actual user practices*. Regardless of the amount of technical skills these two groups tend to have in common, the big difference between them is that experts focus on the product, amateurs on the actual use. Furthermore, amateur source material is easily accessible, whereas expert sources may be protected from rivals eyes by big commercial companies. Contrary to this, amateurs typically share their insights into the actual appropriation of all sorts of technologies as they discuss user tactics in exchange-oriented publication media.[19] They form social communities for sharing their love for and knowledge of technologies and they use and produce a 'cognitive surplus'[20] that is valuable for society at large, as Clay Shirky argued.[21] As such, amateurs produce ready and rich source material, highly relevant for technology and media historians interested in the actual user and appropriation strategies and shifts in the actual use of media technologies, including 'breaking practices' and 'failures' in use, which will be discussed below.[22]

Sources that favour more of an event-historical or phenomenologically oriented analysis perspective, such as mnemotechnical ego documents,

18 See Parikka, 'Practising Media Archaeology', pp. 136–158.

19 See the cascade of examples provided by Lori Emerson in the context of her Lab at the University of Colorado, Boulder: (Accessed 8 September 2016) http://mediaarchaeologylab.com/about/.

20 The term 'cognitive surplus' has two meanings: extra or spare time (surplus) gained from skipping passive activities such as watching TV; and the creation of cognitive extras (surplus) from the extra time gained. See Shirky, *Cognitive Surplus.*

21 Shirky, pp. 161–183.

22 A lot of historiographical research work has been done in the field of early film studies since the late 1980s, partly in a constructive cross-over with media archaeology, reframing the epistemological underpinnings of the field of film history, caught in a narrative on the primitive and poor storytelling capacities of silent cinema, a narrative inherited from the heyday of narratology in film studies in the 1970s and 1980s. Theories can also become history, as André Gaudreault and Tom Gunning famously argued in their seminal 'Early Cinema as a Challenge to Film History' (published in French in 1989). This has resulted in a readdressing of the role technologies played in the history of (early) cinema. See New Film History, a term coined by André Gaudreault. See also Gunning, 'The Cinema of Attraction: Early Film, Its Spectator and the Avant-Garde', first collected in the volume *Early Cinema: Space Frame Narrative* (1990). For an overview, see the anthology: Strauven (ed), *The Cinema of Attractions Reloaded*.

devices, installations, or simulations, have largely been neglected hitherto in historical research.[23]

Re-enactment: Grasping the Materiality and Sensuousness of Historical Objects

What is the epistemological potential of an experimental approach to media historiography with an interest in sensing the past? Our main aim here is to explore and outline the heuristic added value of an experimental expansion of the methodological repertoire of media archaeology, which is geared to discourse analysis. As valuable as these studies are for the historical reconstruction of past-expectation horizons, which, according to Charles Bazerman's concept of 'heterogeneous symbolic engineering'[24] or Mikael Hård's and Andrew Jamison's concept of 'intellectual appropriation',[25] are always the result of a complex interplay of imagination, invention, and marketing strategies, they have very little to say about the complex process of the concrete appropriation and use of devices and objects in people's everyday life.

Drawing from our plea, we will briefly outline the conceptual and methodological features of re-enactment, to leave room for discussion of a series of small experiments, suggestions, and lessons learned. The discussion is focused on the practical and epistemological consequences of such a hands-on approach and the value of re-enactments as a heuristic tool for a technological history of the media. Instead of the intellectual or mental appropriation, at issue in what follows is a search for methods and possibilities to 'grasp' media and communication technologies in their concrete materiality and tangibility. Grasping is to be understood here as a hermeneutical act in the sense given to it by Ernst Cassirer, which comprises both the intellectual process of comprehending as well as the sensory-physical appropriation of getting a grip on things.[26]

In our view, one possibility of methodologically implementing Cassirer's hermeneutic concept of 'grasping' (within the meaning of a critical and self-reflective historical scholarship) lies in the transposition of the concept

23 A recent example of use of such documents is the ADAPT research project on the history of television technology initiated by John Ellis. See online (Accessed 2 June 2017) http://www.adapttvhistory.org.uk/.

24 Bazerman, *The Language of Edison's Light*.

25 Hård and Jamison (eds), *The Intellectual Appropriation of Technology*.

26 Cassirer, 'Form und Technik', p. 52.

of historical re-enactment in experimental practice. The idea of making re-enactment useful as a heuristic concept for historical scholarship stems from the British philosopher Roger Collingwood:

> Historical knowledge is the knowledge of what mind has done in the past, and at the same time it is the re-doing of this, the perpetuation of past acts in the present. Its object is therefore not a mere object, something outside the mind which knows it; it is an activity of thought, which can be known only in so far as the knowing mind re-enacts it and knows itself as doing so.[27]

If Collingwood's idea is expanded to a concrete, hands-on – experimental dimension of knowledge generation, however, then the historian who is interested in objects and sensory aspects can gain concrete experiences with the physiological and sensory qualities of communication and media technologies: through experimental access, these technologies can be grasped in their technical, material, and sensory dimension. In line with this, experimental media archaeology proposes a playful construction of its epistemic object[28] to be put in the hands of the historian/experimenter who 'becomes sensitive to everything which evades pure description', as Michel Serres suggests in his plea for a history of the senses.[29]

Drawing inspiration from experiences in the experimental history of science,[30] experimental archaeology,[31] and historically informed performance in music,[32] experimental media archaeology is geared to generating 'knowledge that provides a springboard for action', which underscores the performative dimension of media and communication technical objects in practice. This means that the intrinsic performative quality of devices

27 Collingwood, *The Idea of History*, p. 218. On the epistemological dimension of the concept of 're-enactment', see Dray, *History as Re-Enactment. R.G. Collingwood's Idea of History*; also Gerber, *Analytische Metaphysik der Geschichte*, pp. 39–48.

28 On the construction of epistemic objects, see Rheinberger, 'Experiment: Präzision und Bastelei', pp. 52–60.

29 Serres, *Die fünf Sinne. Eine Philosophie der Gemenge und Gemische*.

30 For a detailed reflection on the methods, concepts, and findings of the experimental history of science, see Breidbach, Heering, Müller, and Weber, 'Experimentelle Wissenschaftsgeschichte', pp. 13–72.

31 Schiffer and Skibo, 'Theory and Experiment in the Study of Technological Change', pp. 595–622; Saraydar, *Replicating the Past*; Ferguson (ed), *Designing Experimental Research in Archaeology*; Schiffer, *The Archaeology of Science*.

32 Lawson and Stowell, *The Historical Performance of Music*; Butt: *Playing with History*; Bithell and Hill (eds), *The Oxford Handbook of Musical Revival*.

(which tends to be plastic in media devices) and the interaction between user(s) and object become perceptible in the experiment and are then described and reflected upon. Described by Breibach et al. as the cognitive mode of 'heuristic groping', this process expounds, in a playful and reflective manner, the relationship between the knowledge that provides a springboard for action, theoretical knowledge, and ignorance.[33] The aim of this experimental approach can, by definition, never be to reconstruct an authentic historical experience of whatever nature. On the contrary, the aim is to create a situation in which inventories of knowledge available can be unsettled in a creative manner. Only such artificially generated tension between exploratory and experimental knowledge can lead to an experience that Sönke Ahrens refers to as 'education' (as opposed to 'learning' as a process of appropriating inventories of knowledge available and of facts considered certain).[34]

The Archive as Laboratory: 'Thinkering' as Style of Thinking in Education

Since 2010, we have done some small tests, in research as well as education, with experimental media archaeology as a heuristic method, trying to find out whether it can function as a tool that provides new access to the study of past media practices and appropriation in assigning to the historian or archaeologist the role of an experimenter instead of that of a reader or a passive observer. A prerequisite for this change in roles is the creation of an experimental space where it is possible to experiment either with communication and media originals or with replicas in a creative and playful manner – what Erkki Huhtamo has designated as 'thinkering'.[35] The approach is not used by us as a replacement of conventional media archaeology or media history methods, but rather as a methodological supplement, whose greatest heuristic potential may well lie on the didactic, educational front, as we found out.

As a space for one of the experiments with students, we used the Film Archive & Media Archaeology Lab, embedded in the University of Groningen.

33 Breidbach *et al.*, *Experimentelle Wissenschaftsgeschichte*, p. 18.

34 The experience of failure or not succeeding acquires an exceptional function in this process – an insight that is of central importance for the planning or the structure, and organization of experiments. See Ahrens, *Experiment und Exploration*, pp. 17–21 and 266–275.

35 Huhtamo, 'Thinkering with Media: On the Art of Paul DeMarinis', pp. 33–39.

It is one of the prerogatives of such collections that most objects may actually be touched and manipulated in hands-on experiments, as they are neither unique, nor rare, nor valuable.[36] On and off, the archive's educational space is used as a *laboratory*: what Simone Venturini called a 'handmade environment for using the technology available and the human and corporal reclaiming of the technology'.[37] (At other moments, the space is used for seminars.) After a tour through the archive, we present a series of devices to students as part of their introduction to film and media studies. They are invited to touch, operate, and 'play' with some of the historical devices in the archive, e.g. a magic lantern, lantern slides, a Zeiss Ikon 35 mm projector, an anamorphic lens; a replica of a nineteenth-century stereoscope; and a series of optical toys, a view master among them (see Figure 2.1–2.5). The invitation to tinker with the Zeiss Ikon 35 mm projector (or what is left of it), with a hand crank that still functions, allows students the fun of hearing the (to some familiar) sound of the sewing machine when the pull-down mechanism goes up and down, and the dry clicks of the Malthezer cross and the flapping of the projector's double-bladed shutter, which is relatively loud and, without failure, raises questions about film's silent era: silent? Really?! We have been doing these experiments annually since 2010, with 100 to 200 hundred students divided into small groups of about 20 students from all over the world (the language of instruction is English). Often, a quiz-like buzz of asking and guessing is triggered amongst the students by these small hands-on operations. Where do these funny sounds come from? Was the machine meant to make such noises? What is that repulsive smell coming from the film reel? (vinegar syndrome). What is this?! An anamorphic lens? (see Figure 2.6) What does an anamorphic lens *do*?

It should be stressed here that most of the actions by the students in this specific introductory class are not framed to experience the technology's proper place in history or to learn how to operate it in terms of former use. Students are simply invited to touch, smell, hear, look, experience, and play with the device; indeed, most of the students' actions look beyond the normal use or purpose of the device. It is in no way a technology class for students who need to learn how to make or repair technologies. In many ways, our educational experiments are much closer to what artists and

36 The collection of apparatuses was donated by Tjitte de Vries and Ati Mul with the explicit objective of use in education. The full collection was a donation from the Vrienden van het Nijmeegs Filmarchief, Catholic University of Nijmegen (now Radboud University), and the collection was used for film projection mainly in days when DVD and video were rare.

37 Venturini, 'Technological Platforms', p. 202.

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artist-amateurs, or art-students do in their studios (e.g. the students of the Amsterdam Rietveld Academy for the Arts, Department for Unstable Media, with whom we have started doing experiments too): they do tinkering experiments with media technologies that are not useful for a technician, but are highly interesting for an artist in terms of testing the sensorial and expressive, performative potential of a device. Such 'aesthetic experimentations' with media devices are described by Simone Venturini as 'practical operations on the technology and material of a reflective nature'.[38] Emilio Garroni typifies them as 'a mainly meta-operational activity'.[39]

38 *Ibid.*

39 Emilio Garroni 1977, cited in Venturini, p. 202.

What makes these small operations so effective in educational terms is the strong aesthetic and performative impact of media devices. The first thing students experience and comment on are the sensorial, tacit, and expressive dimensions of the experience. As a result, the smallest hands-on experiment already triggers the imagination and indeed helps the students to reclaim technology corporally (Venturini 2013, p. 202). In fact, there is so much fun and laughter involved that one would forget that, usually, students claim to suffer from technophobia when asked to read a chapter on historical technology. In the hands-on didactic context, we also use drawing as an additional tool to explore experiences. Once the tinkering stops and the devices leave the lab, the students are invited to draw from their memories, to re-imagine and then draw a picture of one of the devices (often the Zeiss Ikon 35 mm projector). What we learned from this is that there is an additional element of regressive pleasure in all these activities; for example, being invited in an academic context to play with toys and to make a drawing, two things, many students told us, they had not done since their childhood. From these small introductory experiments, we have come to understand that these additional pleasures, too, make the hands-on experiments a valuable educational tool, and in some ways kick-start reading about technology and media history.

If experimenting is understood in the sense of Sönke Ahrens's differentiation of the exploratory and experimental form of discovering the world as a style of thinking, which, instead of relying on a certain theory is characterized by processes of collecting, tinkering, and translating, experimental media archaeology can make a contribution to (media) historical *education*, which expands the conventional forms of historical learning to a dimension of sensing the past and theoretical-perception perspectives.[40] Learning as an 'explorative form of discovering the world' and education as an 'experimental form of discovering the world' constitutes a complementary relationship of necessity, according to Arens: 'The frequently encountered intellectual separation of the learning of facts and playful experimenting as an activity, which occurs independently from those facts, entails an essential separation of what structurally belongs together, namely: learning as facts considered certain so be able to open up an unforeseen event in an educational process.'[41]

As many studies in the field of the experimental history of science have shown, the epistemological added value of an experimental approach to

40 Arens, *Experiment und Exploration*, p. 271.
41 Op. cit.

the history of the sciences also lies in exposing the complex interaction of objects, practices, ideas, and participants involved on the one hand, and the experience of failure on the other.[42]

Reflections on Experimenting in Home Mode

If laboratories or workshops are seen as spaces of action, where different actors and actants engage in a complex interaction, the question arises how this space is to be designed for media archaeology experiments in which the focus of attention is, apart from the technical devices themselves, the place where these devices are appropriated and used, as well as the social constellation in which this occurs. Since the home can be considered as the privileged locus for the appropriation and use of communication and media technologies, the arrangement of a domestic environment seems entirely appropriate for conducting media archaeology experiments. As the 'central integration power' (Gaston Bachelard)[43] and the 'museum of the soul' (Mario Praz),[44] the home is the symbolic place for experiencing the whole of life, and, as such, often also the place for the 'domestication' of new communication and media technologies.[45] The living room has a special role to play as a material and social ensemble, according to Hans Peter Hahn, as the privileged space of conspicuous consumption.[46] The biographies of objects and their users are intertwined in the living room and are thereby consolidated into a socio-technical topography.[47] According to this hypothesis, this special topography should be taken into consideration in the experimental re-enactment, in order to not only analyse the 'language of things', but also to try the playful 'dialogue with things'.[48]

An initial media archaeology experiment in the domestic appropriation of family films in different media technology devices has shown the importance of understanding the experiment also as a social, communicative, and

42 Heering, Markert, and Weber (eds), *Experimentelle Wissenschaftsgeschichte didaktisch nutzbar machen*; Heering and Witje (eds), *Learning by Doing*.

43 Bachelard, *Poetik des Raumes*, p. 33.

44 Praz, Histoire de la décoration d'intérieur, p. 19.

45 On the concept of domestication, see Silverstone and Hirsch (eds), *Consuming Technologies*.

46 Hahn, 'Von der Ethnografie des Wohnzimmers', p. 13.

47 See Woodward, 'Material Culture, Narratives and Social Performance. Objects in Contexts', pp. 151–168.

48 Hahn, 'Von der Ethnografie des Wohnzimmers', p. 16. See also Riggins, 'Fieldwork in the Living Room. An Autoethnographic Essay', pp. 101–147.

collective practice. This experiment was conducted as a 'performance' at the International Orphan Film Symposium 2014 in Amsterdam, and stemmed from a research project on the history of family films.[49] This media archaeology experiment featured three scenes of domestic use of amateur film technology, based on a prepared script, representing the different possible amateur film dispositifs: first, the '8 mm dispositif' (with 8 mm camera, projector, and projection screen), second the 'video dispositif' (with video camera, video recorder, and television set), and, third, the 'mobile telephone dispositif' (with the mobile telephone as camera, recorder, and playback medium). The purpose of this experiment was to attempt to confront the theoretical considerations of experimental media archaeology with practical experiences. In other words, to juxtapose explorative speculation with experimental-practical knowledge. A short film montage of the experiment is available on Vimeo.[50] Perhaps the greatest cognitive value of the public staging of the experiment lay in what one of the researchers of the project, Susan Aasman, described as the 'art of failure' in her review of the performance:

> One of the biggest lessons was in fact a major failure. In the first scene, at a particular moment, the father failed to wind the reel in the projector. And even worse: when the film was finally in the projector, the lamp broke and we were unable to screen our home movie. Bad luck, but [...] the audience laughed. And even more surprisingly, they accepted this moment as part of the screening practice. They thought it was a moment that was scripted! That moment of laughter made us aware of the importance of people's relation with technology. And this becomes most clear at those moments when technology fails. Or better put: when people's interaction with technology becomes a struggle.[51]

Furthermore, the staging also aimed to leave behind the conventional forms of the transfer of knowledge at academic conferences (lecture) by a theatrical staging of the topic. A 'lecture-performance' was chosen to

49 This NWO-supported research project with one postdoc and two PhDs was headed by Andreas Fickers; three books on the project, by Susan Aasman, Tom Slootweg, and Tim van der Heijden, respectively, are forthcoming.

50 A short film montage of the experiment / 'performance' produced by Tim van der Heijden is available at: (Accessed 8 September 2016) http://vimeo.com/95314562.

51 Details on the project, a documentary film sequence of the experiment, and a critical review by Susan Aasman are available at: (Accessed 8 September 2016) http://homemoviesproject.wordpress.com/report-staging-the-amateur-dispositif/.

enable the audience to take part in the research process – and partake in findings through sensory perception. In her study entitled 'Der Vortrag als Performance' [The lecture as performance], Sibylle Peters argues that the lecture-performance makes it possible to subvert the scientific scheme of research versus presentation and to make audiences participate in research projects by performancing experiments *on-stage*.[52] In other words, the idea of the media archaeology experiment as a medium for the generation of knowledge is combined with the situation of the performance as the actual transfer of knowledge through the lecture-performance format.

If the social dimension of historical ways of media appropriation and use are to be investigated in the case of the experiment with the different home-movie dispositifs described here, role plays (as in academic seminars) provide an opportunity to assign specific roles to actors participating in the experiment and thus have them experience how the production as well as consumption of family films frame 'the home' and 'the family' in equally large measure. As 'formatted spaces of participation', these spatial as well as socio-cultural factors shape the habits and rituals of all participants: those in front and those behind the camera, as well as on the projection screen or monitor.[53] The complex social interactions played out in the background of the production and consumption practices nonetheless influence the 'result' – in this case the family film – which Martina Roepke has designated as 'ensemble play'.[54] Our experiment has clearly shown that the re-enactment method can make an essential contribution to becoming aware of this 'ensemble play' and thus to reflect thereon as a significant experience. This post-experimental reflection on the experiences through one's own body and senses certainly changes the analytical perspective on traditional types of sources, which, as argued at the start of this chapter, reflect certain types of users and user experiences each time. In this way, the media archaeology experiment is not only the producer of a new type of knowledge inventory for the historical reconstruction of past media practices, but it also changes the analytical perspective through its phenomenological-experience dimension.[55] Thanks to experimental education, the historian's attentiveness easily changes and with it the critical perspective on traditional types of sources: the historical interpretation attains a new degree of complexity.

52 Peters, *Der Vortrag als Performance*, p. 187.

53 Müller, 'Formatted Spaces of Participation: Interactive Television and the Reshaping of the Relationship between Production and Consumption', pp. 47–61.

54 Roepke, *Privat-Vorstellung*, 2006.

55 See Waldenfels, *Phänomenologie der Aufmerksamkeit*.

Conclusion

Experimental media archaeology is not about the reconstruction of authentic historical experiences. Instead, it is geared to raising the awareness of participants in the experiment about the functionalities ascribed to the materiality of the object (what can and cannot be done with a device), as well as the symbolic nature (design, semantics, interfaces); the explication of implicit inventories of knowledge and ignorance (knowledge that provides a springboard for action); the creative disconcertion of available knowledge (education through failure); the reflective analysis of the performative dimension of technical objects (object as medium) and the reflective analysis of the tactile; the sensorial dimension of technical objects (object as art work); as well as the critical reflection of the situation dynamics in the experimental space (between the object and the experimenter as well as between different actors).

The heuristic re-enactment method can be used to gain new insights into the temporality ascribed to the communication and media-technology devices – the intriguing noises produced by old film projectors, the repulsive smell of corrupted film reels, the magic created by optical toys, the limited shooting time of 8 mm amateur film reels, the short playing time of a shellac record, or the long exposure times of photographic cameras, the tacit knowledge of the weight of magic lanterns and lantern slides: all this is grasped altogether differently through the experimental approach to the object than through explorative readings of user's instructions or how-to manuals. Re-enactments re-sensitize experimenters to the sensorial and performative dimensions of media use and sharpen their attention to such aspects (or lack thereof) in the source material. Furthermore, re-enactments, such as in makeshift laboratory spaces in the living room, enhance the reflexive awareness of the spatial and topographic dimension of past media practices – as regards to both the production and consumption of contents transmitted through media technology. This practical insight into the space-time conditionality of past objects and equipment provides a better historical and critical understanding of the expressive, constructivist nature of communication and media-technology content (photographs, films, audio recordings), though the perceptual imprint of the materiality of technical media (Kittler) is mostly obscured on the level of the representation and easily escapes attention. The knowledge that provides a springboard for action generated by the experimental approach thus makes an important contribution to historical-source criticism and raises awareness among

media and technology historians about the significance of the senses in the cognitive process as well as the sensory nature of technical objects.[56]

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