Materializing the Medium

Staging the Age of Humans in the Exhibition Space

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News about environmental damages and catastrophes has become so commonplace that it often elicits only a short and fleeting expression of shock, anger, and resignation before life goes on as before. In societies increasingly insensitive to such news, it is often single images rather than elaborate news articles fed by complex scientific findings that trigger global attention. Such was the case in November 2017 when images of garbage patches flowing in the Caribbean, shot by underwater photographer Caroline Powers, travelled around the globe and created a concert of outcry from scientists, politicians, activists and the general public.[1] Powers' striking images were picked up by traditional media such as daily newspapers, weekly magazines and TV shows, but were also spread widely via online (social) media channels.

The issue of garbage, whether it is the plastic in the oceans or electrical waste in African landfills, is rightfully very present in the debate about humans' impact on planet Earth. As direct result of energy- and resource-intensive lifestyles in many, though far from all, regions of the Earth, garbage directly points to a set of key questions we are facing today and in the future: Where will we get sufficient raw materials for building our intricate consumer goods such as mobile phones? Where do we deposit what we discard? The fact that we take too much from the Earth and return too much of the wrong stuff has, among other things, led to the current discussion about a new geological age: the Anthropocene. Originating in the geological sciences—whose specialists have traditionally been considered as a rather secluded, if not eccentric bunch–the Anthropocene concept suggests that human beings have deeply, long-lastingly and often irrevocably shaped and changed the earth's geo- and biospheres and that there are valid geological records which justify the recognition of a new geological time period following the current Holocene. The Anthropocene Working Group (AWG), which currently con-

[1] Caroline Power Photography, Facebook page, under: https://de-de.facebook.com/carolinepowerphotography/; The Giant Mass of Plastic Waste Taking Over the Caribbean. BBC News, 6 October 2017, under: http://www.bbc.com/news/av/world-41866046/the-giant-mass-of-plastic-waste-taking-over-the-caribbean (2 February 2018).

sists of 37 members from the field of geology, although other natural sciences and even the humanities are represented, is working on specifying these geological changes and finding the Anthropocene marker—the golden spike—that would allow for a scientifically solid and official declaration of the Anthropocene as the current geological era.[2] In a recent article, the AWG has pointed to entirely human-made materials such as plastic, cement, or pure metals, to the sudden disappearance of particular fossils due to species extinction, and to the accumulation of radionuclides from atomic bomb tests as powerful empirical evidence for the geological Anthropocene.[3] Beyond the geological debate, however, the Anthropocene has long since entered into the arts, public debates, and even economy and policy-making. Newspapers and magazines, TV, film and art have jumped on the bandwagon and try to shed light on the term, the concept and its impacts.[4] As a buzzword, substantiated with more or less solid knowledge of its origin, meaning and defining characteristics, it has entered popular discourse particularly in more fluid media channels. Nevertheless, despite the fact that the term and concept are very young and, in fact, still very much under discussion, the Anthropocene has already come to an end for some—or rather should never be declared. Instead, scientists and publicists of different backgrounds and agendas have made their case for a number of alternative *-cenes* such as the capitalocene, plantationocene, carbocene, chthulucene, or the mediocene as the current issue of this periodical suggests.[5] From the viewpoint of someone who has tried to make sense and use of the Anthropocene concept for a wider audience, this seems odd, a bit hasty perhaps, and at times can even smell of academic narcissism. By no means should this be read as a definite argument for the Anthropocene and against alternative concepts.

2 Subcommission on Quaternary Stratigraphy. Working Group on the ›Anthropocene‹, under: https://quaternary.stratigraphy.org/workinggroups/anthropocene/ (2 February 2018).

3 Colin N. Waters et al.: The Anthropocene is Functionally and Stratigraphically Distinct from the Holocene, in: Science 351/6269 (2016), pp. 137–149; Colin N. Waters et al.: Global Boundary Stratotype Section and Point (GSSP) for the Anthropocene Series: Where and How to Look for Potential Candidates, in: Earth-Science Reviews (December 2017), under: https://doi.org/10.1016/j.earscirev.2017.12.016 (13 February 2018).

4 The Anthropocene (UK/KY/NO/CH 2015, Steve Bradshaw), under: http://www.anthropocenethemovie.com/; HKW Anthropozän-Projekt, under: https://www.hkw.de/de/programm/projekte/2014/anthropozaen/anthropozaen_2013_2014.php, Scobel: Rasante Veränderungen. Der Mensch und die Erde, 3Sat, 8.9.2016, under: https://www.3sat.de/page/?source=/scobel/188336/index.html (13 February 2018).

5 Donna Haraway: Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin, in: Environmental Humanities 6 (2015), pp. 159–165; Donna Haraway: Staying with the Trouble: Making Kin in the Chthulucene, Durham, NC 2016; Christophe Bonneuil and Jean-Baptiste Fressoz: The Shock of the Anthropocene. The Earth, History, and Us, London 2016.

But it does seems as if the difficulties of coming to grips with the concept of the Anthropocene, of ›making it work,‹ has led some to escape into even newer labels, most of them with similar heuristic and definitory difficulties and shortcomings.

In addition, the rather long history of the ›idea‹ behind the Anthropocene concept, which reaches back a few centuries, is too often neglected, making it difficult to see the differences between and advantages offered by competing terms and concepts. Although it is still surprisingly new to many engaged in the discussion, the idea of thinking of humans as geological agents is by no means an invention of the 21st century. Already in the 1880s, the Italian geologist Antonio Stoppani created a strikingly similar label for what he thought was a decidedly different period in Earth's history: the anthropozoic age. He spoke of humanity as a »new telluric force which in power and universality may be compared to the greater forces of earth.«[6] And a few years earlier, George Perkins Marsh published *Man and Nature*, a book which includes a detailed list of geographical areas where humans heavily influence their environments. Geologists, philosophers and others took up this line of thought and explicitly described humans as »geological factors« or »geological agents.«[7] The mineralogist and geochemist Vladimir Vernadsky emphasized how closely human life was connected to the biosphere and geosphere, focusing on the cognitive capacities of humans that were heavily influencing the Earth's biology to the point that it seemed reasonable to him to add the »noosphere« of human thought to the system of spheres.[8]

Of course, the world of Marsh, Vernadsky and others was a different one from ours. In this respect, it makes sense to turn to the role of media and mediality and think about how they have played into the processes that are currently and often irrevocably changing planet Earth.

The core postulate of the mediocene concept is the fundamental and pervasive role that media plays for our understanding of the Earth, including the changes that we bring about. In this understanding, media is no longer simply a vehicle or a tool for communicating content and knowledge; it is co-producer of this knowledge and shaper of reality. As such, media gains a new material quality because it

6 Antonio Stoppani: Corso di Geologia, Milano 1873.

7 George P. Marsh: Man and Nature, New York 1864; Ernst Fischer: Der Mensch als geologischer Faktor, in: Zeitschrift der Deutschen Geologischen Gesellschaft 67 (1915), pp. 106–149; R. L. Sherwood: Man as a Geological Agent: An Account of His Action on Inanimate Nature, London 1922; Edwin Fels: Der Mensch als Gestalter der Erde, Leipzig 1935. For a good summary of the Anthropocene idea and precursor concepts see Christian Schwägerl: A Concept with a Past, in: Nina Möllers, Christian Schwägerl and Helmuth Trischler (eds.): Welcome to the Anthropocene. The Earth in Our Hands, München 2015, pp. 128–129.

8 Vladimir Vernadsky: Geochemistry and the Biosphere, Santa Fe 2007; Vladimir Vernadsky: La Biosphere, Paris 1929.

literally forms our Earth and our perception of it. According to the IKKM's definition of the mediocene, »media of communication and transport, of observation, of surveying and surveillance, of representation and visualization, and of calculation, are deeply involved with contemporary planetary perspectives.«[9] Those in support of a Mediocene concept do not ask so much for a substitution but rather a complementation of the Anthropocene concept by emphasizing the dynamics of different forms of media. Highlighting the agency of media beyond its mere technological being is, however, not so new after all. For quite a while, the history of technology has understood technological devices as actors and mediators in their own right, forming a part in various, often intertwined networks that consist of living and non-living things. In particular, Actor-Network-Theory, developed in Science and Technology Studies (STS) in the 1980s and heavily defined by Bruno Latour's work, has focused on the agency of technological objects.[10]

Another issue to be grappled with in the Mediocene is the definition of ›media‹. Due to its omnipresence and pervasiveness, digital media has taken a front seat in forming and communicating the debates about humans' impact on Earth. The changes we are bringing about are often global, they become particularly evident from a global perspective and they can only be confronted and dealt with in a global setting. At the same time, however, the global often remains diffuse and uncanny while the local, the here and now, and the concrete become dramatically visible and tangible. As shocking as the images of the plastic patch in the Caribbean may seem, for many it is the unusual drought, more frequent flooding, or the eerie silence of a summer without bees that really hit home. Bringing the near and far together, combining the tangible and intangible, the interplay of the blatant and the latent: these mark the playground of the exhibition as medium, in which time and space overlap in a way that is nearly impossible for other media to achieve.

The following paper will take the first large exhibition on the Anthropocene worldwide—»Welcome to the Anthropocene: The Earth in Our Hands,« shown at the Deutsches Museum in Munich from December 2014 to September 2016—

9 The Mediocene. Media and Planetary Transformations, under: http://www.mediocene.de/ (2 February 2018).

10 Bruno Latour: Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts, in: Wiebe E. Bijker and John Law (eds.): Shaping Technology, Building Society, Cambridge, MA 1992, pp. 225–258. For STS and user-centered studies in the history of technology see also Wiebe E. Bijker, Thomas P. Hughes and Trevor J. Pinch (eds.): The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology, Cambridge, MA 1987, Nelly Oudshoorn and Trevor Pinch (eds.): How Users Matter. The Co-Construction of Users and Technologies, Cambridge, MA 2003; Madeleine Akrich: The De-Scription of Technical Objects, in: Wiebe E. Bijker and John Law (eds.): Shaping Technology, Building Society, Cambridge, MA 1992, pp. 205–224.

as a starting point for some very preliminary thoughts on the characteristics, potential and limitations of exhibitions as mediums and framers of a Mediocene. From a retrospective standpoint, I will first look at two examples of image use in the exhibition and then proceed to discuss the spatiality and then the materiality of objects as materialized media. I will conclude with a discussion of exhibitions as examples of slow media and their potential for the Anthropocene and/or Mediocene.

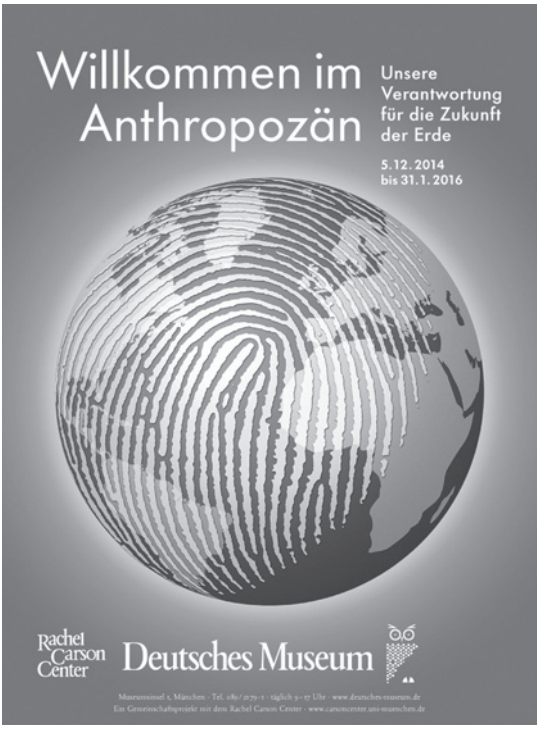

Fig. 1: Exhibition poster »Welcome to the Anthropocene. The Earth in Our Hands,« Deutsches Museum, Munich

The motif chosen for the exhibition poster was simple and straightforward—and very powerful: the Globe, reminiscent of the iconic photo made by the Apollo 17 mission in 1972 and later used in the developing environmental movement, overlaid with a large human fingerprint. The idea of the global is indeed a fundamental one for the perception of the Anthropocene as the sum of changes brought about by humans. Globality, along with the pace and scale of the change, distinguishes the impact humans have today from earlier periods, for example in the Neolithic Age or before the Great Acceleration that began in the 1950s.[11] It comes as no surprise, therefore, that the Munich exhibition started off with an installation focusing on the global picture. Embedded in an artificial flower landscape, a large steel-and-metal-cube served as the framework for more than 50 monitors that provided different medial content on the Anthropocene, including the short film Welcome to the Anthropocene (CA/SW 2012, Owen Gaffney/Felix Pharand-Deschenes) in eight languages, two

11 On the great acceleration in connection to technology and the discussion on the degree of human impact, see Helmuth Trischler: The Anthropocene from the Perspective of the History of Technology, in: Nina Möllers, Christian Schwägerl and Helmuth Trischler (eds.): Welcome to the Anthropocene. The Earth in Our Hands, München 2015, pp. 25–29 and Helmuth Trischler: The Anthropocene. A Challenge for the History of Science, Technology, and the Environment, in: NTM 24/3 (2016), pp. 309–335.

Fig. 2: View into exhibition with media cube, object shelf and participatory flower landscape

animated explanatory films on the history of the concept and the geological debate, and a slide show with famous quotes in twenty languages. The centerpiece featured a film on loop, consisting of 20 one-minute presentations, that covered Anthropocene phenomena ranging from resource depletion and climate change to energy, agriculture and the population boom to global inequalities and the loss of cultural and language diversity.

Historically one of the most used media for understanding the Earth—the map—was displayed on another set of monitors that showed selected »Views of the World« maps by Benjamin Henning.[12] These cartograms visualize important environmental issues such as carbon dioxide emissions, the amount of land area used as croplands and pastures, the development of megacities, airplane routes, water insecurity, and—at the height of its crisis—Ebola deaths. Henning's maps stem from his PhD thesis, in which he developed a technique aimed at making the relationship between humans and their environments visible and comprehensible with the help of new digital tools. In contrast to traditional maps, it is now relationality, rather than simple representational quality that takes center-stage. Using digital technology, the resulting gridded cartograms stretch the map in ac-

12 Views of the World: The World in 2018, under: http://www.viewsoftheworld.net/ (13 February 2018).

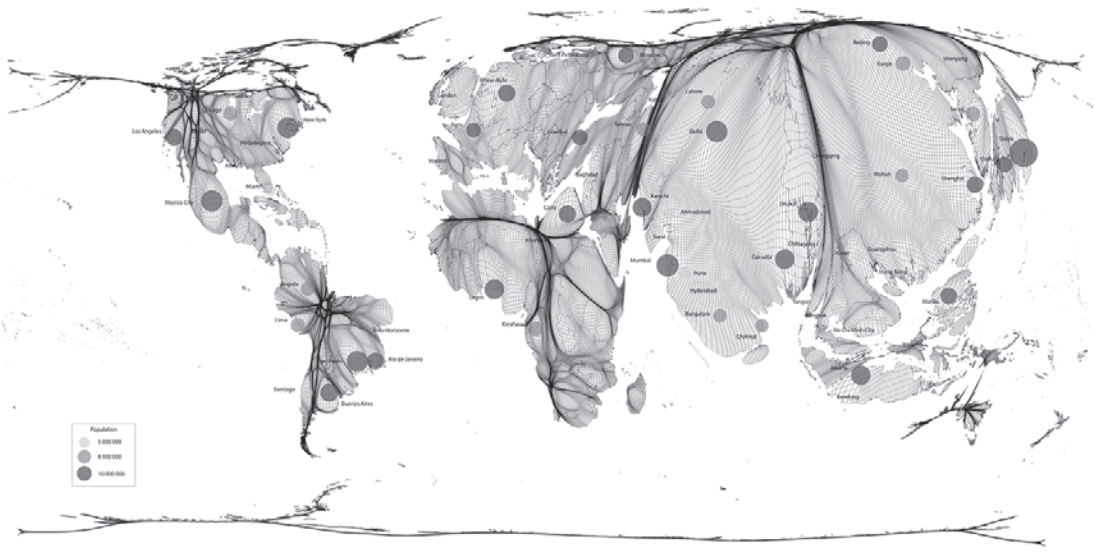

Fig. 3: Cartogram of World Population and Megacities, 2015

cordance with the input of quantitative data, while a density-equalizing cartogram technique is applied to an underlying grid, so that reference to the geographical real world is maintained.[13]

Henning's cartograms showcase the relevance of media in a twofold way: First, their relational focus and unique view on the matter at hand are direct outcomes of a digital technology that has only been available for a comparatively short period of time. Secondly, by using this technology, the developed cartograms attain a medial power beyond the sheer content inherent in maps. Their image power stems from the relationality they exhibit: the world is not flat, not the same in every region of the planet, but rather often extremely diverse and antagonistic, often to the breaking point. Looking at some of the maps, it becomes dishearteningly clear that although we might all be in the Anthropocene, we are not all in it in the same way;[14] and that while it is a story about everyone, it is also not a story about equality.

13 Views of the World: Rediscovering the World, under: http://www.viewsoftheworld.net/?p=1925 (13 February 2018); Benjamin D. Hennig: Rediscovering the World. Map Transformations of Human and Physical Space, Heidelberg 2013; Michael T. Gastner and M. E. J. Newman: Diffusion-Based Method for Producing Density Equalizing Maps, in: Proceedings of the National Academy of Sciences USA 20/101 (2004), pp. 7499–7504.

14 This statement was coined by US-American environmental historian William Cronon in the final discussion of the Anthropocene Slam at the University of Wisconsin-Madison

Images of the globe have always had powerful effects on humans. As already mentioned, seeing the blue marble in all its beauty and vulnerability has inspired many to rethink their relationship with Earth. One of the major problems of this perspective, however, is that we tend to see ourselves in a manner that is humble, but also belittling. Paradoxically, beholding the global leaves us deeply impressed at the same time that we lose the drive for change since we consider ourselves too small and too few to make a difference. As only part of a mass of billions, we hide behind the cynical idea that our minor endeavors will not meaningfully impact the overall, global picture.

In terms of perspectives and zooming, the images of *Daily Overview*[15] that were presented as the centerpiece of the exhibition section on »Nature« took a middle path in the look and feel of an art gallery. Covering agriculture, fishing, industry, mining, and cities, the images were presented as the Anthropocene heirs to classical landscape masterworks by Rembrandt, Cézanne, Turner, and Friedrich, showing ›cultural landscapes‹ around the globe where humans have left and are continuing to leave their mark in one way or another. Questioning the persistent Western dichotomy between nature and culture, they asked for a reconsideration of what we view as nature and natural and its innate aesthetic beauty. What these images succeeded in doing was to position the beholder firmly between the local, the private and the potentially trivial on the one hand and the global, the public, and the overwhelmingly important on the other. Approaching the installation, many visitors were first enticed by the beautiful colors and patterns of the images, only to find themselves dumbfounded when they realized that they were enjoying the ›beauty‹ of an environmentally toxic and morally questionable aluminum waste dump.[16]

The effect of the images on the visitors was to a large part due to their arrangement in the horizontal gallery installation. One of their primary traits, the three-dimensional space used by exhibitions makes them very particular and powerful mediums. Coupled with its unique fluidity in time, this spatiality of exhibitions is advantageous for the interpretation and communication of the Anthropocene,

in November 2014, referred to by Libby Robin in her talk »Slow Media,« Anthropocene Campus, Haus der Kulturen der Welt, Berlin, 14 November 2014, https://www.hkw.de/de/app/mediathek/video/36160 (13 February 2018).

15 Daily Overview, under: http://www.dailyoverview.com/ (13 February 2018).

16 The Daily Overview-installation was ranked as one of the most liked elements of the exhibition in the evaluation. Cf. Leysan Khafiatullova: Visitor Survey of the Special Exhibition »Anthropocene« at the Deutsches Museum, Munich. M.A. Thesis, TUM Munich, 2015. For the image of the aluminum waste dump near Darrow, Louisiana see http://www.dailyoverview.com/ or Benjamin Grant: Overview. Faszinierende Bilder unserer Erde aus dem All, München 2016, p. 242.

thus distinguishing exhibitions from other types of media. As arguments in space, exhibitions mediate messages by using not one, but many communication tools combined in myriad possible ways. As multimedial compounds, they use both material objects that have varying origins, forms and contexts, written texts, calligraphy styles, infographics, images, films, models, hands-on demonstrations, and installations. More significantly, exhibitions present these in a mise-en-scène setting, put together with the help of architectural elements, display cases, lighting, graphics, acoustics design, and route planning, all of which together stages an orchestrated dramaturgic event. How its messages are read, however, is not completely controllable within an exhibition. Its content is available synchronously and each visitor decides for him- or herself which route to take, in what order, what to skip, and what to concentrate on. Differing from the theater, visitors have a say in the dramaturgy of the exhibition. And in contrast to virtual reality, where space is often only the shell for an installation, space in exhibitions is an active and materialistic designer and shaper of reality, which visitors experience through the movement of their bodies.[17] In a way, exhibitions focus less on representation and more on staging, so that their documentation always already amounts to a strong interpretation. Their multimediality and potential for non-linear, circular, or even anarchic ordering holds particular promise for the interpretation of the Anthropocene. In exhibitions, more than in any other place, it is possible to glide back and forth between different geological periods and geographical spaces and simultaneously view both the materiality and the meaning of the Anthropocene. It becomes possible to wander about from one display to another, to make detours, or even to turn back without ending up in a conceptual or literal dead-end. In their spatiality, exhibitions offer »contact zones«[18] where it is not only the two aspects (namely, the geological and the social) of the Anthropocene concept that meet, but also categories formally constructed in opposition to one another, such as nature and culture, humans and environment, natural sciences and humanities, and past, present and future.[19]

Changing our perspective on time and extending it beyond traditional scales is indeed one of the main challenges of the Anthropocene.[20] Competing for rele-

17 Stefan Paul: Kommunizierende Räume. Das Museum, in: Alexander C. T. Geppert (ed.): Ortsgespräche. Raum und Kommunikation, Bielefeld 2005, pp. 355–356.

18 James Clifford: Routes. Travel and Translation in the Late Twentieth Century, Cambridge, MA 1997.

19 Cf. Nina Möllers: Das Anthropozän: Wie ein neuer Blick auf Mensch und Natur das Museum verändert, in: Heike Düselder, Annika Schmitt and Siegrid Westphal (eds.): Umweltgeschichte: Forschung und Vermittlung in Universität, Museum und Schule, Köln 2014, pp. 225–226.

20 Bronislaw Szerszynski: The Anthropocene Monument. On Relating Geological and

vance with studies on the future and in light of geological timescales relevant to the study of deep history, historians in particular are working towards a new (self-) understanding of time and history.

Exhibitions offer a serviceable tool because they are similar to what Mikhail Bakhtin has described in his theory of the novel as the chronotope,[21] in which time and space coincide as a unit with its own temporalities and narrative structures. Here, it is possible to open up the gap between the Carboniferous Period 300 million years ago—in many ways a precondition for the industrialization processes that have ultimately led us into the Anthropocene—and the long future of the year 12,000 when the so-called Clock of the Long Now is supposed to still run, even if there are no longer humans around to maintain it.[22] Making use of the fact that historical objects are metonymic—they bridge past and present by remaining identifiable as the same object throughout time—[23] this grand timescale was visualized and spatialized in the exhibition room by juxtaposing a steam-engine of the 19th century and a research model of the Clock of the Long Now being built into a limestone mountain in Nevada. The exhibition space is thus mediatized as a sort of time-compressor on the basis of material objects that can be seen, heard, smelled and touched. The ability to reach far into the beyond while rendering it palpable and real is one unique to exhibitions.

In various ways, exhibitions showcase some of the main characteristics that have been similarly formulated in the »Slow Media Manifesto« as a reaction to the profound technological changes, particularly in the digital and social media world, since the beginning of the 21st century. According to the authors of the manifesto, slow media first and foremost promotes monotasking. Although even (museum) exhibitions are nowadays experimenting with cross-media elements that reach into the digital and social media realms, the exhibition fundamentally remains a medium that cannot be consumed casually, but rather requires the full attention of its audience. In fact, exhibition ›consumers‹ are closer to the ›prosumers‹ propagated by the manifesto because they actively shape their consumption experience.

Human Time, in: European Journal of Social Theory 20/1 (2017), pp. 111-131. For a current research project on the question of evidence practices in the context of this debate, particularly the challenges of differing timescales, see Fabienne Will: Negotiating and Communicating Evidence: Lessons from the Anthropocene Debate, in: History of Knowledge, January 26, 2018, under https://historyofknowledge.net/2018/01/26/negotiating-and-communicating-evidence-anthropocene-debate/ (13 February 2018).

21 Michail M. Bachtin: Chronotopos, Frankfurt am Main 2008, referred to in Alexander Klein: Expositum. Zum Verhältnis von Ausstellung und Wirklichkeit, Bielefeld 2004, p. 102.

22 The Long Now Foundation: The 10,000 Year Clock, under: http://longnow.org/clock/ (13 February 2018).

23 Klein: Expositum (as note 21), p. 37.

Charting their own path through the exhibition space at their own speed and choosing to read some texts and disregard others, visitors are far from the mindless, uncritical herd of sheep that we supposedly often witness in the consumption of digital media. Thirdly, exhibitions are in fact what the slow media concept seeks out: discursive, dialogic social media in the true sense of the word. Even visitors reluctant to participate in hands-on activities or participatory elements engage in and with the exhibition in a way that is seldom possible with other media. Dialogues and discourses happen on many different levels: between sections and topics of the exhibition, between beholder and contemplated object, and between humans—whether among a visiting group or family (often intergenerational), between unrelated visitors, or between visitors and mediating museum staff. Finally, slow media is characterized by an auratic quality, generating »a feeling that the particular medium belongs to just that moment of the user's life. Despite the fact that they are produced industrially or are partially based on industrial means of production, they are suggestive of being unique and point beyond themselves.«[24] This is obviously true of temporary exhibitions, but even permanent ones (which despite their name are anything but permanent) are not usually consumed on a regular and frequent basis, indeed, they are often a once-in-a-lifetime event. Some are quickly forgotten, others—or at least parts of them—remain with us for a long time. Although architecture, installations, and scenery are helpful, it is often the objects—themselves surprising, beautiful, mysterious or shocking—that make us halt, contemplate, rethink and remember. Exhibition objects have the power to blur and transcend the boundaries between object and subject; in a way, exhibition objects may even become subjects themselves in a network of actors shaping our lives and our planet. Through the visitor's personal and immediate engagement with them (even if they are kept behind glass), objects have the potential to »show, not tell« a story—a core belief of exhibition curators. In contrast to the collection setting, the exhibition space both allows objects to be experienced as material objects, but, in presenting them as sign vehicles, also show them to be meditators.[25]

Material objects intentionally or inadvertently created by human activity serve as superb points of crystallization and conjunction, at which relations, applications, experiences, and opinions towards certain issues meet and have become material, waiting to be decoded. In their materiality, they conserve history, tradition, knowledge, and use while they are simultaneously wrested from their original contexts. In museological terms, objects in exhibitions constantly oscillate be-

24 The Slow Media Manifesto, under: http://en.slow-media.net/manifesto (14 February 2018).

25 Anke te Heesen: Verkehrsformen der Objekte, in: Anke te Heesen and Petra Lutz (eds.): Dingwelten, Köln 2005, p. 54.

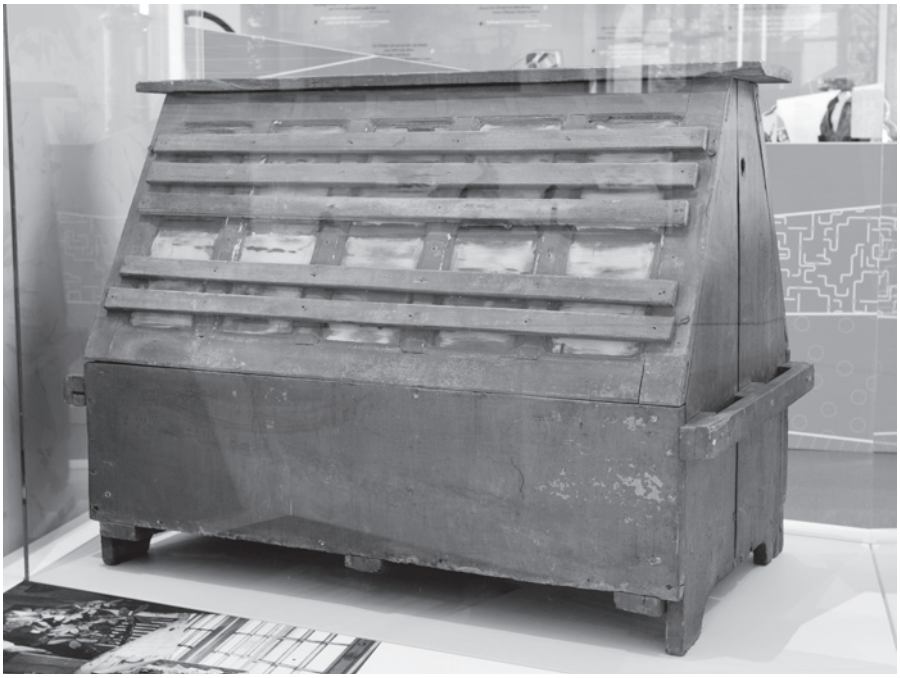

Fig. 4: Wardian case, early 20th century, loan from Botanic Garden and Botanic Museum Berlin-Dahlem

tween actualization and latency, speaking to a temporal differentiation between the here and now of the present and other time(s) embedded in the object.[26] In an age when humans have become a major shaper of planet Earth, objects serve as intersections, possessing both material reality and symbolic power. Their materiality reflects the ways they have been produced, consumed, collected and disposed of, creating a bridge between the geological sedimentation of the Anthropocene and its relevance as a framework for thinking about the human impact on the bio-, geo- and socio-spheres.[27] Embedded in a global network of things while charged with personal and local meaning, objects are particularly well-suited to concretize the Anthropocene, to make it imaginable and even tangible, and thus to provide a focal point and base not only for reflection and discussion of Anthropocene phenomena and effects, but also for necessary action.

26 Ulrike Vedder: Museum/Ausstellung, in: Karlheinz Barck et al. (eds.): Ästhetische Grundbegriffe. Historisches Wörterbuch in 7 Bänden, vol. 7: Supplemente, Register, Stuttgart/Weimar 2005, p. 183.

27 Möllers: Anthropozän (as note 19), p. 225.

For concrete examples, let us examine two objects that were shown in the Munich exhibition.

The first is the so-called Wardian Case, included in the section on »Mobility«, which addressed the manifold ways humans, whether as consumers, travelers, or refugees, have set ourselves and the world around us in motion. Knowingly or unknowingly, other species travel with us and our cargo, and by creating barriers, we stall movement or redirect natural material flows. Until the 19th century, however, there were natural limits to these human-induced movements. Excessive sunlight, harsh weather, sea spray, and temperature fluctuation, for example, made the shipment of live plants and their continued growth at new locations nearly impossible. In 1829, all this changed when English doctor and naturalist Nathanial B. Ward somewhat accidentally devised the Wardian case.[28] When plants were put in a glazed wooden crate with damp soil, they profited from the water vapor created during daytime heat, thus helping them survive long voyages without damage. The Wardian case became a reliable container for moving live plants with commercial potential such as bananas, rubber, and tea from their original habitats through botanic hubs such as Kew Garden in London to other parts of the Earth, particularly to faraway European colonies in Asia and Africa. Between 1891 and 1907, the Botanical Garden in Berlin alone transported circa 16,000 plants to Cameroon, Tansania, Togo and Papua New Guinea. Of course, all of these stories are not automatically visible to the beholder of the object in the exhibition. In fact, objects do not ›speak‹ to us, as a long-held curatorial dream would have it. Their appropriation and recontextualization in collections and exhibition settings allow knowledge and meaning to be perceived, accepted, refused, modified, and complemented by the visitor. The communicative and mediating quality of objects consists in both what they are—their materiality—and what they mean; in contrast to words, the relationship between materiality and meaning is not arbitrary.[29] In its green color and heavily used condition, the three-dimensional Wardian Case showcased in the exhibition thus materializes more than a century's worth of intertwined global histories of knowledge, economy, colonialism, and environment. As an active part in a network of actors consisting of humans, plants, political entities, technological objects, and materials, the Wardian case transcends temporal boundaries pointing into the potentially deep future of human geological imprint upon the Earth.

28 Luke Keogh: The Wardian Case: Environmental Histories of a Box, in: Environment and History, forthcoming (accepted 08-05-2017); Wouter van der Weijden, R.J. Lewis and Pieter Bol: Biological Globalisation: Bio-Invasions and Their Impacts on Nature, the Economy and Public Health, Amsterdam 2007, pp. 31-32.

29 Lorraine Daston: Introduction, in: Lorraine Daston (ed.): Things That Talk. Object Lessons from Art and Science, New York 2004, p. 20.

Our second object example is something more akin to a museum of technology. Although for conservation reasons we discouraged our visitors from touching the SYNchron-TELe-MANipulator, or Syntelmann for short, we chose to present it as proximately to visitors as possible. Face to face with this machine, the question inevitably arises: What is an object, what is a subject? Engineered and manufactured by Hans Kleinwächter in 1973, the Syntelmann consisted of a human-operated exoskeleton, a ›master,‹ and a ›slave,‹ connected via cable. Controlled from a distance and equipped with sensors, cameras, and motor-powered joints, it was meant to perform tasks in environments too hazardous for humans, such as the deep sea, outer space, or nuclear power plants. Movements were transmitted electronically from the ›master‹ to the mechanical manipulator, which was up to 100 meters away. However, Syntelmann never advanced beyond the prototype stage. Today, exploratory robots still have difficulties when remote control by humans malfunctions or is otherwise not possible. The robots used in the nuclear reactor Fukushima, destroyed in 2011, had limited movement ability due to large amounts of rubble. The unpredictable conditions were beyond the robots' capabilities; instead, 25,000 human workers cleaned up the accident. Nevertheless, Syntelmann already hints at the possibility on the horizon that machines may in fact become independent of their makers and develop into autonomous artificial intelligence, which at some point may no longer be controllable.

The growing number of technological things and their materials that surround us and that create a technosphere in relation to the bio- and geospheres are in fact discussed as a prime characteristic of the Anthropocene and potentially even one of its geological markers.[30] Interestingly enough, although our lives are becoming increasingly digital, influencing how we consume, work, play, and even love, and despite our technological devices growing into communicating networks, we are simultaneously hoarding more and more things in our private and public lives. At the top of this list are the numerous hardware devices used for the exploration of virtual and digital worlds. In an ironic twist, it seems that digitization and the heavy use of digital media appliances has resulted in a turn to clinging, sometimes desperately, to materiality.

On closer inspection, this may in fact be not so surprising since, after all, many of our traces on planet Earth are very material indeed: from the mounds of aluminum, cement, or cow manure to gas pipelines, dams, and the plastic garbage patches in the Caribbean. Their stories and effects are part of mediatizing networks of surveillance, analysis, transportation, and communication, forming our understanding, knowledge and communication, but they are also undeniably material.

30 Jan Zalasiewicz et al.: Scale and Diversity of the Physical Technosphere: A Geological Perspective, in: The Anthropocene Review 4:1 (2016), pp. 9–21.

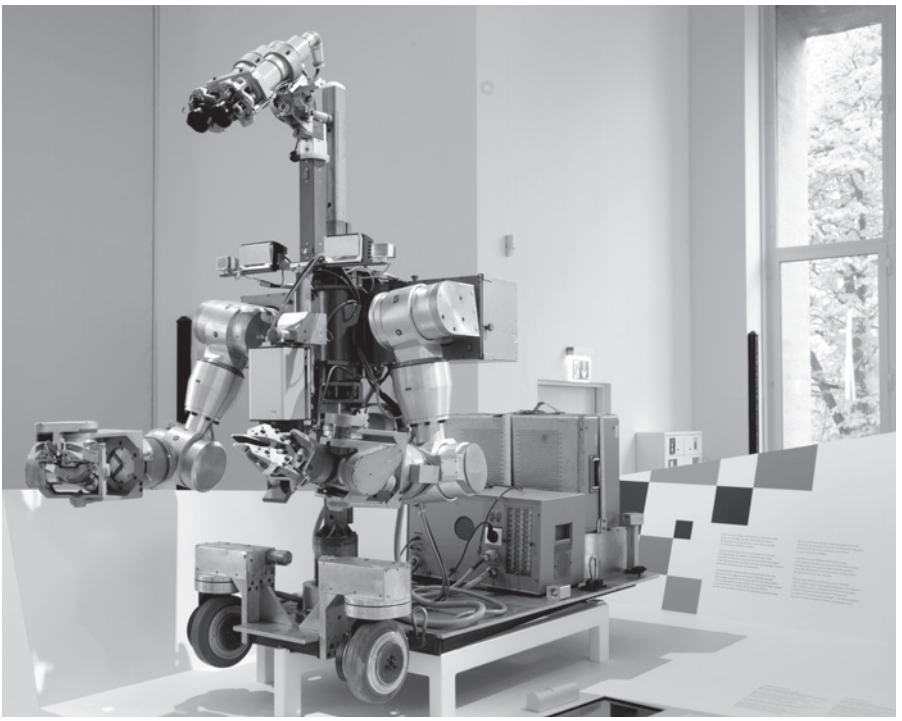

Fig. 5: Electronic manipulator »Syntelmann« RS 21/4, 1973, manufactured by Hans Kleinwächter, Inv. No. 1978-63

The charm of the Anthropocene concept is that it maintains a clear connection to the geological thesis at the origin of the discussion; a connection that, to my mind, is needed if the concept is supposed to have any meaning beyond academic circles and become a tool with transformative power for transdisciplinary change. Too much emphasis on mediality results in de-materialization, perhaps even in detachment from the problem at hand.

In the theoretical and methodological discussion about the Anthropocene and the Mediocene, exhibitions may help as counteracting, or at least as balancing, mediums. Unique in that they allow for the immediate contemplation of the human impact on Earth in a way that transcends temporal and spatial boundaries, exhibitions also succeed in rendering knowledge personal. And in this there lies the potential to reach far beyond what has rightfully been criticized as the anthropocentrism and the hegemony of the Anthropocene concept.

One of the supposed advantages of the term and concept Mediocene is that it avoids the innate hubris of (certain segments of) humanity by focusing on the network, which may include many other human or potentially non-human play-

ers. Yet, to my mind, this wrongfully reduces, if not completely misunderstands, the Anthropocene concept and instead overestimates the Mediocene. What of hegemony, insofar as access to media networks is anything but equal on a global scale? Inserting such a question into the debate over the Mediocene of course does not invalidate its viability, and perhaps the concept of the Mediocene is indeed the more promising one with which to make sense of global inequality. It is a task for the future to put flesh on the bones of the concept in order to make it usable as an analytic tool. The additional value of the Mediocene cannot lie in its blurring of categories such as nature and culture, or in its integrated network viewpoint that fashions a human technosphere, other biological organs and non-living, and technological actors, because these are already contained in the Anthropocene concept.

We may in fact be in need of the prominence of the root *anthropos* in the Anthropocene. In light of the social and political transformations that are needed to meet environmental challenges, do we not need to highlight the role of humans as actors? As a public institution aimed at promoting citizen science and encouraging public engagement, the most gratifying success of our exhibition, as evinced by the results of the visitors' survey, was to motivate individuals to learn more on their own about the Anthropocene and its attendant issues beyond the exhibition room.[31] In order to elicit personal concern and to trigger the will to contribute to the tasks before us, it remains important to convey the role and power that humans have in the networks that shape our planet. If we had left our visitors only with the idea that nameless and faceless systems control our world, personal engagement and motivational impact would not have been achieved.

Granted, the working ›definition‹ of the Mediocene as found on the IKKM website makes no claim to be complete, but it does strike me that in its list of »media of communication and transport, of observation, of surveying and surveillance, of representation and visualization, and of calculation,«[32] the word ›media‹ could easily be substituted with ›technology.‹ What could the powers of definition entail if we focus on media instead of technology, as studies on the history and sociology of technology have long done? And how can the Mediocene be differentiated from the Technoscene, which is already being floated around as a competing term? Speaking from the perspective of the history of technology, I would warn against oversimplifying technology and particularly against neglecting human agency and power out of fear of coming across as anthropocentric. Humans are important actors. They invent, develop, and use technology. Nevertheless, ascribing agency to technological devices and networks does not entail curtailing the human agency or the power to define. The concept of the Anthropocene, I believe, offers exactly

31 Khafiatullova: Visitor Survey (as note 16), pp. 20–22.
32 The Mediocene (as note 9).

the source of friction that is needed to create a meaningful debate with theoretical and methodological merit, one that is not confined to academia, but which has the potential to reach beyond it, to public and political discussion, where it might even translate to real and meaningful action. The Anthropocene does not stylize the human being as a creator free to act as s/he pleases, but, on the contrary, it prevents us from relinquishing our responsibility. Using the Mediocene idea to sharpen, rather than to replace, the Anthropocene concept may be the better option for providing answers in a world that is growing more and more complex.

Picture Credits:

Fig. 1: Deutsches Museum

Fig. 2: Deutsches Museum, Photo: Axel Griesch

Fig. 3: Benjamin Henning, www.viewsoftheworld.net

Fig. 4+5: Deutsches Museum