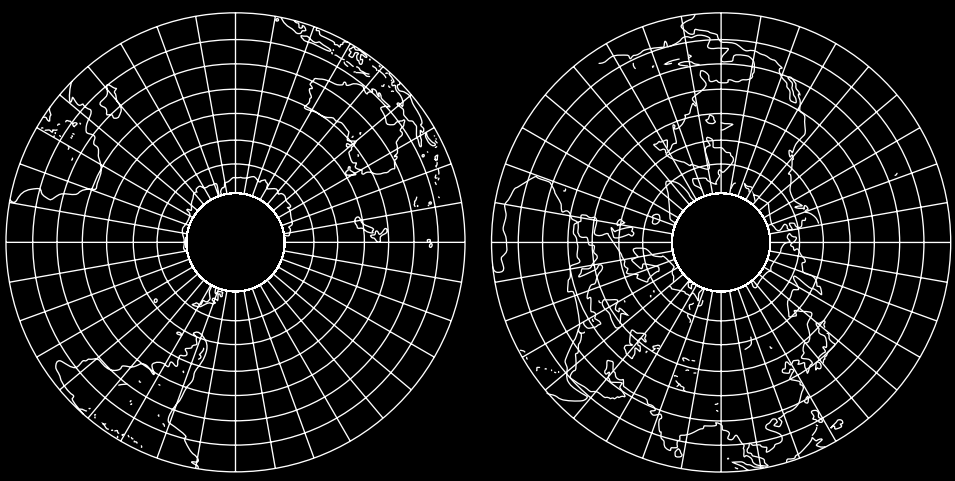
THE DIGITAL MEMORY OF PALMYRA–



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Maps and Open Source Data as Decolonization Tools

The following essay[1] focuses on both the potential and influence that maps and mapping strategies have in a time of political and geopolitical crisis, disaster, and wars, particularly in the Middle East and in Syria in specific. The conflicts in the Middle East have notably demonstrated the Internet's importance for information gathering and sharing, as well as surveillance and intimidation. The use of maps, satellite images, photos, or other open data collected from the Internet may help to monitor, secure, rebuild, and to restore cultural objects in war-torn regions in times at which physical access has become dangerous or impossible, and where cultural heritage has been lost through terrorist acts. Examples of such open databases include ASOR's Cultural Heritage Initiatives or 3D models of damaged architectures of the ancient city of Palmyra. The following examples and strategies discuss different uses of data, whether it be capture, production, or data mining and management.

Taking a map-centered view is fruitful from at least two perspectives: cartographic thinking as a concept of decolonizing, and maps as a tool to assist in geopolitical crises. Maps have become powerful in four particular ways: As an epistemic object, as a tool for spatial analysis, as a blueprint, and to claim ownership. Furthermore, maps provide new access to knowledge and promote knowledge production alongside the increase in georeferenced data (since Web 2.0). I will argue, first, that open data and mapping strategies can contribute to the formation of a new understanding of a digital memory of Palmyra that is emerging within a broader context of critically rethinking "digital imperialism". Second, I will reflect on the implications for a decolonizing of data politics and the emergence of a digital culture through new technologies. Third, I will argue that maps and mapping can be used as tools for memory, reconstruction, criticism, or artistic intervention. A tremendous amount of effort has been placed in archiving, collecting, and distributing satellite imagery and open data through new spatial technologies, particularly in endangered areas. Open data can contribute to construction of a digital memory and has the potential to make artistic and cultural heritages immortal. In the digital world, such projects and archives should be open, freely accessible, and reusable since culture belongs to everyone. But who should build, own, and archive these data sets?

A SHIFT IN MAP-MAKING

The emergence of critical cartography in the 1980s (particularly with Harley 1989; Harley/Laxton 2001, i.a.) and current discourses about decolonizing maps have also coincided with new approaches to map-making (see Wood 1992; Crampton 2010; Dodge 2016; et. al.). Since this shift, mapping has become a powerful tool of resistance by minorities to top-down authorities as knowledge producers (or gate keepers).

01 This essay's core concept was mainly developed during an international research visit by the author to the Winchester School of Art, University of Southampton in the autumn semester of 2017 and was first discussed with the Archaeologies of Media and Technology (AMT) research group. I am very grateful for the comments received at the gathering and would especially like to thank my hosts Ryan Bishop and Jussi Parikka, and my colleague Jennifer McHugh.

As a consequence, maps are being created that are not just intended for spatial orientation and navigation purposes. On the contrary, such maps produce new kinds of epistemology and knowledge, be it, for example, through participation, appropriation, or counter-knowledge. Such counter-maps (Peluso 2011 [1995]) are commonly created and represent an important tool for enforcing the rights of socially disadvantaged people resulting from power, hegemony, and top-down claims (land registers for the clarification of property rights).

A second, even bigger shift in map-making emerged with Web 2.0 in digital cultures. New forms of interaction appeared between users, networked infrastructures, and the space around us alongside the development of the geospatial Web (see Ash/Kitchin/Leszczynski 2019). Users are no longer just passive but are instead becoming designers of their world (prosumers). Information is geotagged in the Geoweb to physical space via mashups and location-based services and applications. Maps are about to become interfaces to locate data and information with the growing importance of georeferenced content on the Internet in the West. In other parts of the world, the move to mobile devices with GPS trackers has enhanced an existing governmental capacity, evidenced by various states enacting territorial surveillance like Saudi Arabia or Turkey (see Pickles 2004). Those new interfaces have been triggered by the function of locality of person and device, changing the relationship between users, machines, and space, and this directly affects the use of map tools. As a result, places are becoming increasingly comprehensible as a network of relations and connections. Furthermore, there has been a democratization in map-making. This has caused a clash between institutional vs. user-generated/produced geodata with an emphasis on proprietary vs. open data. Users are able to create their own map mashups out of spatial data, since (top-down) institutions like Google Maps spreads its APIs through the Web. Although democratization

is being established, it still excludes large sections of the population due to insufficient internet access and/or a lack of knowledge and devices.

However, there are alternatives to the supremacy of top-down forms of map-making, like Google Maps, through Volunteered Geographic Information (VGI) cartography (see Goodchild 2007). One example of an open and collaborative tool is OpenStreetMap (OSM). This free online map was founded by Steve Coast and is based on the wiki principle (Open Data Commons and Open Database License). The map content is created and brought together by the crowd and is put onto a cartography Commons. Specifically, satellite images are digitized and existing materials are collected from public sources. The data are available as raw data (vector-based accessible data), which allows for the extraction, editing, and creation of new forms of maps, and they may be used free of charge and license-free. One critical drawback with Open Source GIS is that only a minority contributes to the cartography Commons. Commons are not only important in terms of independence, but they are just about absolutely necessary when institutional engagement is either missing or where it is failing. This potential problem is related to the intention to produce, and the actual production of, map material for and by developing and emerging countries, for example.

A remarkable case is the *Haiti Map* (2010) which has changed humanitarian aid from the ground up. A high-resolution satellite image of Port-au-Prince was usable just a few hours after the earthquake and, as a result, several hundred volunteers had supplemented the online map with life-saving information after only a few days (see Schranz 2018). This map was only possible with the tremendous increase in georeferenced data and new forms of map-making. A cartography Common, known as the Humanitarian OpenStreetMap team (HOT), was founded after the provision of this

very effective form of assistance to Haiti, with a view to assisting in cases of natural disasters and crisis situations (see also Chapman 2015). The technological possibilities to create Common-based, bottom-up initiatives like the Haiti Map have fostered a change.

With open data, there have also been remarkable shifts in dealing with destroyed, stolen, or damaged art and cultural heritage in conflict-riddled zones. This is reflected in the Middle East, where alongside the damage and destruction of cultural heritage there has also been an effort by local activists and partners in archiving, collecting, and distributing open data about the destroyed artefacts like American Schools of Oriental Research (ASOR) or the Million Image Database. The ASOR's Cultural Heritage Initiatives is an international collaboration that undertakes projects to document, protect, and preserve the cultural heritage of war-torn Syria, northern Iraq, and Libya. The Million Images Database collects millions of images of threatened cultural objects that have been captured on an easy-to-use, 3D camera by volunteers in conflict zones throughout the Middle East and North Africa.

MAPS AND MAPPING IN TIMES OF POLITICAL AND GEOPOLITICAL CRISIS

For the first time in history, it was possible to see things close up, access to which had not previously been allowed, was impossible or could only be undertaken at high risk; this was done through the use of digital Geographic Information Systems (GIS). Internet activists discovered, for example, the CIA's secret prisons, cultural crimes being carried out in the Middle East, or revealed the impact of the Gulf War by using satellite images and open maps. Furthermore, the war started to become separated from the space in which it was happening. It became a technological war with drones and missiles directed at their targets

remotely, far away from the conflict zones. Laura Kurgan, from the spatial research department of Columbia University in New York, has elaborated on how digital maps and satellite images had a significant influence on the Gulf War. Back in 1991, Kuwait built up a GIS database as a planning tool within its surveillance regime by combining satellite images with digital maps. Military intervention and the rebuilding of post-war cities happened in an entirely new way through this database (The Kuwait National Database, Intergraph Corp.). Firstly, it was possible for the US to plan their counter-invasion and targets from far away, from a desktop. Secondly, the images were conveyed in real time to the public. Thirdly, the Gulf State used their database as a blueprint to preserve and to reconstruct the damaged cities (see Kurgan 2013: 90).

By layering the geographic information, each item or list element on the Internet has a physical location, a georeferenced grid of pixels. Therefore, it may be associated with a geographic information system and be rendered visible on a digital map. Once localized, data can be related to various elements and layered onto maps. Although the Internet has always been geographically anchored by IP addresses, router addresses, domain names, and so on, the move to mobile devices, which also have GPS trackers, has caused the Internet's georeferenced content to become spatially organized. This organization has become a form of knowledge, creating content, and ordering as a form of authority, referring to geographic coordinates. This georeferencing has transformed the map into a universal interface tool to access its content. The reasons for the paradigm shift are, on the one hand, the emergence of GeoMedia, and the new possibilities offered by combining open data, satellite images, and mapping on the other.

The Global Positioning System (GPS)[2] created in the 1970s by the United States Department of Defense triggered a boom in space-based services, such as online maps or satellite imagery. When GPS first became available for private purposes, location transmissions were still very inaccurate, not least because of interference on the part of the military for whom the system had been originally developed. At the same time, GPS changed how space and location are both used and looked at. As I pointed out in *Die Karte als Interface* (Schranz 2017), satellite navigation systems for locating and recording georeferenced data have become dramatically more important. The world around us has become increasingly comprehensible with the help of satellite images. The sheer size of space is reduced such that it fits on a screen. Satellite images are compelling in their use as visual interpretation, although reading the recordings requires specific expertise and there is a danger of manipulation. It has become common to see the world from above through the many circulating satellites that exist. Images of the Earth's surface are being taken from government and commercial satellites and, more recently, by drones as many humanitarian organization do, since satellite images are not easily accessible and are costly.[3] Although these pictures are highly vulnerable to abuse, examples of which we shall explore later, the monitoring and space-analysis of satellite imagery over an extended period have been useful in locating and assessing damage in crisis or conflict zones in the Middle East. Palmyra, for example, was a cultural heritage site that was no longer accessible after ISIS's occupation. There was no secure information about the damage and destruction of the site (apart from the propaganda footage of ISIS). Therefore, the United Nations was forced to

02 GPS is a satellite-based navigation system that can be used for positioning and navigation for both static and mobile devices.

03 https://www.elrha.org/project-blog/scaling-open dronemap-for-the-humanitarian-sector/

confirm the damage by using satellite images: UNOSAT[4] referenced satellite images of the heritage site before and after local people commented about explosions in the area.[5] ○ FIG.1

THE TRUTH BEYOND MAPS AND MAPPING

As I have pointed out previously, maps have had a significant influence on war as visual epistemes and through the use of open data and satellite imagery.[6] In their small publication, *Before and After. Documenting the Architecture of Disaster*, Eyal and Ines Weizman elaborate on images taken from satellites or drones "which also turns spatial analysis into an essential political tool" (2018: 11). At the same time – with the use of the Internet as a propaganda tool for terrorists – it has become hard to trace the truth, given how much fake news is currently in circulation. The international collective *Forensic Architecture* – founded by Eyal Weizman and based at Goldsmiths, University of London – seeks to investigate the damage done in Homs by monitoring open data. In July 2013, different aerial images of Homs were circulated throughout the war-torn districts when it had been secured by the regime. The Babal-Sbaa media centre published pictures of the al-Khalidiya district on Facebook. The opposition Shaam News Network (SNN) released other photos taken by a drone purporting to show the same neighborhood. Those pictures were credited and republished by Getty Images. *Forensic Architecture*

04 The United Nations Institute for Training and Research's satellite-analyzing and monitoring program.

05 https://www.unitar.org/cultural-treasures-ancient-city-palmyra-destroyed accessed November 15, 2017.

06 This goes back to the famous map of *Carte figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813* by Charles Joseph Minard (1781-1870) to the Napoleonic campaign in Russia around 1869.

analyzed street-level photos and aerial images of the al-Khalidiya district in order to investigate what damage had truly been done, since the images provided by the regime and the rebels were different. By geo-locating the area, they could prove that the SNN pictures showed a different area, the Karm Shanmsham district. ○ FIG.2 This illustrates how manipulative and difficult georeferenced data can be for users. Information is more easily manipulated with user-generated data, and the community's influence through social bots on the high standards usually shown in investigative journalism should be obvious. Republishing data without verification of authorship or proofing credits makes the public believe that trustworthy agencies have supplied the images. (see Dische-Becker/Hisham 2014). Open data and its reliability should also be questioned, as well as fake news, and high standards of journalism should be sought out.

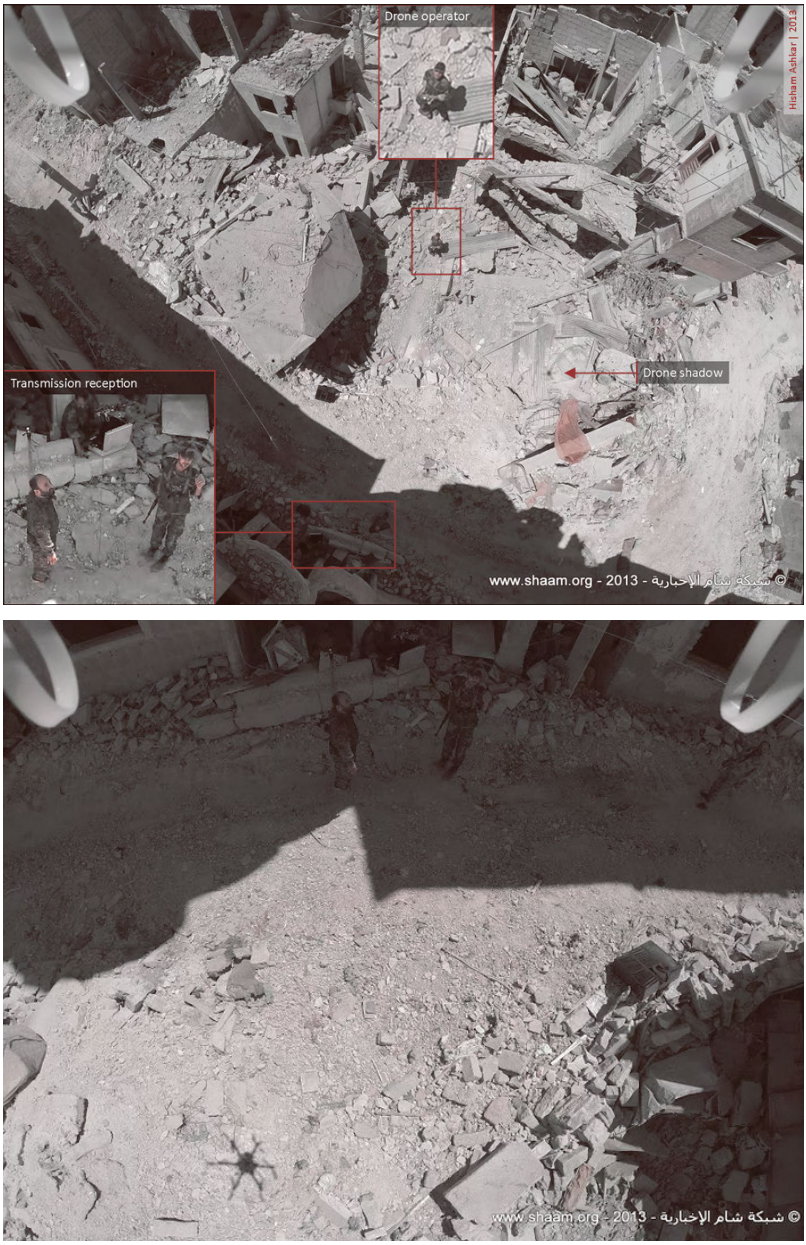
As I have suggested previously, maps are forms of representation that aim to reproduce space as accurately as possible; however, maps are not just objective tools, but are instead a form of power (see also Monmonier 2018), self-interest, and political ideologies. Maps have always been a tool of and for authority, and those who drew or had the money to commission them have often been very powerful too. In digital cultures, a radical change has happened to cartography as a discipline, as well as to maps as a medium. With open data and access to online GIS, maps and mapping have become an everyday tool. Nowadays, it is a common practice to produce one's own maps or to add locations to existing maps. However, the hegemony of maps still exists, even with this more democratic approach. What has changed is a shift from the public function of institutions, like the National Geographic Society, to private companies, like Google. Maps have become increasingly important since Web 2.0, and the online and free of charge mapping service Google Maps dominates the market. Google's

supremacy and global influence points to one fact above all: today's cartographers are computer scientists. In 2012, the British historian Jerry Brotton pointed out that all maps will probably be produced by machines, codes, and algorithms in a few years. If this is true, then future cartographers will not even be computer scientists, just 'computers'. Today, it has become a fact that maps are built by algorithms and AI (Artificial Intelligence) without verification. Another critical point is that Google keeps the codes on which the maps are based secret: "For the first time in recorded history, a world view is being constructed according to information which is not publicly and freely available. All prior methods of map-making ultimately disclosed their techniques and sources, even if, as in the case of sixteenth- and seventeenth-century mapmaking, they tried – but failed – to withhold its detail from their competitors" (Brotton 2012: 431f). Although, the downstream map products and services of Google are based on raw geodata, Google provides a rendered view of their maps (in grid converted public vector data), which makes it impossible to revise the map. In other words, Google's map services are proprietary and based on a closed data system. It can be concluded that Google is pursuing the commercialization of maps solely for financial gain, since the maps serve as an interface to their own database of maps/geodata.

DECOLONIZING STRATEGIES THROUGH CARTOGRAPHICAL THINKING

The idea that maps are an objective and scientific image of the world is still a widespread myth. However, this dominant worldview is influenced by a Western cultural hegemony. Since the Renaissance, we have been thinking cartographically in ways that have shaped the Orient's geopolitical imagination. Historically, an allocentric worldview prevailed during the Renaissance (with Europe in the center),

● FIG.1 ▶ The destruction of the Temple of Bel. Image analysis UNITAR-UNOSAT, 27 August 2015 and the destruction the Temple of Baalshamin. Image analysis 26 June 2015.



● FIG.2 ▶ Fake pictures made by SNN with drones: "Screen capture of an aerial image published by SNN on July 29, 2013" and "Close-up of the men visible in an aerial image published by SNN show the presumed drone operator, transmission recipient and shadow cast by drone".

leading to a north-south orientation and a zero meridian through Greenwich. This Eurocentric perspective builds upon the tradition of the Mediterranean-based cartography of the Greeks and Romans. Yet, the decentralization of Europe and correspondingly the West is an essential critical impetus for rethinking colonial space and bottom-up movements. Early and remarkable maps, which questioned the standard mentioned above, include the *Dymaxion Map* (1943) from the US-American designer, Richard Buckminster Fuller (1895-1983) or the *Peters-Projection* (1974) by the German historian and cartographer, Arno Peters (1916-2002). Their design, which uses exact land masses, are considered as an alternative to the common Mercator map, which shows a Eurocentric perspective. Space, spatial strategies, and cartographic thinking occupy a central position within (post)colonial approaches. The provocative thesis by the American-born Palestinian Edward Said (1935-2003) that the Orient is a Western construct is more relevant than ever within critical cartographical thinking. He argued that the Orient was invented as an ideological tool for the West to justify imperialism and colonialism (see Said 2003). His thesis, though heavily debated by both the West and the East, was a key point of departure in postcolonial studies and a critique of Eurocentrism. As Shalini Randeria has shown at the beginning of the 20th century, Europe owned over 85% of the globe's territory in the form of colonies, protectorates, and territories (see Randeria 2010: 177). In other words, this immense geographical appropriation is brought into sharp focus by geographical practices like cartography. In this way, cartography transforms annexed spaces into legible, ordered and, therefore, controllable imperial territories.

Google launched the Google Cultural Institute (GCI), today Google Art & Culture[7] (Yeo/

07 https://artsandculture.google.com/

Schiller 2014: 47) in response to the plundering of the National Museum in Baghdad. The project's aim is to digitalize and to make cultural artefacts available on the Internet (as yet, there has been no indication on the Internet that this has happened with the objects of the National Museum, see ○: "At a time when cultural institutions should be decolonized instead of googlified[8], it is vital to discuss a project such as the Google Cultural Institute and its continuous expansion – which is inversely proportional to the failure of the governments and the passivity of institutions seduced by gadgets" (Juárez 2016: 186). The critical point, once again, is the hegemonic and commercial background of such closed platforms, products, and services. Although users can suggest additions and improvements, Google ultimately determines what is disseminated through its platform and what is not; respectively, who benefits and how they may do so from their services and products. Critical questions in terms of a digital postcolonialism arise alongside the progress of new technologies: "Unlike in colonial times, in contemporary technocolonialism the important narrative is not the supremacy of a specific human culture. […] the goal is to have the best technologies to turn it into data, rank it, produce content from it and create experiences that can be monetized" (Juárez 2016: 184). A strong case could be made for arguing that copies of the artefacts should be displayed in Western museums, and with the advantage of new technologies in postcolonial times, and that the originals could be given back to the states to which they belong – as has been repeatedly discussed in the press lately and discussed in academic and cultural contexts. The American-Iraqi Artist Michael Rakowitz uses decolonial strategies by including copies of artefacts in dominant value and trading systems. In his ongoing project, *The Invisible Enemy Should*

FIG.3

08 For further information about the term *googlified* and the effect of *googlization* see *The Googlization of Everything* (2011) by Siva Vaidhyanathan.

● FIG.3 ▶ Map of Google Art and Culture, 2017.

Not Exist (since 2006), he makes replicas of plundered, damaged, or stolen objects from the National Museum in Baghdad. His true-to-scale reproductions are made of papier-mâché and are covered with Arabic newspapers and packaging from Middle Eastern food sold in the US. His replicas are treated as contemporary art and exhibited in commercial galleries. The British Museum acquired some of his sculptures and displayed them alongside the original artefacts in the Mesopotamia collection. As a result, they have been integrated into the art market and might, potentially, come into the possession of collectors and institutions. Rakowitz's work can be seen as an approach to how digital IT hegemonies, like Google Art & culture, can be subverted. With Google Art & Culture, Google is pursuing its strategy of cultural imperialism with inequalities and divides in digital cultures. It seems more appropriate for such initiatives to be developed by locals, bearing this in mind and with the awareness of a still Western-dominated postcolonial hegemony. These provocative statements raise questions about new forms of a digital and cultural memory. It deconstructs colonial thinking and demands a critical examination of the ongoing impact of the West through colonial thought patterns, knowledge, and representations.

WHO BUILDS A 'NEW PALMYRA'?

Why have I chosen Palmyra? I explored heritage sites in the Middle East, specifically in Syria, by using mapping strategies during a research fellowship at Winchester School of Art, University of Southampton. The research was set up along the tension of an institutionalized memory (top-down) and an emerging digital cultural memory (bottom-up). The resulting project "*A journey to Palmyra*" is a contribution to the formation of a digital memory and claims that bottom-up strategies may well be equivalent to the traditional top-down approach.

In 2015, Islamic State (ISIS) occupied Palmyra, seized it as its own property, and used it for its propaganda purposes. This came as a shock, since the heritage site had been considered secure in some Western opinions; it was a vision that could not disappear and it 'belonged' to European history. It was inconceivable that it could be overrun. There were fears that it would be looted, damaged, and destroyed after the occupation, as had already happened to other such sites in the North-East of Syria and the West of Iraq, the Mosul Museum in particular, the second biggest Museum in Iraq after the National Museum in Baghdad. By then, Syria had been partitioned into three main regions controlled by the Regime of Bashar al-Assad, the Syrian Rebels, and ISIS respectively. ISIS propaganda had become one of the most powerful vectors, through the public staging of their crimes. They posted a video on the Internet blowing up the temple of Bel and the temple of Baalschamin, the Tetrapylon, and the triumphal arch. The footage went viral; the medial effect was tremendous. The cultural site's destruction triggered a viral iconoclasm "in fact, even though strictly forbidden to display images, ISIS uses all the technical means of image production and distribution in the mass media, especially on the internet" (see Bredekamp 2016: 27, translated by the author). Palmyra was already a well-known site prior to the war. The ancient city became known all around the world after ISIS used it to stage its crimes and abused it for its media propaganda. The destruction and looting of cultural property by terror organizations, as an act of annihilating and rebuilding history, had a huge impact. There have been similar acts against universities and institutions associated with knowledge, diversity, and culture (see Turku 2017).

The Syrian regime have reclaimed Palmyra and have held it since 2017. Due to the site's considerable symbolic value, most experts worldwide agree about the necessity for reconstruction (although replacement is a fundamental issue that splits into for-and-against debates).

The site has been secured, with international support, and parts of it have been reconstructed. One of the efforts is the *Palmyra-GIS* project by *Deutsches Archäologisches Institut* (DAI). The archive works with open-source data and forms the basis for planning and reconstruction work, as well as the collaboration of international experts. Furthermore, there are many bottom-up projects like the *New Palmyra Project* – initiated by Syrian-Palestinian activist Bassel Khartabil (1981-2015), who was later murdered by the Syrian regime – a platform to collect and archive open data on Palmyra, especially 3D models. An interesting project is the 3D model of the destroyed Temple of Bel, which was reconstructed by using tourist imagery collected on the Internet, mostly from flickr.com (see Wahbeh/Nebiker/Fangi 2016). The damage of cultural heritage in the Middle East and the controversy over its reconstruction brings up two issues: 1) it shows how new technologies and mapping strategies are emerging to create new forms of cultural memories and 2) it also shows how initiatives have been changed to become collective movements and bottom-up maps (in terms of democratizing forms of information production and open access). ○

FIG.4

The occupation of Palmyra – along with the destruction of other cultural properties in the Middle East – is an example of how media, especially the Internet, influence political and religious conflicts and how fundamental ideas are dictated as such. A phenomenon that occurs through new technologies is that artefacts, "having been physically annihilated [...] are regenerated through their own images which, once injected onto the networks and hyperlinked to other images, times, and spaces, grant to their destroyed selves an endless, networked after-life" (Della Ratta 2015). The ancient city of Palmyra can no longer be visited because of the ongoing conflict in Syria. It has become inaccessible, as a result of devastation, looting, and its exploitation for propaganda uses.

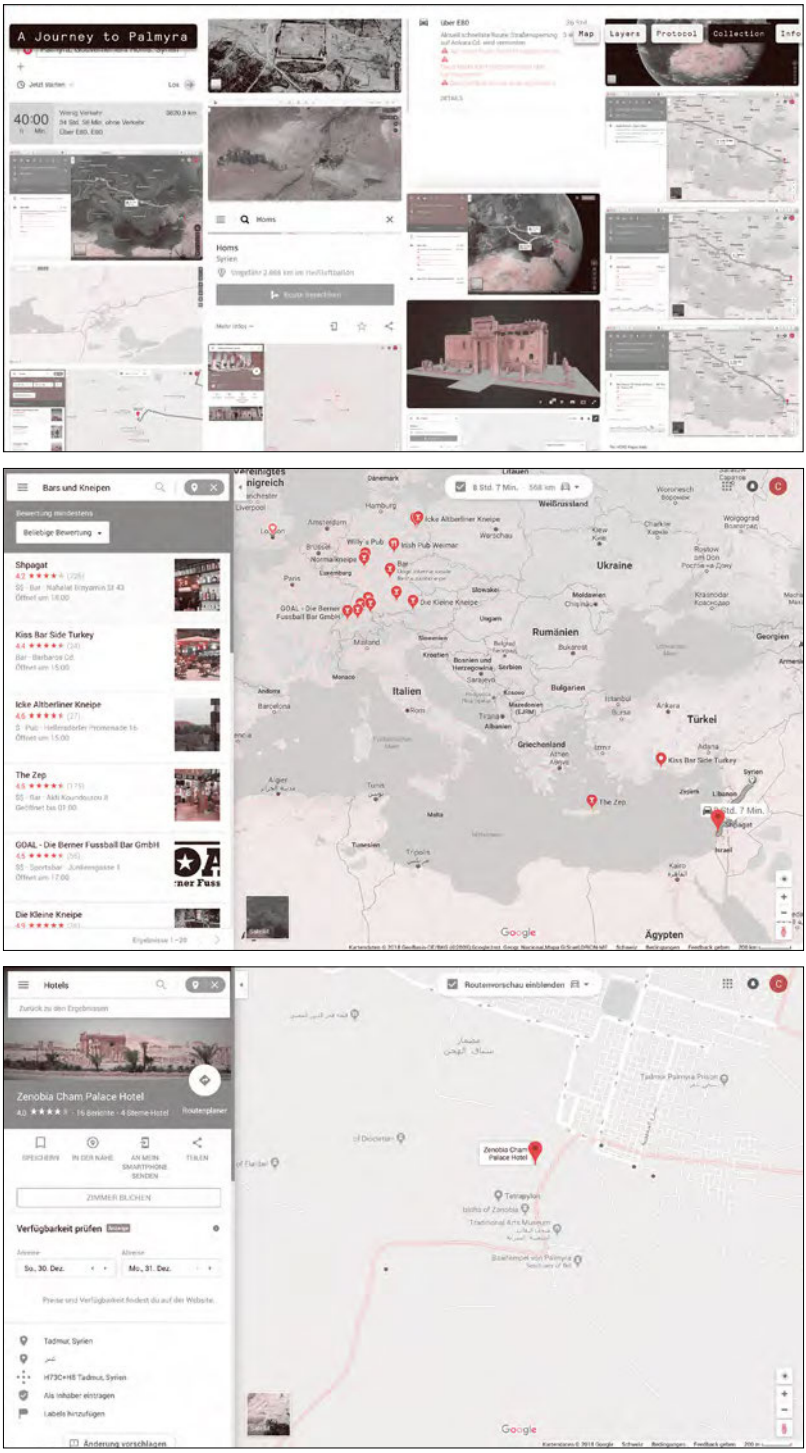
However, the war-torn country is travelable on the Internet, even though it is unreachable in the real world. Its infrastructure is visible, even though most is damaged. On the Internet, Palmyra remains a touristic spot and has an odd parallel existence; it is possible to plan a trip to Palmyra through Google Maps or any another free map service. Consulting the Internet on 21 March 2018, location-based services suggested traveling from Basel, Switzerland to Tadmur (Arabian for Palmyra) with a drone (HERE map: distance 2,869 km), a hot-air balloon (HERE map: distance 2,894 km) or by car (Google Maps: 40:44 hrs., low traffic). There are hotel recommendations close to the site and a list of restaurants and things to do nearby – although the closest bar on Google Maps is located in Austria. ○ FIG.5

Users can travel with Google Map to Palmyra and explore geo-located data about its cultural heritage through the Web project *A Journey to Palmyra* (www.palmyra.ixdm.ch). The interactive map shows what remains of Palmyra and shows the touristic spot's geographical footprint. The website consists of several layers, or rather realities (including location-based services from Google Maps, private tourist photos from Flickr, real-time information from Reuters, and Twitter or information from Interpol and UNESCO). For Palmyra, the map becomes a visual episteme of a digitally constructed world – to a site which no longer exists. Thus, it emphasizes the parallel lives and inner logic inherent in digital cultures. ○ FIG.6

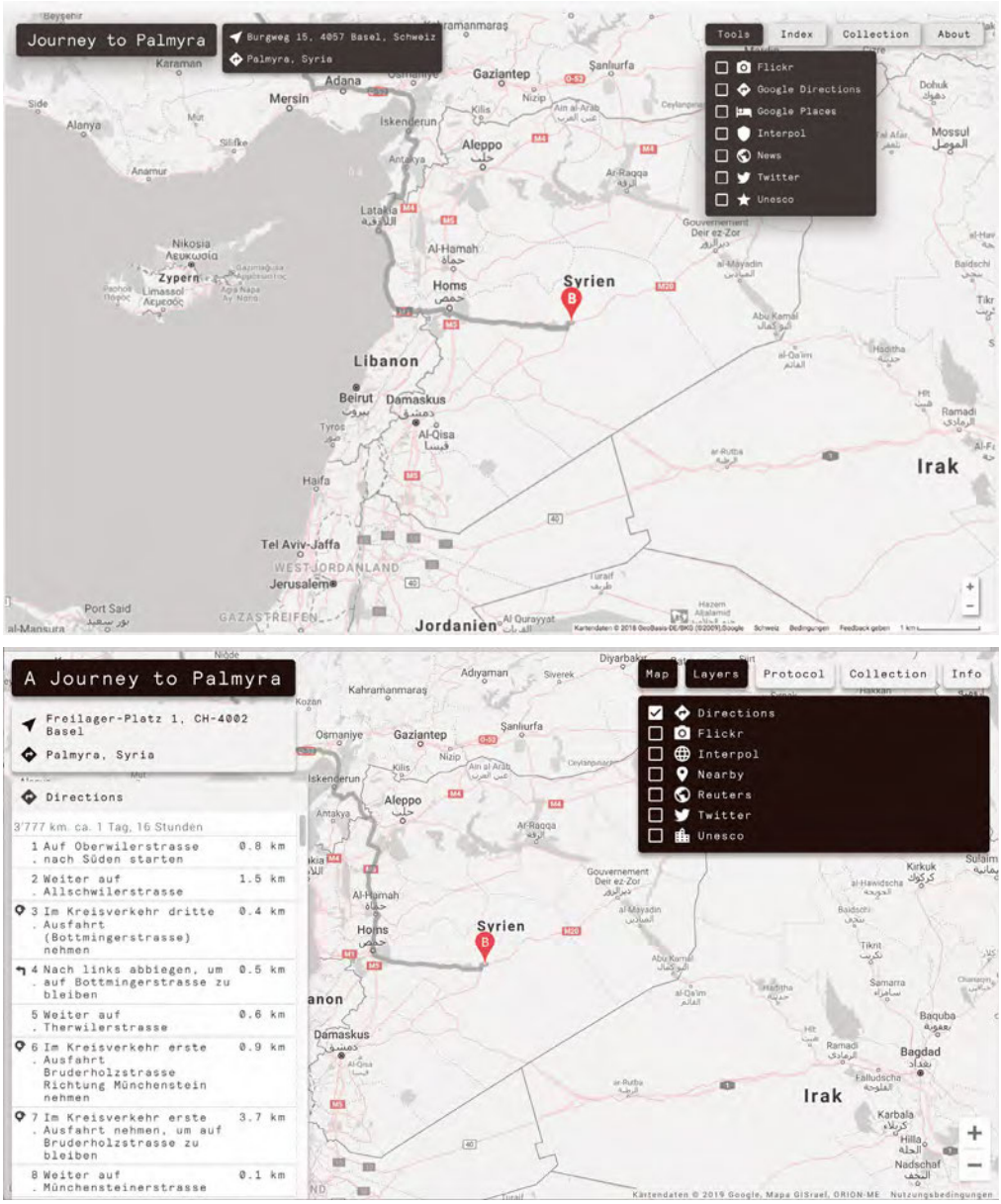
On the Internet, Palmyra is an unregulated space – having both a glorious past and as being a place of horror – with its own after-life (digital traces and data on the Internet). Palmyra's spatial, digital footprints shown on Google Map are mostly unsorted, uncommented upon, and unregulated.

Working with Google Maps was useful because it is one of the most used maps. The map includes geographic information that has been volunteered, like reviews, photos, placemarks,

● FIG.4 ▶ "Before and after"; the destruction of the ancient city of Palmyra, a UNESCO world heritage site located in the desert of Homs.



● FIG.5 ▶ Maps and route planning to Palmyra with various online tools, available on the Collection of the Web project.



● FIG.6 ▶ Christine Schranz: *A Journey to Palmyra* [2018].

etc. Platforms like Google shape the digital world around us and this influences our perception thereof. Google ultimately decides how the world looks and is perceived in the digital through the mass distribution of its products, services, and APIs. This hegemony creates a frightening potential for a (new) digital imperialism. Despite the projects questioning our everyday use of Google Maps and their claim to objectivity, Google Maps remain firmly embedded in our everyday lives. We use its services every day to find a location, route, or restaurant and to navigate to our destination with the aid of a technological device. Google suggests a world in which we are free in the selection and production of information, but how can we actually be certain that the information is objective or even correct? This addresses a further question about ownership and the ethical state of maps: who owns and maintains this data?

CONCLUSION

This article has reflected upon how bottom-up movements and mapping strategies in a digital society may affect the cultural memory of destroyed artworks and heritage, mainly in the Middle East and along the lines of cartographical thinking. The examples discussed all deal with advances in new technologies, open data, and aspects of decolonialization. It was intended to show how bottom-up strategies may be a new way to collect, reconstruct, and to preserve cultural heritage. I have argued that bottom-up mapping strategies may be a new approach against hegemony and institutional power. However, it has also been shown that new topoi emerge alongside a digital shift. These topoi include, for example, new dependencies and abuses of power, given that the algorithms on which this new worldview are based are not open, by and large. A new imbalance of power and new ruling elites have arisen within

digital cultures (the US-American computer scientist and artist Jaron Lanier calls these dominant Western companies the *Big Five*[9]: Google, Apple, Microsoft, Amazon, und Facebook (Lanier 2013). This has consequences for new topoi and the exclusion of digitally produced knowledge: not everyone has access to the Internet, and even where they do, that access and the knowledge made available are controlled and restricted by the big internet companies, since there are rarely other alternatives. With this in mind, there are three main concerns that are still crucially pertinent: firstly, data and corresponding algorithms are not open; secondly, the distribution and use of the data is dictated by companies; thirdly, this results in a new form of data colonialism with new concerns in terms of the democratization of data.

Furthermore, I have reflected upon the implications for a decolonizing of data politics and the emergence of a digital cultural memory in digital times through new technologies. Bottom-up strategies are becoming more and more powerful and important with big data and social media. Within digital culture, questions have arisen about the aura of digitalization, its immortality, and what value a digital reproduction should have. Open access and bottom-up strategies can be seen as giving rise to cultural empowerment in the face of those conventional strategies dictated by governments and institutions. This leads to three key conclusions: First, all world knowledge about Palmyra can be gathered, collected, and be used to rebuild Palmyra through georeferencing and localization on a map interface. To that end, the map becomes a visual episteme and an initial point for a digitally constructed world heritage which has been destroyed. Such a map could exist in either a physical or digital en-

9 In China, comparatively unknown services like Baidu, Tencent, or Alibaba are the market leaders, given that services are limited or can be used only to a limited extent due to the large Chinese firewall.

vironment. Second, by combining open map projects (data from spatial points) with 3D models (data from static objects), spatial reconstruction might become a bottom-up activity by initiatives like ASOR or the Million Image Database. The map can serve as a planning tool, both on the large-scale plane of the map, and on the small-scale plane of the object. Third, it is important to provide technological infrastructures, not only to support the reconstruction of the endangered cultural artifacts, but also to support methods of decolonization, shifting the discussion from whether (and where) individuals have access to digital technology.

The approaches discussed, particularly the bottom-up and decolonializing strategies, are understood as an alternative against a top-down hegemonic Western approach.

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