

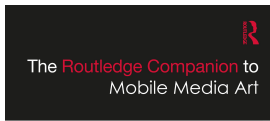
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2

MAGIC SPECTACLES AND PORTABLE BOXES

Notes toward a Media Archaeology of Mobile Media

Erkki Huhtamo

Mobile media is often considered a recent phenomenon, conditioned by industrial strategies, technological breakthroughs, social needs and trends. Although yesterday's new devices rapidly become obsolete and fall out of fashion, more than a 25-year perspective to account for their history may seem far too long, not to mention anything about a century or even a millennium. It is obvious that if assessed solely from the perspective of engineering and industrial developments, the habit of using mobile technological devices for remote communication cannot be extended very far into the past.

Yet, media archaeology claims that there are other layers, other histories, other forms in which mobile media has existed much longer.¹ These layers must be dug out and released from oblivion where they have fallen. Such an archaeology has to take into consideration both media machines that were realized, marketed and used, and those that remained drafts, intentions or even daydreams. All are essential to form a general picture. As this tentative media archaeology of mobile media will demonstrate, portable and wearable devices for instant communication were anticipated in the cultural imagination long before they became technically feasible. Many more examples, beside the ones discussed in this text, could likely be discovered.

For the sake of clarity, I will divide mobile media into three categories: *portable*, *wearable*, and *vehicle-mounted*. Portable refers to a device that is carried around, for example, in a bag, whereas a wearable device is body-mounted: strapped to the body, pressed against the skin. The dividing lines are anything but absolute: this is a model only. In actual practice, constant overlapping and switching of roles happens: a mobile phone can be said to be a wearable when it is carried in a container on the belt, but it turns into a portable when it is kept in a bag or held in hand while walking.

Vehicle-mounted devices, which are not discussed in this text, can be permanent features of the vehicle, but also portable/wearable devices given a temporary role as its fixtures. This happens when a mobile phone is placed in a holder by the car's dashboard to be used as a navigational and communication device by the driver. This model is not historical. It is only a tool to help us make sense of the topic. The designs and uses of mobile media devices also raise other issues such as the relationship between being in motion and in stasis. They are often, but not always, used during a momentary stop.

In this chapter, I will explore mobile media from a media archaeological perspective, suggesting that it makes sense to penetrate beyond contemporary forms to gain insights about the slow unfolding of media culture. The basic premise is that media cultural processes are layered constructs. Not all the layers have developed simultaneously or along parallel lines. Neither have they

been equally visible for earlier observers. Much remains hidden, waiting to be brought back to light and connected with forms that are remembered and already acknowledged by media historical scholarship. Uncovered in the hidden layers, forgotten devices and unaccounted for discourses should be brought into dialogue with later forms, inciting all to explain each other. The media archaeologist functions as a catalyst helping to make it happen.

From Magnetic Needles to Pocket Communicators

The discursive history of mobile media goes back at least to the early modern era; depending on approach, it could probably be extended further. Communication by means of vibrating magnetized needles was suggested by the Italian Jesuit Famiano Strada (1572–1649) in his book *Proclusiones Academicae* in 1617.² It was not a book of science; rather, it presented a series of rhetorical exercises featuring human characters familiar from classical antiquity. Strada's description became well-known in the English-speaking world because Joseph Addison adapted it for *The Guardian* in 1713.³

In Strada's text, an impersonation of the Roman poet Lucretius, known for the epic cosmogonical poem *De rerum natura*, explains how "a certain loadstone" that touched "two several needles" could make them move "in the same manner." Two friends, each in the possession of such a needle, "made a kind of dial-plate, inscribing it with the four and twenty letters, in the same manner as the hours of the day are marked upon the ordinary dial-plate." The needles were fixed to the dials so that they could freely point at any of the letters. A wireless personal communication device, albeit an imaginary one, had been created. It could be put to test when the friends moved to distant countries.⁴

Although it may seem very early, Strada's idea was hardly original—similar fantasies about the occult powers of magnetism were already circulating. In his *Magnes sive De Arte Magnetica* (1641), another Jesuit, Athanasius Kircher, poked fun at them, telling a story about two dear friends who—as Joscelyn Godwin explains it—"tried to communicate with each other by pricking themselves in numbers corresponding to the letters of the alphabet. When the other friend felt the sympathetic pricking in his own flesh, he could decode the message by counting the pricks."⁵ Such ideas were presented as curiosities without associating them with "serious" social, economic, or political applications.

Communication at a distance was normally associated with personal needs such as uniting separated friends or lovers—emotion and longing played roles. This may, however remotely, be associated with cultural developments and the mentalities of the era. Although traditional modes of mobility had not yet radically changed, the voyages of discovery and colonialism had begun to crack the patterns of age-old lifestyles based on proximity and immobility. Some people travelled far away, never to return. Perhaps we could say that the movement from the village to the "global village," to refer to Marshall McLuhan's familiar ideas from the 1960s, had started.

The first permanent systems of telecommunications for expressly official purposes were over a century away. The optical telegraph, which was introduced in the late eighteenth century, and the electrical telegraph, which came some decades later, made the technical presence and institutional use of remote communication palpable. The infrastructures were permanent and fixed rather than mobile. Still, continuities with ideas about magic or telepathic communication by means of portable devices (manifested also by devices like religious travel altars and wearable talismans) persisted.

Strada's description recalls in an almost uncanny manner the nineteenth-century spiritistic seances where messages from afterlife are said to have been received by the Ouija transmission board, a common "magical device" used in esoteric practices.⁶ There does not seem to have been a concerted desire for portable media until the late nineteenth century. This had to do with the persistence of stationary lifestyles prevalent in local communities where most of the humankind

still lived. As tokens of emerging modernity, colonialism, immigration, international trade, urbanization, industrialization, organized tourism, and related social and economic forces began questioning such age-old patterns on a scale not seen before. New means of transportation like the train and the steamboat made it easier to move from place to place, challenging prevailing coordinates of time and space.⁷

The changing modes of mobility, the speeding up of lifestyles, and the fears caused by the increasing social polarization within developed industrial societies brought about an increasing need to stay in contact.⁸ It manifested itself in different forms such as the popularity of letter writing, the habit of using the telegraph not just for official but increasingly also for private communication, telephony, and—last but not least—the new craze of sending picture postcards, which began in the 1890s and burst into full bloom around 1900.⁹

The idea of scribbling one's private thoughts on a piece of card, which allowed potentially anyone to read then would have been considered impossible only a few decades earlier. The picture postcard habit, which even became a mania, broke the taboo. The picture postcard joined the plethora of mass-(re)produced visual formats that had begun proliferating in the nineteenth century. It gave rise to a massive expansion of visuality. Pictures were reduced to lilliputian scale and associated with the actions of the human hand (where the mobile phone would be put a century later). Although the picture postcard has been neglected by academic scholars, it is a complex cultural object—a portable entity, a challenge for graphic design, a collectable, a vehicle for virtual travel, a means of connecting people, a passing of visual information, and entertainment.¹⁰

Anticipations of portable technical media appeared in this environment. Albert Robida's *Le Vingtième Siècle* (*The Twentieth Century*, 1883), an imaginative forecast of the media culture of the future, was mainly occupied with stationary devices. An audiovisual media machine named *Téléphonoscope*—an extension and improvement of the telephone—was omnipresent and had many uses.¹¹ It transmitted real time or recorded theatre performances to homes, allowed private two-way conversations “suppressing the absence,” and even served the need of surveillance.¹²

Robida's vision also included a portable version, the “pocket telephonoscope.” However, it was reserved for professionals only.¹³ The roaming reporters of the telephonographic newspaper *L'Époque* used it to transmit live news on a gigantic telephonoscope “screen” flanking its headquarters along the Champs-Élysées, while another glass disc on the other side of the building presented advertisements.¹⁴ An illustration of a camel-mounted war correspondent shows that Robida still imagined the pocket telephonoscope as a wired tool.¹⁵ Wireless telegraphy was “in the air”—the existence of Hertzian waves was confirmed soon after the book was published—but the first practical public demonstrations by the Italian Guglielmo Marconi were more than a decade away.

Prophecies and Parodies

Much has been written about Marconi—it is not worth repeating it here. Instead, it is worth looking at a less well-known prophesy, which was presented in February 1897, while Marconi was in England performing demonstrations of his wireless communication system for the British government to convince the authorities of its usefulness. The prophecy quickly went “viral” and was reprinted in numerous magazines both in England and in the United States (and probably elsewhere).

Years later, this vision of the future was still routinely quoted in the concluding chapters of books on wireless telegraphy as well as in technological journals.¹⁶ The density of references confirms the pregnancy of the idea—a desire for wireless communication had been ignited. The prophecy in question had its origin in a lecture titled “Sixty Years of Submarine Telegraphy” by the British scientist William Edward Ayrton, delivered at the Imperial Institute in London on February 15, 1897. *The Electrician* published a lengthy abstract four days later.¹⁷ Most publications,

including not only scientific journals, but also religious and theosophic ones, were content with relaying the following extract, which must have stirred the imagination of countless readers:

Well, there is no doubt the day will come, maybe when you and I are forgotten, when copper wires, gutta-percha coverings and iron sheathings will be relegated to the museum of antiquities. Then when a person wants to telegraph to a friend, he knows not where, he will call in an electromagnetic voice, which will be heard loud by him who has the electromagnetic ear, but will be silent to everyone else, he will call, 'Where are you?' and the reply will come loud to the man with the electromagnetic ear, 'I am at the bottom of the coal mine, or crossing the Andes, or in the middle of the Pacific'... Or perhaps, no voice will come at all, and he may then expect the friend is dead. Think what that will mean. Think of the calling which goes on from room to room, then think of that calling when it extends from pole to pole, a calling quite audible to him who wants to hear, absolutely silent to him who does not.¹⁸

It is likely this formulation was not entirely original. Discovering its antecedents is a task for other media archaeologists. Yet, another widely relayed prophesy was made by Nikola Tesla, a Serbian inventor who emigrated to the United States, becoming the nemesis of Thomas Alva Edison. Whether he was a genius or not, Tesla was certainly an eccentric thinker and a ferocious self-promoter. He famously wrote in an article published in 1905:

Within a few years, a simple and inexpensive device, readily carried about, will enable one to receive on land or sea the principal news, to hear a speech, a lecture, a song or play of a musical instrument, conveyed from any other region of the globe.¹⁹

The moment when Tesla first voiced this idea is difficult to determine because he wrote many articles and comments to the popular press and charmed both admirers and interviewers with his visions.²⁰

In the previous year, the *International Wood-Worker* quoted a different version about Tesla's "world telegraphy" in the context of "The Newspaper of the Future," a topic that had already occupied Robida and others. After describing how he would place a number of plants in strategic locations around the Earth to transmit "individualized signals to the utmost confines of the earth," Tesla said:

A cheap and simple device, which might be carried in one's pocket, may then be set up somewhere on sea and land, and it will record the world's news or such special messages as may be intended for it. Thus, the entire earth will be converted into a huge brain, as it were, capable of response in every one of its parts.²¹

Tesla's vision was not pure speculation. It grew from his pioneering work on the wireless (for which he tried to claim primacy) and high-intensity electrical currents. The mobile device Tesla envisioned was part of his all-embracing scheme for a "World-System," a total solution to global energy needs and communications purposes. He began propagating it around 1900 in a sensational article in the *Century* magazine, where he mentioned "the idea of effecting communication to any distance through the earth or environing medium [...]."²² Tesla tried to convince the reader that "in a time not very distant most telegraphic messages across the oceans will be transmitted without cables."²³

The "World-System" was a mixture of scientifically tested ideas and wild fantasy. Its fate was to remain a noted but unrealized discursive system. The only materialized part was an unfinished power station and transmission tower built in Shoreham, Long Island with venture capital funding from the banker J. P. Morgan. By creating a global network of similar plants, Tesla intended to

charge the Earth with electrical energy. Combining this with his theories of “standing waves,” he intended to provide free energy and communications for the entire humankind. In addition, the system was also going to be used to communicate with extra-terrestrials.

How original were these—and other—prophecies of portable media? Further excavations are needed to give more precise answers, but it is likely that many of their components were provided by tradition, which became coated in contemporary attire. With eager support from the international press, they certainly had a broad influence on cultural imaginaries. The ideas were stretched in different directions, depending on the writer’s ideological leaning. The theosophical publication *Century Path* connected Ayrton’s prophecy of wireless person-to-person communication with thought-transference in the following manner:

This recalls the fact that all our mechanical inventions are, after all, mere imperfect copies of what we have inside of us. The human machine is the best machine known, mechanically, chemically, in every way. May it not be that there have been people—perhaps still are—able to accomplish without machinery results we can only accomplish with it? If so, then the proficiency in mechanical arts is no absolute measure of capability.²⁴

The writer claimed that it was “no more difficult to explain how I can send a thought to China than how I can send it into my arm.”²⁵ Such ideas about magic media resonated widely—perhaps we could add, wildly—within esoteric and even scientific circles of the time.

Cartoonists were abreast of the times. In England, the satirical journal *Punch* published in 1906 a “forecast for 1907,” where an elegant couple is shown spending their time in Hyde Park with antennas protruding from their hats. Both are holding portable wireless devices on their laps.²⁶ The caption specifies the situation: “These two figures are not communicating with one another. The lady is receiving an amatory message, and the gentleman some racing results.” Both are sitting on their own chairs apart from each other and facing different directions. They are utterly lost in mediated reveries that have carried them far away from the natural beauty of Hyde Park. The cartoon indicates that social discontents associated with portable media, which are routinely associated with much later developments, were already felt. There are also other cartoons that depict solitary human beings surrounded by fantastic communication devices, alienated from direct proxemic contacts with other humans.²⁷

However, the alienating effect of increasing media use was not necessarily associated with portable devices only. As the home became conceived as a “media center,” connections with the outside became increasingly mediated. How the “home audience” in front of the radio or the television set was affected is an important and complex issue but belongs to a different trajectory of enquiry that I discuss in a forthcoming book on the media archaeology of the screen.

Between the Discursive and the Material

In the early twentieth century, the discourse on imaginary portable devices began gaining material forms, although not in straightforward one-to-one relationship. Readers were informed that devices like the “pocket wireless” had come to existence.²⁸ Of course, few of them were in a position to verify what was actually meant and how the new technological wonders functioned. The relationship remained mainly discursive.

In October 1900, the *Electrical World and Engineer* wrote about a “pocket telephone” invented by Evan Shelby, the manager of Lafayette Telephone Company in Indiana.²⁹ It was said to be a small receiver and transmitter that could be folded together and “conveniently carried in the pocket.” The plan was to equip every policeman with one, enabling them “to hold communication with anybody in the city who has a telephone.” The device could not be wireless because the possibility

of wireless telephony was only beginning to be investigated. The idea was to place connection boxes on telephone poles here and there in the city. Each was going to be equipped with a battery and an automatic connection to the central office. Similar devices were also designed for the linemen maintaining telephone lines and even used at the Harlem Jockey Club's racetrack in Chicago.³⁰ All were initially meant for professional use.

The emergence of the pocket telephone reflected the need to maintain the increasingly complex technological infrastructures in developed societies, but also highlighted fears of crime and subversive actions. Its adoption by police departments was related with other developments such as the installation of street lighting in cities to eliminate dark spots where crimes could occur.³¹ A pocket telephone network that operated in Berlin, Germany, received much attention.

In 1912, the Chicago-based *Telephony* explained its principles, publishing an eerie photograph of an undercover woman detective dressed in black posing while "calling patrol wagon."³² It was said that the system was built because "[i]n consequence of the enormous expansion of the German capital, there are many outlying districts which are rendered unsafe through insufficient policing." Contact devices were said to have been installed practically everywhere: "They are fastened to walls, doors, trees, lampposts or other convenient places." Even parks and forests had them, allowing "a long walk through the woods and still be in touch with the city at all times."

Portable telephones, which could be "carried in a pocket without inconvenience, or in a lady's hand bag," were claimed to be available for anyone to purchase in Germany.³³ Similar devices seem to have been introduced elsewhere as well. The August 1912 issue of *Popular Mechanics* wrote about the "Watch-Case Telephone" or the "sanitary vest-pocket telephone transmitter," which could be carried like a standard pocket watch.³⁴ Pushing a button released the lid of the case, making a spiral spring push the collapsible mouthpiece out "into operative position." The case had sockets to connect it with "special terminals on the stationary telephone instrument or the desk stand."

Instead of being an independent self-supporting unit, the device was meant to be attached to public telephones, obviously to defend the user from contagious infections.³⁵ The idea made sense, but for widespread adoption, the infrastructure would have had to be modified. The Watch-Case Telephone required "that all public telephone instruments be equipped with extra terminals."

In spite of the technical limitations, efforts were made to turn portable media into more than a figment of the cultural imagination. The Watch-Case Telephone was not the only device that was modelled on the pocket watch, a familiar and proven object that is easy to store on the body (in a pocket or hung from chains) and pull out and use. The pocket watch became a model used in ever-new contexts. A Swiss clockmaker even produced a peep watch, which functioned like a normal pocket watch, except that it had round picture windows at the front and back for rotating circular picture discs, often with semi-clad women.³⁶ Cameras were fashioned on pocket watches and other everyday objects, partly as a reaction against the hostile attitudes towards photography in public places. In France, Georges Demyeny designed a pocket *Fonoscope* for both taking and viewing moving pictures, while the *Mikiphone* was also identified as Pocket Phonograph, likely the smallest mechanical portable record player ever made.³⁷

Against this background, it is interesting to try assessing the originality of yet another prophesy made by David Sarnoff (1891–1971), a Marconi wireless telegraph operator who became the CEO of the powerful Radio Corporation of America (RCA). He presented the evolution of radio in three stages. From professional uses by "radio men," it had been extended to "nonradio persons" at homes. The third stage would bring it "not only to the home but to the individual, whether he be within or outside of a fixed place."³⁸ Sarnoff presented specific plans detailing how this could be achieved. The main issue for him was reception, "developing a suitable receiver in such compact and efficient form as to enable an individual to conveniently carry it on his or her person and to satisfactorily receive such broadcasted material."³⁹ Not surprisingly, the model was "the watch carried by a lady or a gentleman, which is not only serviceable but ornamental as well."⁴⁰

Sarnoff's ideas about the design of what he called "Radiolette" are highly interesting and resonate with discussions ignited in our time by devices like Google Glass and the Apple Watch. Sarnoff acknowledged that the Radiolette "should first be developed with the utilitarian view in mind." The battery was a major concern—as it still is.⁴¹ However, Sarnoff also suggested that the combined effect of the radio tube ("lamp") and the battery could be used to turn the device into a flashlight, "to show the way in dark place," and that other extra functions might also be possible. The combined uses "would ultimately create in the individual a real desire to possess a Radiolette."

What Sarnoff wrote next pre-echoes the industrial voices resounding in the media cultural discourses of the early next millennium. For a comparison, it would be instructive to revisit the articles, press releases, and videos released by the Apple Corporation to accompany the launch of the Apple Watch in 2015. If we focussed on the discursive aspects and forgot the purely technological developments for a moment, it would seem that little has happened during the century in-between.

As Michael Brian Schiffer demonstrated in his pioneering and still relevant book *The Portable Radio in American Life*, the introduction of radio broadcasting inspired many imaginative designs for portable or wearable radio sets. Many of them were more or less impractical—pinkie ring radios, billfold radios, purse radios, bicycle radios, wrist radios, etc.⁴² As Sarnoff predicted, inventors combined different media functions in the same package, anticipating the way smartphones and smartwatches embody and combine the functions of earlier separate devices. This burst of sometimes wild and out-of-control creativity was not unexpected as perusing popular scientific publications from the late nineteenth century onward easily demonstrates.

The innovative imagination became even more agitated as media culture's grasp as an industrial endeavour became stronger. In the coming decades, many varieties of portable and wearable devices appeared in both material and discursive forms that influenced each other. Only a fraction became successful. The piles of accumulated ideas were revisited over and over again. So, the first portable transistor radios, introduced in the mid-1950s, may have seemed a breakthrough, but the phenomenon had been gathering force for decades. Yet, contemporary social, cultural, and economic factors—youth subcultures, consumerism, wider personal mobility—also mattered, contributing to the illusion of mobile media as a novelty and cultural rupture.

The Magic Spectacles

One of the current grand narratives of mobile media, beside the ubiquity of the smartphone, is the idea of wearing the device on the head. Google Glass was a short-lived and failed effort to transfer remote communications into the user's field of vision, associated with voice commands.⁴³ What can be said about the archaeology of media worn in front of the eyes? Many early portable devices—both real and imaginary—were used to listen to sounds, send voice messages or snap pictures, so they did not involve continuous viewing with or through the device. The watch is not a perfect comparison because it is mainly used for glancing at visual information rather than staring at it for an extended amount of time.

However, from a behaviouristic point of view, the wearable clockface is a relevant reference for devices like the smartphone and the smartwatch. Especially in the case of the latter, rapidly glancing at what it displays is common and represents a continuity from earlier forms of using both pocket watches and wristwatches. The smartphone seems to encourage both repeated glances and intensive staring, both of which are predefined modes of use "preprogrammed" by manufacturers and contents providers (we can claim that Twitter is for glances, Facebook with its "infinite scrolling" for extended gazing).

The spectacles as a mobile media interface may not have been as common as other alternatives, but examples can be found from Western cultural traditions. "Magic (or magical) spectacles" is

a popular topos evoked at least since the eighteenth century in numerous texts, and it still persists. Its origins may have been inspired by the coming of the enhancement of vision by means of eyeglasses, which is a historical traceable development. The eyeglasses or spectacles became gradually more common as a utility since the sixteenth century. Their evolution had to do with the refinement of the art of lens grinding, but also with the new emphasis on literacy and individual reading (an issue with many implications, including changing religious conventions brought by reformation movements and the establishment of the bourgeois domesticity and public sphere).⁴⁴ In the cultural imagination, the “magic” qualities of the eyeglasses with their artificial magnifying lenses were extended beyond the immediate physical reality. They became a means of looking into “augmented” or even “virtual” realities (to use anachronistic points of comparison), empowering the mental abilities of the person who wore them. The use of lenses in devices like the telescope and the microscope may well have contributed to this imaginary extension of vision.

A common context for “magic spectacles” was the fairytale. To mention just one example among many, in Chauncey Giles’ *The Magic Spectacles* (1870), two children, a brother and sister, encounter a mysterious old man, a street crier selling spectacles.⁴⁵ In an amusing anticipation of the parody videos inspired by the Google Glass, the man says he has “a pair of spectacles which enables me to see the names of everybody I wish to know.”⁴⁶ In exchange for their lives, he gives the children spectacles that are “not worn on the nose, but on the inside of the eyes.”⁴⁷ The story has a moral: wearing the virtual spectacles persuades the restless children to become good and to concentrate on their studies. They are a metaphor of inner motivation: “The spectacles will never help you to see anything that you can see well enough without them. Nor will they help you in anything, unless you try to help yourself.”⁴⁸

No matter how vacillating the discursive origins of magic spectacles may have been, their emergence was also associated with concrete circumstances. It may be imposing to merge all their manifestations within one topos tradition because magic spectacles appeared in many contexts, including satires about the future.⁴⁹ The saying “putting on the magic spectacles” signified a deeper look into something not immediately visible, such as unfolding political events. The expression was related with another topos: looking into a magic mirror.⁵⁰ The gaze through the magic spectacles was explained to penetrate beyond the surface, allowing the user to read minds. Among many others, this commonplace was put into words by the actor Charles Dibdin, who rhymed about light-hearted women in one of his popular songs: “I put on my spectacles, look mighty wise / Read her warm yielding heart through her cold frigid eyes.”⁵¹

More precise discursive, and—in a still minimal way, material—foundation for the coming of media goggles were laid in the 1930s, in the era when the television had just reached the stage of experimental broadcasting. Hugo Gernsback (1884–1967), a well-known popularizer of science and science fiction, who became a household name for American boys and men through his publications, had presented the idea of “television spectacles.” He first wrote about them in 1936.⁵² Gernsback revived the idea in 1938 in *Radio-Craft*, explaining that in the future every radio set would be equipped with television. He then asked: “[H]ow will I be able to see a television program by means of a vest-pocket set?”⁵³ The answer was to “wear a pair of ‘spectacles’ which have a twin television receiver built right on the eye-glass frame.”⁵⁴

Gernsback admitted that the images would be small, “but they need not be large, because they are right up close to your eye; indeed they will be sharper in this manner.”⁵⁵ He suggested that “the frame of the television set on the bony part of your nose will also, by molecular vibration, transmit the sound to your ear-drums in a most realistic fashion.”⁵⁶ Gernsback returned to the idea once again in 1949 in the *Radio-Electronics* magazine, now calling the device Tele-Eyeglasses (or “television eyeglasses” and even “teleyglasses”).⁵⁷ He had toned down his predictions, perhaps because television was now becoming common in living rooms. The device would not be “at least for years to come, a complete self-contained television receiver.” Rather, it would be a plug-in

accessory, “particularly useful for invalids and for those who wish to relax without having to sit rigidly in front of the television receiver for hours.”

The fourth time Gernsback got an opportunity to stir up the public imagination with television goggles came in 1963 when the *Life* magazine published a feature about his career.⁵⁸ Perhaps because of his age (he had four more years to live), or because of his observations of technological developments, Gernsback (or *Life*?) decided to give the glasses a prominent role. Thanks to “thin, inch-square cathode tubes” and “low-voltage current from very small batteries,” his “New Deal era concept” was said to be no longer impractical. The reservations he had sounded over a decade earlier were gone. The user would be able to “take them out of his pocket anywhere, slip them on, flip a switch and turn to his favorite station.”⁵⁹

With *Life*'s photo session in mind, Gernsback had “ordered some of his employees to build a mock-up.” A photograph shows him posing wearing a device which has a V-type aerial protruding from the top. The reporter found the site “neo-Martian.” Today, the picture has gone viral on the internet. It has become a reference point for those trying to demonstrate what gadgets like Google Glass did not come from. I will discuss this issue in a forthcoming study about its rise and fall.

In the article in *Life*, Gernsback proclaimed that “since there will be a picture for each eye, the glasses will make a stereoptical view possible.” It is interesting to note that Gernsback envisioned 3-D television without glasses by suggesting that a polarizing optical film would be stretched across its screen. Like any technology popularizer and enthusiast, Gernsback must have been following what engineers and inventors were doing, adding occasionally an insight of his own in his comments. He certainly knew that the Scottish television pioneer John Logie Baird had demonstrated a mechanical stereoscopic television as early as 1928 and presented an electronic version in the early 1940s.⁶⁰

Gernsback may have been familiar with a patent that was granted posthumously to the American inventor Henry J. De N. McCollum in 1945. Under the heading “Stereoscopic Television Apparatus,” it described wearable 3-D “spectacle frame viewing apparatus.”⁶¹ The system recalls the one Gernsback described in 1949, without mentioning stereoscopy. Collum had suggested—like Gernsback—that “several viewing spectacles may be connected in parallel to the same switch device.”⁶² Both explained that the device “permits the spectator to recline in a comfortable chair and to view the object being televised without sitting in some certain position relative to a screen or other fixed surface upon which the images are shown.”⁶³ This evokes a remarkably low-tech wearable device, which had been introduced by the British optician Theodore Hamblin in 1936. The spectacles—still known as “Hamblin glasses”—were equipped with mirror prisms. The user could therefore lie on his/ her back on the bed facing the ceiling while reading a book placed standing on the belly—perhaps the same thing could be used to watch the television in the other end of the room.⁶⁴

Whether Gernsback was ever alone with his ideas is doubtful. In 1963, it was certainly no longer the case. Wearable media glasses had been created by others. In 1960, the Californian inventor and filmmaker Morton Heilig patented a “Stereoscopic-Television Apparatus for Individual Use.”⁶⁵ His main ambition at the time was to create totally immerse multisensory experiences inspired by Cinerama, a novelty ultra-widescreen cinematic spectacle.⁶⁶ Heilig's main claim to fame is the Sensorama Simulator, an ingenious but commercially failed single user arcade machine that combined vision and audio with aromas, wind, vibrations, and other sensory experiences. His glasses or “television viewing mask” was also meant for immersive experiences. Therefore, it also belongs to the prehistory of virtual reality as a head-mounted display. Another interesting device was the “TV Monocle” introduced in *Popular Mechanics* in October 1962.⁶⁷ It had been developed by Hughes Aircraft Co. for pilots, who would, “[w]ithout being distracted from flying duties,” see “a television picture of air-traffic information and ground conditions through a lightweight electronic-optical viewer.” The picture seen with the “TV Monocle” was projected

“onto a transparent-mirror monocle positioned in front of the eye.” It was said to appear “as large as eight feet,” and also be suited for surgeons, who could “monitor a patient’s pulse rate while performing an operation.” The idea of the monocle was adopted by Google’s experimental Google[x] unit, when it began developing its Google Glass around 2010. Whether a display, which was only seen hovering in front of the user’s right eye was technological necessity or the goal of Google’s design efforts, has not been fully verified. In Google’s promotional videos, a hypothetical fully augmented field of vision was presented (something which Google Glass could not deliver, contributing to disappointments and the speedy demise of the device).

The choice between binocular and monocular wearable interface is important because it affects the relationship between the real world seen through glasses and digital realms overlaid in the field of vision. Rather than Gernsheim or Heilig, the traditional topos of the magic spectacles is a more relevant point of comparison here. The pioneering virtual reality head-mounted displays of Ivan A. Sutherland, constructed in the late 1960s, belonged to the “see-through” type. Opaque versus see-through models are still the two types of VR goggles.

However, in the technological imagination of the 1960s, mobile media technology does not seem to have played a very prominent role. The field that gets closer to mobile media is medicine, where “long-distance heart checks” will be performed. A miniature transmitter, “[I]ittle larger than a nickel,” would be attached to the patient’s chest and its signals “received by an electrocardiograph machine in the doctor’s office or hospital.”⁶⁸ Rocket-propelled jet packs will be used by soldiers and perhaps even by others to “Get to the Office.”⁶⁹ The overall vision is surprisingly stationary, location based. Finding out how representative this idea is requires further excavations.

Conclusion

This short and tentative archaeology of mobile media has not told the entire story of devices associated with it. Very likely, the full story can never be told. Another task is to extend the “excavation zone” examined in the preceding pages towards more recent developments, such as the discourse that surrounded Google Glass, which was a failed but nevertheless interesting effort to promote see-through wearable media interfaces as a potential model for the mobile media culture of the (near? far?) future. Google Glass may have seemed a futuristic effort, but in fact it did not emerge from nowhere.

As we have seen, “magic spectacles” was an established topos, but even more short-term developments deserve attention. For example, the artist and tinkerer Steve Mann had not only built devices that anticipated Google’s project, but developed a pervasive years-long practice of wearing them in public. The efforts of Mann, Thad Starner, and many others—including media artists like Janet Cardiff, the pioneer of sound walks, and Masaki Fujihata, the pioneer in using GPS as a tool for mobile art—were involved in extending the realm of mobile media deserve to be included in future media archaeological excavations of the field. The ancient and the recent can be put in dialogue with each other to reveal the logics of rupture and continuation, repetition and rediscovery, underlying obvious, and overt manifestations of media culture.

Notes

- 1 See Erkki Huhtamo, “Pockets of Plenty. An Archaeology of Mobile Media,” in *The Mobile Audience: Media Art and Mobile Technologies*, edited by Martin Rieser (Amsterdam; New York: Rodopi, 2011), 23–38.
- 2 Famianus Strada, *Proclusiones Academicæ, Oratoriae, Historicae, Poeticae* (Audomari: Carolus Boscardus, 1619); Patrice Flichy, *Une histoire de la communication moderne. Espace public et vie privée* (Paris: Éditions de la Découverte, 1991), 17–18.
- 3 *The Guardian*, no. 119 (Tuesday, July 28, 1713), in Alexander Chalmers (ed.), *The Guardian; a New Edition, Carefully Revised, in Two Volumes; with Prefaces Historical and Biographical*, Vol. II (London: F. C. and J. Rivington, et al., 1822), 161–65.

- 4 Ibid., 164.
- 5 Joscelyn Godwin, *Athanasius Kircher's Theatre of the World: The Life and Work of the Last Man to Search for Universal Knowledge* (Rochester, Vermont: Inner Traditions, 2009), 194. Godwin reminds that this theme inspired Umberto Eco's *The Island of the Day Before* (note 11, 214).
- 6 See introduction, "The Coming of Jap Herron," in the extraordinary *Jap Herron: A Novel Written from the Ouija Board* (New York: Mitchell Kennerley, 1917), 7–8, 11. The work is claimed to be a post-mortem work by Mark Twain. Another book purportedly "received" with a Ouija board is Katherine Mardon Davis, *Light from Beyond as Taken Over the Ouija Board* (New York: W. J. Watt & Company, 1919).
- 7 Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century*, trans. (Berkeley: The University of California Press, 2014); Stephen Kern, *The Culture of Time and Space 1880–1918* (Cambridge, MA: Harvard University Press, 1983); Claude Pichois, *Vitesse et vision du monde* (Neuchâtel: Éditions de la Baconnière, 1973).
- 8 John Urry, *Mobilities* (Cambridge: Polity Press, 2007).
- 9 For telegraphy as a private means of communication, see Carolyn Marvin, *When Old Technologies were New: Thinking About Electric Communication in the Late Nineteenth Century* (New York & Oxford: Oxford University Press, 1988), 94–95.
- 10 Various visual formats that preceded the picture postcard have been discussed by Frank Staff, *The Picture Postcard and Its Origins* (London: Lutterworth Press, 1979 [1966]); Martin Willoughby, *A History of Postcards* (London: Bracken Books, 1994); George and Dorothy Miller, *Picture Postcards in the United States 1893–1918* (New York: Clarkson N. Potter, Inc., 1976). The Chicago World's Fair (1893) and the Paris Universal Exposition of 1900 were important in popularizing the postcard as a medium. The remarkable interactive installation *The Postcard Trail* (1996) by George Legrady was a kind of archaeology of postcard culture.
- 11 Albert Robida's, *Le Vingtième Siècle*, facsimile edition (Genève and Paris: Editions Slatkine, 1981 [1883]), 55.
- 12 Ibid., 72–73.
- 13 Ibid., 200.
- 14 Televisual media was not ubiquitous in Robida's vision. An imbalance prevailed between Paris and the provinces. Although *l'Époque* had mostly abandoned paper editions, special typographic and photographic paper editions were published for provincial readers. Ibid., 201–02.
- 15 Ibid., 201.
- 16 Charles R. Gibson, *Wireless Telegraphy and Telephony without Wires* (London: Seeley, Service & Co, 1914), 140. The author used the expression "pocket telephone." Ernst Ruhmer bundled Ayrton's and Tesla's prophesies together in *Wireless Telephony in Theory and Practice*, trans. James Erskine-Murray (New York: D. van Nostrand Company, 1908), 196–97.
- 17 William Edward Ayrton, "Sixty Years of Submarine Telegraphy," *The Electrician: A Weekly Illustrated Journal of Electrical Engineering, Industry and Science* XXXVIII, no. 17 (No. 979) (February 19, 1897), 545–48.
- 18 Ibid., 548.
- 19 Nikola Tesla, "The Transmission of Electrical Energy Without Wires as a Means for Furthering Peace," *Electrical World and Engineer* (January 7, 1905): 21–24. Reprinted in facsimile in: *Tesla Said*, ed. John T. Ratzlaff (Millbrae, CA: Tesla Book Company), 82. Photocopy of the book manuscript in author's archive.
- 20 Tesla is reported to have told his admirer Katharine Johnson:

The time will come when crossing the ocean by steamer you will have a daily paper on board with the important news of the world [...] and by means of a pocket instrument and a wire in the ground, you can communicate from any distance with friends at home through an instrument similarly attuned.

Quoted by Cheney & Uth (49) from Robert Johnson, *Remembered Yesterdays* (1923). In his autobiography Tesla quoted this from a "technical statement" about the "World-System." Nikola Tesla, *Moji pronalasci/ My Inventions*, ed. Branimira Valic (Zagreb: Skolska Knjiga, 1987), 66. The quotation appeared in an article (from a series the autobiography was based on), "My Inventions: The Magnifying Transmitter," in *Electrical Experimenter*, June 1919.

- 21 "The Newspaper of the Future," *The International Wood-Worker* 14, no. 6 (Chicago, June 1904), 244. The publication referred to *Scientific American* as the source.
- 22 Nicola Tesla, "The Problem of Increasing Human Energy, With Special Reference to the Harnessing of the Sun's Energy," *The Century Magazine* LX, no. 2 (June 1900), 207 (article 184–211). The expression "World System" is not yet mentioned. In their *Tesla: Master of Lightning* (New York: Fairfax Publishers/

- Metrobooks, 1999) Margaret Cheney and Robert Uth erroneously claim that Tesla included television and telephone in the *Century* text (99). They must have quoted a later source. Tesla wrote about “Television” as a possibility to “see as well as hear by means of electricity” in his contribution to “Famous Scientists Forecast Future of Wireless” in the 50th Anniversary Issue of *Popular Science Monthly* 100, no. 5 (May 1922), 28. He did single out portable devices, although he wrote that “[i]t will be possible to see as well as to hear either by wireless telephone or over the regular wire circuits” (ibid.)
- 23 Tesla, “The Problem of Increasing Human Energy,” 209.
 - 24 Student, “Wireless Telegraphy and Thought Transference,” *Century Path* (Point Loma, San Diego, CA), ed. Katherine Tingley 10, no. 33 (June 23, 1907), 17.
 - 25 Ibid.
 - 26 Lewis Baumer, “Development of Wireless Telegraphy: Scene in Hyde Park,” *Punch, or the London Charivari* CXXXI (26 December 1906), 451.
 - 27 See Harry Grant Dart’s cartoon, “We’ll All Be Happy Then” in the cover of *Media Archaeology*, edited by Huhtamo and Parikka. Originally published in *Life* LVIII, no. 1591 (7 December 1911), 1007. Another example of the discontents of new technology is the “wrong number” topos that appeared in connection with the Telectroscope in Robida’s *Vingtième siècle* (75) and later in another cartoon by Dart, “A Possible Drawback of Television,” *Judge*, 1929 (issue not known). The gender roles have been reversed: in the former, a group of men peep at a woman dressing up, while in the latter a modern woman surprises a man taking a shower after having been given a wrong connection by the operator.
 - 28 For a detailed discussion, see Grant Wythoff, “Pocket Wireless and the Shape of Media to Come,” *Grey Room* no. 51 (Spring 2013), 40–63.
 - 29 “Pocket Telephone,” *Electrical World and Engineer* XXXVI, no. 15 (13 October 1900), 579.
 - 30 “Racing Horses by Telephone,” *The American Telephone Journal* VII, no. 25 (18 June 1903), 398–99; “A New Type of Pocket Telephone,” *Popular Mechanics* 24, no. 2 (August 1915), 162; ad for the “Pocket ‘Phone’” for linemen, *Telephony* 66, no. 18 (2 May 1914), 11.
 - 31 Wolfgang Schivelbusch, *The Disenchanted Night. The Industrialization of Light in the Nineteenth Century* (Berkeley: University of California Press, 1988), 133–34.
 - 32 “The Pocket Telephone in Germany,” *Telephony* 62, no. 9 (2 March 1912), 280. Some sources that relayed this information said that similar systems operated in other German cities too.
 - 33 Although “one misses the privacy of the telephone booth ... the pocket telephone is so delicately constructed that one need speak in only a very low tone of voice” (ibid.). The receiver and transmitter fit into a circular nickel case two and half inches in diameter and three-quarters of an inch thick.
 - 34 “Watch-Case Telephone Transmitter,” *Popular Mechanics*, 12 August, 243.
 - 35 See examples such as “Hall’s Standard Lung Tester” (1886) in, Richard M. Bueschel and Steve Gronowski, *Arcade 1. Illustrated Historical Guide to Arcade Machines*, Vol. 1 (USA: Hoflin Publishing Ltd, 1993), 45, 116, 138–40, *passim*.
 - 36 C. 1902. The author’s example bears the patent numbers 24792 (Swiss), D. R. G. M. 192177 (German) and S.G.D.G. (French, no number given). According to Christie’s, the Swiss patent refers to “Exposé d’invention, brevet No. 24792, A[rnold] Schweizer-Schatzmann, Chaux-de-Fonds, 22 juillet 1902.” [Earlier patent, 24340, Dec. 23, 1901]. Another portable device in the shape of the pocket watch, “The Panorama Watch,” was sold in France by M. L. Bienfait, 7 Place de la Nation, Paris. It contained a rotating disc with 12 minuscule photographic images (Stephen Herbert, “Nouvelles Scientifiques,” *The New Magic Lantern Journal* 6, no. 1 (January 1989), 7. The information is from the supplement to *La Nature* between 1891 and 1907 (exact issue unknown). An example marked “Montre 1900 Diorama, K.B.B. SGDG” was sold on eBay France in February 2005. The glass disc had ten tiny photographs of nude or scantily dressed ladies, some on bicycles.
 - 37 The pocket Fonoscope recorded a short moving image sequence on a rotating sensitized disc and could also be used for viewing developed (positive) discs. The only known example is in the collection of the Musée du Cinéma of the French Cinémathèque. Mikiphone was patented by Vadász brothers, Genève, in Nov. 1924 and manufactured in 1926–1927 by Paillard in Ste-Croix, Switzerland, www.portable-gramophone.com/mikiphone_gramo.ws. Last accessed 25 August 2015.
 - 38 Ibid., 45.
 - 39 Ibid.
 - 40 Ibid.
 - 41 Hugo Gernsback imagined in 1938 a portable radio in the shape of the pocket watch, which would have instead of batteries a “watchespring-driven electric generator.” “Radio in the Future,” *Radio-Craft* IX, no. 9 (March 1938), 613. In the same article, he suggested that portable radios would be used as pagers that would allow “physicians, contractors, business men, and others” reach the user (613).

- 42 Michael Brian Schiffer, *The Portable Radio in American Life* (Tucson & London: The University of Arizona Press, 1991).
- 43 I am working on a study on the rise and fall of Google Glass.
- 44 Raimonda Riccini, *Taking Eyeglasses Seriously: Art, History, Science, and Technologies of Vision* (Cinisello Balsamo: Silvana, 2002); Wolfgang Winkler, *A Spectacle of Spectacles*, exhibition catalogue (Leipzig: Edition Leipzig, 1988); *La lente. Storia, scienza, curiosità attraverso la collezione Fritz Rathschüler*, exhibition catalogue (Genova: Edizioni Culturali Internazionali Genova, 1988), 25–27. An early study is Emil Bock, *Die Brille und ihre Geschichte* (Wien: Verlag von Josef Šafár, 1903).
- 45 Chauncey Giles, *The Magic Spectacles. A Fairy Story* (Edinburgh: William Oliphant & Company [1870]). Educational stories with “magic spectacles” in the title are still published. See, for example, Rachel FreierMiller Sivek’s children’s book *Zachary and the Magic Spectacles: A Book about a Boy Who Learns to be Nice* (Bloomington, IN: AuthorHouse, 2012).
- 46 *Ibid.*, 18. For examples of such parody videos, search “Google Glass” on YouTube.
- 47 *Ibid.*, 39.
- 48 *Ibid.*, 29–30. The tops of the magic mirror also appears, 137, 144.
- 49 “The Magic Spectacles. A Peep into a Possible Future,” *Punch* LXXXIV (9 June 1883), 265.
- 50 Old Statesman [David Williams], *Lessons to a Young Prince on the Present Disposition in Europe to a General Revolution*, 7th ed. (London: H. D. Symonds, 1791), 114.
- 51 Charles Dibdin, “Magic Spectacles,” in *A Collection of Songs, Selected from the Works of Mr. Dibdin IV* (London: Printed for the Author [1790]), 127–29.
- 52 In *Short Wave Craft*, October 1936.
- 53 Hugo Gernsback, “Radio in the Future,” *Radio-Craft* IX, no. 9 (March 1938), 590–91, 613.
- 54 *Ibid.*, 613.
- 55 *Ibid.*
- 56 *Ibid.*
- 57 Hugo Gernsback, “40 Years of Television,” *Radio-Electronics*, March 1949. www.antiqueradios.com/features/40years.html. Last accessed 25 August 2015. In the same article, Gernsback writes about “Multiperception,” which we would now call multitasking, anticipating media practices of much later times.
- 58 Paul O’Neil, “The Amazing Hugo Gernsback, Prophet of Science. Barnum of the Space Age,” *Life*, 62–69. Photo of Gernsback wearing his glasses was published on page 68. ETSI.
- 59 *Ibid.*, 69.
- 60 Picture of Baird with the 1928 stereoscopic television was published in “Television Scanning and Synchronizing by the Baird System,” *Popular Science Monthly*, February 1932, 84. It used a standard Victorian Holmes-type stereoscope as the eyepiece! See also Tom McArthur and Peter Waddell, *The Secret Life of John Logie Baird* (London: Hutchinson, 1986), 151, 230. Baird also worked on 3D radar.
- 61 Henry J. De N. McCollum, “Stereoscopic–Television Apparatus for Individual Use,” US Patent 2,388,170, filed April 15, 1943, granted October 30, 1945. McCollum had several other patents. He was from Chicago, and the executrix was his widow Thelma McCollum.
- 62 *Ibid.*, 1.
- 63 *Ibid.*
- 64 In our time, devices like the Supine Reading Glasses or the Lazyglasses (sold by ThinkGeek) re-embody the same idea. According to *Daily Mail*, “‘Lazyglasses’ allow apathetic telly addicts and lethargic book worms to kick back and watch their favorite shows lying down.” “A Couch Potato’s Dream,” *Daily Mail*, 16 August 2013.
- 65 Morton Heilig, “Stereoscopic–Television Apparatus for Individual Use,” US Patent 2,955,156, filed May 24, 1957, granted 4 October 1960. The prototype and much related documentation was salvaged in November 2018 by Scott Fisher and the author, together with surviving Sensorama Simulators and other Heilig items, and placed in the collection of the University of Southern California, Los Angeles.
- 66 Morton L. Heilig, “Enter the Experiential Revolution. A VR Pioneer Looks Back to the Future,” in *Cyberarts. Exploring Art & Technology*, edited by Linda Jacobsen (San Francisco, CA: Miller Freeman, Inc., 1992), 293 (article 292–305).
- 67 “TV Monocle,” *Popular Mechanics* 118, no. 2 (October 1962), 96.
- 68 *Ibid.*, 134.
- 69 *Ibid.*, 100.