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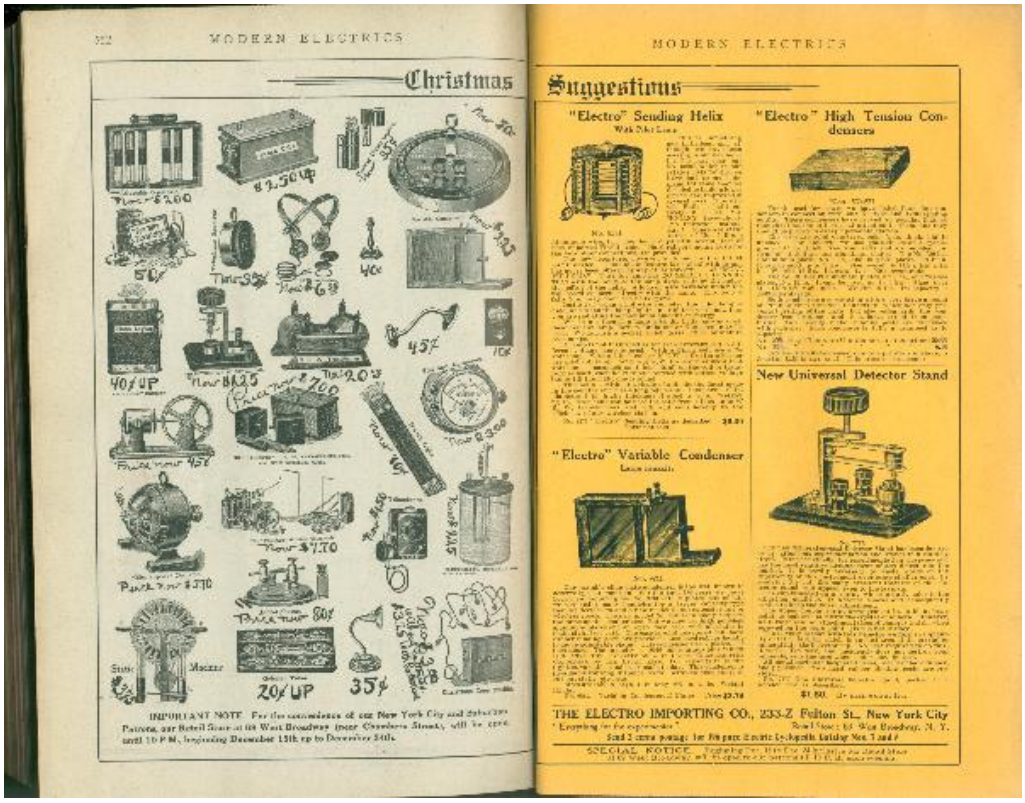
The Electro Importing Company in Manhattan, c. 1910.

It's the summer of 1907 in downtown Manhattan and Lewis Coggeshall sits with a bucket of dimes in the back room of the Electro Importing Company's retail store, filing them down to a coarse powder. Sitting amid shelves of electrolytic detectors, circuit switches, dynamos, and Geissler tubes ready for sale to the city's growing community of amateur experimenters, Coggeshall lets the filings from the dimes fall into a cardboard box at his feet. He then measures and mixes the powder with the perfect proportion of iron (dimes were then printed on ninety percent silver). That mixture goes into a glass tube known as a coherer, one of the earliest forms of a radio receiver. When a radio frequency wave comes into contact with the device, the metal filings cling together or "cohere," allowing the signal to flow between the electrodes at either end of the tube and produce a "dot" or a "dash" in Morse code. Coggeshall, a former telegraph operator, finally connects the coherer to a spark gap transmitter, a sending key, and four dry cell batteries, and then mounts them all on

a wooden base ("Telimco Wireless Telegraph," 2002). The final product is the Telimco, a portmanteau of the company's name and one of the first fully assembled home radio sets ever sold to the American public.

Meanwhile, in the offices upstairs, Coggeshall's investment partner and the founder of the Electro Importing Company, Hugo Gernsback, writes increasingly breathless advertising copy on the Telimco, promising it to be a means of advancement for any young go-getter. In one issue of the *Electro Importing Company Catalog*, which featured "Everything for the Experimenter" and claimed to be "the largest makers of experimental Wireless Material in the world," Gernsback promises, "We give you the opportunity to tick yourself up to the head of a future wireless telegraph company as did Marconi, De Forest and others." Gernsback priced the set at $8.50 and claimed that it required no more expertise than a working knowledge of Morse code (the transmission of audio or voice was not yet possible with what was then called "wireless telegraphy.") First advertised in the November 25, 1905 issue of *Scientific American*, the Telimco appeared thereafter every two weeks, quickly becoming one of the best selling items for sale in the catalog.



ElectroImporting Company advertisement in Modern Electrics (1908).

But the Telimco was not exactly the revolutionary device that brought radio to the masses that Gernsback later liked to claim it was. Though its advertisements

claimed the set was "guaranteed to work up to one mile," the Telimco was notoriously finicky (“Wireless Telegraph [Advertisement]” 1905). As it was sold, the outfit had a range of merely 300-500 feet and could only receive signals from further distances when a large antenna was hooked up. Further, it was highly susceptible to any kind of electrical interference, such as the elevator motor in the Electro Importing Company building, which caused difficulties during in-store demonstrations of the apparatus. The Telimco's untuned circuits, which produced a high degree of interference for any nearby radio station, would become outlawed by the 1912 Radio Act. For these reasons, its metal filings coherers "had all but disappeared from commercial work in 1910" according to historian of early radio Thomas White (White, 1996). From this perspective, the Telimco seems less a practical means of communication than a proof of concept for a growing group of "electrics" hobbyists.

What sort of artifact, then, is the Telimco for the historian and theorist of media technologies? Does it deserve credit for being a historical “first,” one of the earliest consumer-friendly sets that would pave the way for radio broadcasting and domestic listening in later decades? Do we overlook its technical faults, as we do the almost unplayable tin foil phonograph cylinders first released by Edison, in favour of the idea behind the prototype and what it later would become? Or do we pass it by as a marketing gimmick, a fiction, in favour of technical developments that offer more objectively measurable achievements?

Perhaps the Telimco provides a nostalgic glimpse to an era when advanced media technologies were handmade by their users; a time when their operation was still more of an alchemy than a science. Today, critical practice and the culture at large are both infused with an "affective nostalgia" in thinking about technology. In the words of Jussi Parikka. "vintage is considered better than the new, Super-8 and 8-bit sounds are objects of not only nostalgia but also revival and retrocultures seem to be as natural a part of the digital-culture landscape as high-definition screen technology and super-fast broadband" (Parikka, 2012, p. 2). Part of "the media-archaeological spirit of thinking the new and the old in parallel lines," argues Parikka, involves the acknowledgement that old or "dead" media are "continuously remediated, resurfacing, finding new uses, context, adaptations” (p. 2).

But what were some of the historically situated understandings of this technology? With the benefit of hindsight, we can decide on the Telimco's feasibility, significance, and what kind of historicity we want to claim for it. What we'd miss, however, is the context in which this artifact emerged. More interesting than the gap between the actual abilities and the claims surrounding the Telimco and other

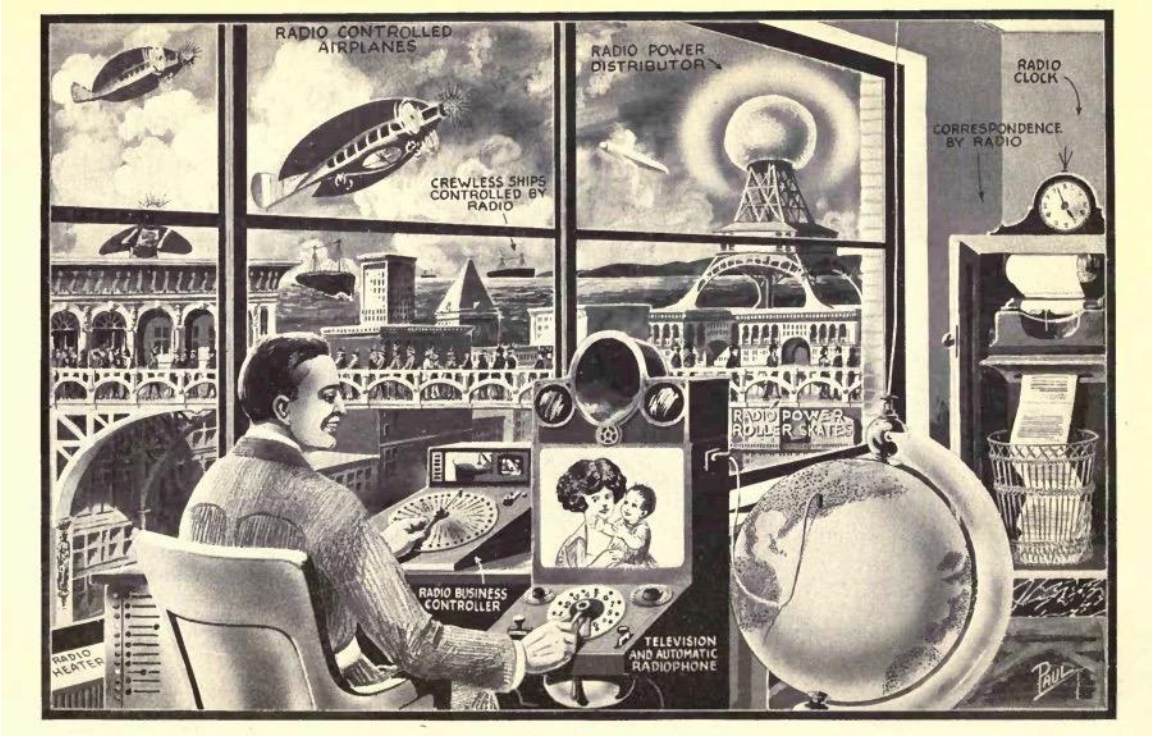
Electro Importing devices, is the structure through which these claims were made. Before Hugo Gernsback's most famous publication was released in 1926---*Amazing Stories*, the first science fiction magazine---a speculative language for assessing the cultural impact of new media was introduced in the *Electro Importing Company Catalog* and refined with his technology and tinkering magazines like *Modern Electrics* (first published in 1908), *Electrical Experimenter* (1913), *Radio News* (1919), *Science & Invention* (1920), *Television* (1927), *Short-Wave Craft* (1930), and *Technocracy Review* (1933). Regardless of how advanced the devices detailed in the pages of Gernsback's magazines seemed---solar cells, automobile mounted radiotelephones, electric keyboards powered by vacuum tubes---his staff reported on them as if they only required a combination of already existing electrical principles and components. These new media appeared as little more than the sum of individual building blocks that one could pick and choose from out of the pages of the *Catalog*.

Technical literacy was encouraged not only through blueprints and instruction manuals for the amateur tinkerer, but also through thought experiments and graphical projections of what these new media might look like. This was Gernsback's forté: reading fantastic possibilities for the future of technologically advanced societies off the shape of the most mundane of material objects, techniques and processes---even the silver filings of a dime.

Gernsback presenting a replica of the Telimco to the Henry Ford Museum, 1957.

These amateur experimenter magazines covered not just the most spectacular and popular of the mass media, such as cinema and wireless telegraphy, but the affordances of the smallest individual components: the selenium-coated plate, the tungsten lamp, the chromic plunge battery. In the blueprints of *Modern Electrics* all

the way through to the short fiction of *Amazing Stories*, the addition and subtraction of each wire, coherer, or tuning hookup constituted a full-scale shift in the abilities and sensory affects of the apparatus being constructed as well as the narrative form through which it was described. Moreover, these publications developed interleaving descriptive and narrative frameworks within which to describe these devices and experiences. No longer was it sufficient to profile the technical specifications of a device or the mechanical arrangement of its parts. Instead, magazines like *Radio News* and *Science and Invention* followed technological developments through to their most logical, and sometimes extreme, conclusions: the increased availability of a light-sensitive alloy implied that the coming of visual telephones was near, and the number of amateurs sending in their own designs for primitive television receivers only served to confirm the immanence of this new mode of communication.



Frontispiece to Hugo Gernsback's Radio for All (1922).

The Telimco was one of countless artifacts profiled in the Gernsback magazines that blurred the lines between the real and the imaginary. Part branding exercise, part rallying call to a community of active amateur experimenters, Gernsback gave names to these ideas like the Aerophone (a name for wireless audio transmission, rather than merely telegraphic code), the Telephot (an early conceptualization of the videophone), and the Hypnobioscope (an automated thought transcription and

playback machine). These gadgets appeared so frequently and in such diverse contexts---as props in short stories, homemade designs in letters to the editor, and profiles of similar developments across Europe---that one gets the sense paging through the magazines that they are all part of a coherent fictional world, built up across many years and many issues. Given the pace of technological change in the early twentieth century, it seemed as if any one element of this fictional world could bleed into everyday life at any moment.

All of this began with the *Electro Importing Catalog*. After several issues of the mail order catalog and a growing subscription list, Electro Importing began including features, editorials, and letters to the editor. Between 1906 and 1910, the catalog grew into a series of monthly magazines for the wireless homebrewer, beginning with *Modern Electrics* in 1908 and the offshoot Experimenter Publishing Company in 1915. The transition from the mail-order catalog to the "slick paper" monthly magazine format was a smooth one, evidenced by the fact that the third edition (1908) of the Electro Importing catalog bears the title of the new full-format magazine, "Modern Electrics."

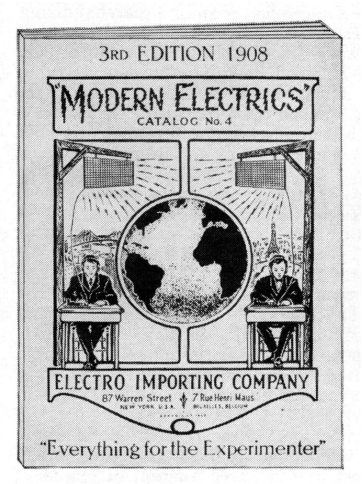
While *Modern Electrics* still advertised the equipment Electro Importing offered for sale in a familiar grid layout with ordering instructions, it also included feature articles detailing the latest research into experimental media technologies in America, Germany, France, and in Gernsback's own company offices. Regular reporters like H. Winfield Secor and René Homer, celebrity guest contributors such as Lee De Forest, Thomas Edison, and Nikola Tesla, as well as the unnamed Paris and Berlin Correspondents provided reports on television, wireless telephony, and the use of novel electrical apparatuses in film and theatrical productions, each of which would go into a great degree of technical detail.

What's interesting about these early publications is that it wasn't always entirely clear what kind of medium would emerge from the devices built by Gernsback and his readers. In an issue of *Modern Electrics* devoted to the Aerophone, Gernsback writes in an editorial of the problem of putting a name to a speculative idea of a medium that wasn't technically possible yet:

> We have grown so accustomed to the word "telephone" that we use it over and over without being conscious that it really means "far voice." You will say: "I shall telephone you," but nobody would think to say: "I shall far-voice you."
>
> A short word has long been needed to express what is known now under name of "wireless telephone."
>
> It sounds decidedly odd to say: "I shall wireless telephone you," or I shall

> telephone you wirelessly."
>
> The word "radio-telephone" expresses the idea a good deal better, but still it sounds strange if we say: "I shall radio-telephone you." Better would be the shorter word "radiophone." But it does not seem to sound quite right when we say: "I shall radiophone you," or: "I have received a radiophonic message."
>
> Somehow or other it sounds harsh. The Editor suggests the word "Aerophone," which not alone sounds well, and is easily remembered, but expresses the idea correctly. Translated it means: "air-voice." In other words, talking through the air, while telephony stands for talking over the wire. The word radiophone does not convey the idea that no wire is used, while Aerophone does. (Gernsback, 1908b)

The medium that Gernsback attempts to name here is best understood as an early conceptualization of radio. While the voice had been transmitted wirelessly as early as 1900, most notably by the Canadian Reginald Fessenden, a reliable means for accurately sending sound, voice, and music signals was still a ways off. Because the broadcast model of radio we are familiar with today had yet to be imagined, most projections of wireless voice transmission involved a point-to-point model resembling a telephone conversation. "Aerophone" never took off as a name, and terms like "wireless telephone" and "radiophone" were gradually simplified to "wireless."



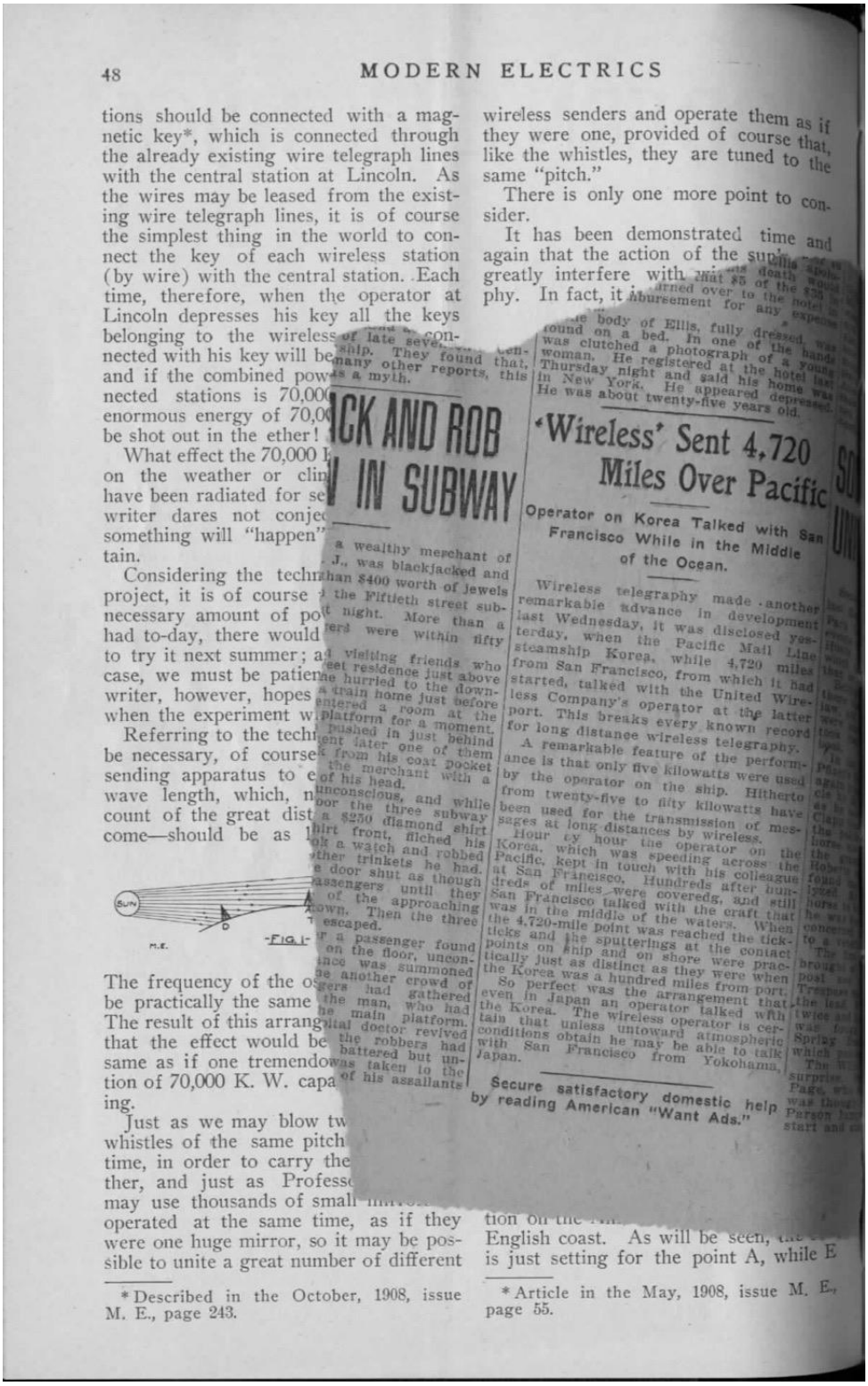
Modern Electrics in its original catalog form, 1908.

But the hallmark of the magazine became its more speculative articles, those that were willing to extrapolate fantastic future scenarios out of the technical details at hand. The first published in this vein was "Harnessing the Ocean," a boosterish piece in the December 1908 issue claiming that "electricity is the fuel of the future," provided we can find a way to convert the earth's tides into electric power (Gernsback (1908a)). Six months later, Gernsback wrote an article on what would

become one of his favourite topics over the next few decades, "Signaling to Mars," which detailed the conditions that would have to obtain in order for earth to send messages via wireless telegraph to the red planet.

The quantitative description of the transmitting apparatus, in terms of its necessary output (70,000 kilowatts) and best time of year to signal (summer), only constitutes one aspect of this scenario. Gernsback goes on to take into account the nature of Martian intelligence that would be necessary for such a communicative circuit to be completed: "we can only hope that the Martians are further advanced than we and may signal back to us, using a method new to us and possibly long discarded by them, when thousands of years ago they stopped signalling to us, and gave us up, as we did not have intelligence enough to understand" (Gernsback, 1909a). Continuing in the tradition of Percival Lowell and William Henry Pickering---the latter of whom offered a similar proposal on the front page of *The New York Times* to communicate with Mars using a series of mirrors ("Planned Messages to Mars," 1909)---the supposition of Martian technology (or biology, or ecology) provided a topos upon which readers might asses the direction of its terrestrial analogues.

For the readers of *Modern Electrics*, the technical context in which this highly speculative article appeared only lent credence to the idea that first contact was right around the corner. In the copy of this issue at Princeton University's Firestone Library, someone inserted a newspaper clipping (now a permanently affixed leaf within the bound volume) that tells of a new distance record for wireless signalling, from San Francisco to the Pacific Mail Line steamship Korea as it made its way across the ocean. Left there as if to vouch for the plausibility of the idea that we'll soon be able to connect with our nearest planetary neighbour, the clipping provides a wonderful sense of how people read these magazines. Though the Gernsback titles eventually became infamous for their sometimes outlandish claims---*that electric current might clean us better than water*; *that the success of a marriage can be predicted using gadgets assembled out of various household supplies*---they were always presented through a lens of supposedly scientific rationality. This frame affected the reception of the magazines by their readers, the design ethos that grew up around them, and the kind of fiction they eventually produced.



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tions should be connected with a magnetic key*, which is connected through the already existing wire telegraph lines with the central station at Lincoln. As the wires may be leased from the existing wire telegraph lines, it is of course the simplest thing in the world to connect the key of each wireless station (by wire) with the central station. Each time, therefore, when the operator at Lincoln depresses his key all the keys belonging to the wireless stations connected with his key will be [illegible] and if the combined power of all the connected stations is 70,000 [illegible] enormous energy of 70,000 [illegible] be shot out in the ether!

What effect the 70,000 [illegible] on the weather or climate [illegible] have been radiated for several [illegible] writer dares not conjecture [illegible] something will "happen" [illegible] tain.

Considering the technical [illegible] project, it is of course [illegible] necessary amount of power [illegible] had to-day, there would [illegible] to try it next summer; and [illegible] case, we must be patient [illegible] writer, however, hopes [illegible] when the experiment will [illegible]

Referring to the technical [illegible] be necessary, of course, [illegible] sending apparatus to each [illegible] wave length, which, [illegible] count of the great distance [illegible] come—should be as [illegible]

FIG. 1

The frequency of the oscillations [illegible] be practically the same [illegible] The result of this arrangement [illegible] that the effect would be [illegible] same as if one tremendous [illegible] tion of 70,000 K. W. capacity [illegible] ing.

Just as we may blow two [illegible] whistles of the same pitch [illegible] time, in order to carry the [illegible] ther, and just as Professor [illegible] may use thousands of small [illegible] operated at the same time, as if they were one huge mirror, so it may be possible to unite a great number of different wireless senders and operate them as if they were one, provided of course that, like the whistles, they are tuned to the same "pitch."

There is only one more point to consider.

It has been demonstrated time and again that the action of the sunlight does not greatly interfere with [illegible] phy. In fact, it [illegible]

* Described in the October, 1908, issue M. E., page 243.

tion on the [illegible] English coast. As will be seen, [illegible] is just setting for the point A, while E

* Article in the May, 1908, issue M. E., page 55.

CK AND ROB IN SUBWAY

a wealthy merchant of J., was blackjacked and han $400 worth of jewels the Fiftieth street sub- t night. More than a ers were within fifty visiting friends who eet residence just above he hurried to the down- a train home just before entered a room at the platform for a moment, pushed in just behind ent later one of them k from his coat pocket the merchant with a of his head. unconscious, and while oor the three subway a $250 diamond shirt irt front, filched his ok a watch and robbed ther trinkets he had. e door shut as though assengers until they of the approaching town. Then the three escaped.

a passenger found on the floor, uncon- ince was summoned e another crowd of gers had gathered the man, who had he main platform. ital doctor revived the robbers had battered but un- was taken to the of his assailants

'Wireless' Sent 4,720 Miles Over Pacific

Operator on Korea Talked with San Francisco While in the Middle of the Ocean.

Wireless telegraphy made another remarkable advance in development last Wednesday, it was disclosed yesterday, when the Pacific Mail Line steamship Korea, while 4,720 miles from San Francisco, from which it had started, talked with the United Wireless Company's operator at the latter port. This breaks every known record for long distance wireless telegraphy.

A remarkable feature of the performance is that only five kilowatts were used by the operator on the ship. Hitherto from twenty-five to fifty kilowatts have been used for the transmission of messages at long distances by wireless.

Hour by hour the operator on the Korea, which was speeding across the Pacific, kept in touch with his colleague at San Francisco. Hundreds after hundreds of miles were covereds, and still San Francisco talked with the craft that was in the middle of the waters. When the 4,720-mile point was reached the ticks and the sputterings at the contact points on ship and on shore were practically just as distinct as they were when the Korea was a hundred miles from port.

So perfect was the arrangement that even in Japan an operator talked with the Korea. The wireless operator is certain that unless untoward atmospheric conditions obtain he may be able to talk with San Francisco from Yokohama, Japan.

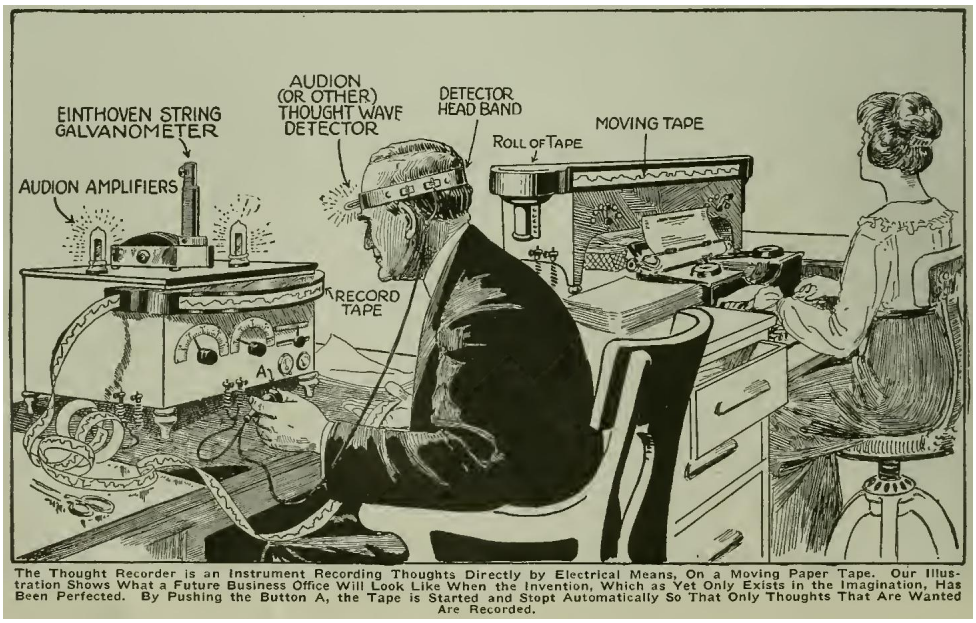
And so when Gernsback argued that the Telephot was the next great advance on the horizon, his readers took this claim seriously. The Telephot was one extrapolation never far from Gernsback's frequent discussion of television prototypes---a

videophone, and what we might think of as an early conceptualization of a Skype call. Gernsback frequently used the metaphor of the mirror to describe the workings of this device. Interestingly, the Telephot isn't any kind of "mirror with a memory," but rather one which produces a reflection that is not your own. In a 1909 article, Gernsback prepares his readers for the kind of cognitive dissonance that might result from a communications medium such as this. He writes:

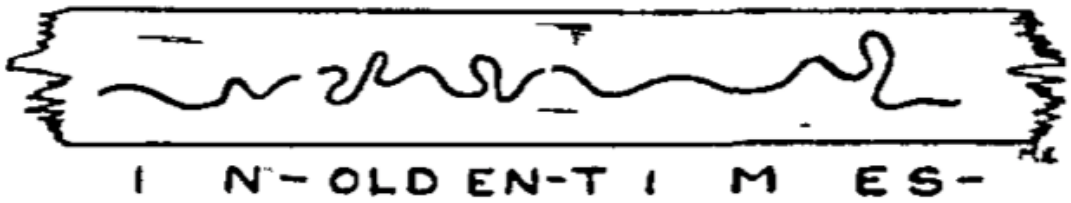
> if you could see yourself in your own Telephot, as well as the picture of your friend, it is obvious that there would be a 'mix-up' of personalities, the consequence being that you could not recognize your friend nor yourself, while your friend at the other end could of course not recognize you nor himself. (Gernsback (1909b)

One of Gernsback's most wildly imaginative visions of the future was a means of recording and playing back human thought using waveforms that looked like the audio waves. The Menograph and its playback device, the Hypnobioscope, were introduced in Gernsback's first published piece of fiction, the serial novel *Ralph 124C 41+,* as one of the titular character's most influential inventions.

Instead of writing a letter, one sends the recorded *Menotape,* and inasmuch a the Menolphabet is universal and can be read by anyone---children being taught it early---it stands to reason that this invention was one of the greatest boons to humanity: Twenty times as much work can be done by means of the Menograph as could he done by the old-fashioned writing, which required a considerable physical effort. Typewriters disappeared soon after its invention, as there was no more use for them; nor was there any use for stenographers, as the thoughts were written down direct on the tape, which was sent out as a letter was sent centuries ago. (Gernsback, 1911)



From the May 1919 Electrical Experimenter.



The Hypnobioscope, on the other hand, plays these thoughts back directly to the mind of a person "in a passive state," preferably while sleeping. The ultimate fantasy of an immediate medium, the Hypnobioscope would mean a kind of direct thought transference. What's interesting about the presentation of this device is that it didn't seem out of the realm of possibility at the time. Considering the fact that voices could literally be skimmed from the air---a fact that only a couple decades ago seemed little more than a fantasy---the science fictional worlds put forward in these magazines seemed ready to become a reality at any moment.

This was a moment of media alchemy, when one needed only to mash up two existing devices or components to imagine the next fantastic advance---for instance the Aerophone as a combination of wireless telegraphy and telephony, or the Telephot as a combination of cinema and telephony. The emphasis in the Gernsback magazines focused not only on the level of the device itself, but also on the kinds of sensory effects that would result from these new combinations,

recalling what John Johnston, drawing on Friedrich Kittler calls "partially connected media systems" that interface "a diversity of information and effects" (Johnston, 1997, 174). For Gernsback's Electro Importing Company and Experimenter Publishing Company, this modularity was a product of both technical experimentation and a popular means of imagining such hybrid media. On the one hand, experiments were conducted and reported on at Gernsback's radio station WRNY with broadcast media and the effects of various instruments and signal processing techniques on the auditory perception of the station's listeners. On the other hand, articles and editorials in the magazines would often draw on simple analogies to describe these effects, such as the explanation that "television does for the eye what the telephone does for the ear," as Gernsback put it, lifting a slightly altered version of the now famous language from Edison's patent for the kinetoscope, which does for the eye what the phonograph does for the ear (Gernsback (1927)).

This kind of modularity among actual, proposed, and imagined components of speculative media is characteristic of the coverage of real and imagined devices, both of which were treated as speculative apparatuses for future improvement. By the time the first works of narrative science fiction appeared in these magazines, like *Ralph 124C 41+,* a means of describing new media through a simultaneously technical and speculative lens had already been well established. The way Gernsback came to terms with the fact of new media in everyday life in his early technical magazines called upon exactly the same kinds of "what if" questions we now understand to be constitutively science fictional.

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