

[beginnings as an electrical parts catalog]

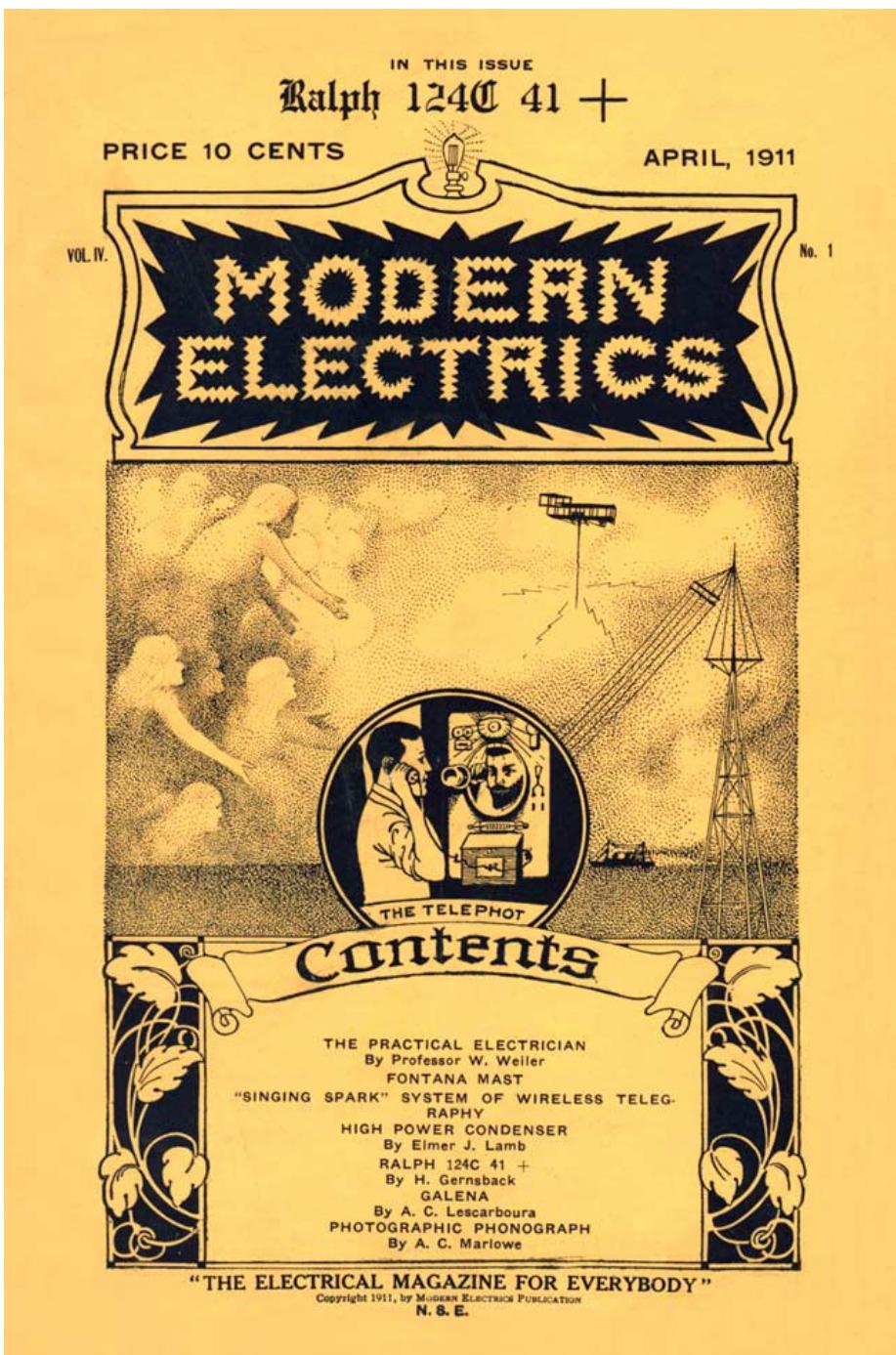
Founded in 1908, Hugo Gernsback's *Modern Electrics* magazine published an "Experimental Department" in each of its monthly issues, a space for readers to submit their home-brewed designs for novel electric devices.

In the April 1911 issue, Lewis Mumford, author of the now-classic history of media and technology titled *Technics and Civilization*, published his first piece of writing at the age of 15: a blueprint for a new kind of compact wireless telegraph receiver, described as “a portable wireless outfit, smaller than a small camera, in which sensitiveness is not sacrificed to saving of space.”

Flipping back three pages in the same issue, one can find the first installment of the editor Hugo Gernsback's serial novel *Ralph 124C 41+: A Romance of the Year 2660*, one of the earliest works of modern science fiction.

RALPH ILLUSTRATION

The proximity of this future media theorist's first piece of published writing to one of the foundational works of science fiction is no coincidence. Lewis Mumford's early preoccupation as a tinkerer took root in a forum for the exchange of designs, components, and visions of the future. Mumford, who would go on to have a successful career as, among many other things, a literary critic



J. F. ARNOLD,

Modern Electrics

VOL. IV.

APRIL, 1911.

No. 1.

The Practical Electrician

A Popular Course in Electricity on the Construction of Electrical Apparatus and Experiments to be Conducted with them

By PROFESSOR W. WEILER, of the University of Esslingen, (Germany)
Translation by H. GERNSBACK

CHAPTER I.—Continued.

13. POLARIZATION. ALEXANDER v. HUMBOLDT¹, GAUTHIER-AT 1801. SCHOENBEIN² 1839.

A SIMPLE copper-zinc-acidulated-water battery shows a strong generation of hydrogen and a quick

amount of water is decomposed when we use but a single cell battery.

14. LAWS OF POLARIZATION; DEPOLARIZATION.

The polarization increases with the power of the primary (first) current, with the constant power of this current, and with the decreasing size of the electrodes (copper and zinc plates of the battery). The polarization is furthermore dependent on the nature of the electrolyte (the solution of the battery) and it decreases when the temperature of the decomposition cell (the cell in which the water is decomposed) is increased.

This polarization, which is so harmful in a battery, may be counteracted by mechanical or by chemical means:

(a) By making the surface of the negative plate (the copper) rough, by

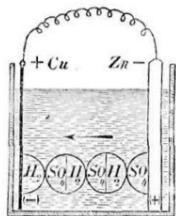


Fig. 14.

drop of its current. A part of the hydrogen accumulates quickly on the copper electrode, Fig. 14, and as it is a bad conductor for electricity, it increases the internal resistance of the battery. This resistance, which the energy created at the zinc electrode must overcome through its transit to the copper electrode, is electro-positive; this reduces the electro-negative force of the copper electrode, and creates an electro-motive counterforce of 1.47 volt.

If, after the decomposition of the water, Fig. 10, we connect the wires of our apparatus with a galvanoscope, the latter will show a current which is opposite to the original battery current and which is termed **Polarization current**. The galvanic polarization explains why only an extremely small

¹Humboldt, 1767-1855, statesman and scientist.
²Schoenbein, C. F., 1790-1868, chemist.



Fig. 15.

agitation of the electrolyte, or by moving or swinging the electrodes.

(b) The only practical means is chemical activity. If one surrounds the plates with a liquid which constant-

PHOTOGRAPHIC PHONOGRAPH.

AN interesting type of phonograph has been invented by a young Russian scientist, S. Lifschitz, and he is now engaged in experiments with it at the Paris University, together with Prof. V. Henri. What is novel about the apparatus is that the sounds are registered entirely by a photographic method, so that there is no mechanical action such as a wax surface would give. To produce the sounds again, the inventor uses the action of an electric motor-driven device, together with compressed air. Referring to the diagrams, a small mirror M is hinged so that it can be operated by the diaphragm D. An arc lamp and lens are used to send a beam of light on the mirror, and it is reflected so as to be thrown on the screen at S. Under the action of the voice,

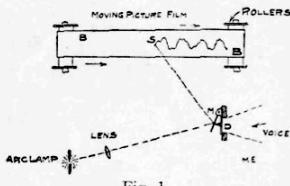
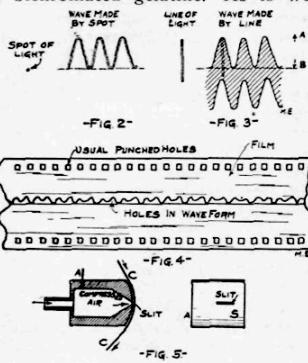


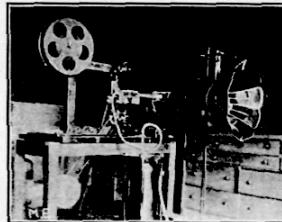
Fig. 1.

when the mouthpiece is spoken into, the diaphragm vibrates, and the mirror as well, so that we have a movement of the light spot at S. When we use a strip of film mounted on rollers, such as a moving-picture film, the sound waves are registered upon the film, and are shown when this is developed in the photographic bath. What the inventor wished to do was to be able to produce a film which could be afterwards used to give out the voice, as a phonograph does. A spot of light would trace the waves as Fig. 2 shows, but this could not be utilized. He adopts an ingenious method, shown in Fig. 3, using a fine line of light instead of the spot for tracing the waves. When the line moves up and down across the screen we have a certain surface covered, as the shaded area indicates, and on developing the film, this area appears in black. We now suppress all but the

part A—B being above the dotted line, as the rest is not needed, and the original film is printed against a second film of dichromated gelatine. As is well



known, such a film becomes insoluble in water wherever the light acts upon it; so that, upon washing it, we dissolve out all the parts corresponding to the wave impression, and obtain a record, as shown in Fig. 4. It now remains to produce the sound of the voice from such a record. To do this, we use a chamber A, which is supplied with compressed air at B by a rubber tube, using generally a steel compressed air bottle. The chamber carries a very narrow slit S upon its curved outer side, and the moving-picture band is made to run along upon the surface at C C, being mounted above and below upon rollers, and driven by a small electric motor. The slit S is adjusted so that it is entirely open when the



Lifschitz Reproducer.

highest part of the wave opening passes before it, and it is quite closed when the wave touches the zero line

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Vol. IV APRIL No. 1

EDITORIAL.

We wish to call especial attention to the next issue of "Modern Electrics." This will be an unusual number, and will be called "Special Wireless Number." Not alone will the issue have almost twice the volume of

the regular number, but it will have among other features a splendid wireless code chart with the Morse, Continental, and Navy codes, printed on heavy paper, to be framed and hung in your wireless station. This code chart alone we have been selling for 10 cents right along and we believe it is worth a great deal more. There will be several other surprises, besides the code chart, never offered before by any magazine, and we are convinced that the May issue will be not alone the best one ever issued by us, but the best one issued by any electrical paper.

On account of the special features and its great volume, this issue will sell for 15 cents at the news stands, and as we anticipate a heavy demand for this number, we urge you to place your order with your newsdealer **at once**, as only one edition can be run off, and late orders can not be filled, in all probability. The May number will be long remembered by wireless enthusiasts, and for this reason orders should be placed as far ahead as possible.

Regular subscribers will receive this issue without increase of cost. If you ever intended to subscribe for this magazine, NOW is the time to do so.

Special numbers will be issued from time to time at increased cost at the news stands, and for this reason and a great many others, you should be a regular subscriber.

If you are a subscriber, we can be a great deal better in touch with you. We issue special literature from time to time, pamphlets, catalogues of books, etc., which you cannot receive unless your name is on our list. Sometimes, perhaps, a club is to be formed in your town; if we have your name, things will be a great deal easier for all concerned, including yourself, to bring about the desired results. For these and other reasons, it is of great advantage to be a subscriber.

Attention is called to several offers in the advertising section, to induce you to subscribe. Look over them carefully and send your "sub" to-night, before you miss the chance!

Ralph 124C 41 +

By H. Gernsback

(Note. This story, which plays in the year 2660, will run serially during the coming year in MODERN ELECTRICS. It is intended to give the reader as accurate a prophecy of the future as is consistent with the present marvelous growth of science, and the author wishes to call especial attention to the fact that while there may be extremely strange and improbable devices and scenes in this narrative, they are not at all impossible, or outside of the reach of science.)

HELLO, Edward!"
"Hello, Ralph!"

"Would you mind running over to the laboratory to-morrow A. M.? I have something interesting to show you. Look!"

He stepped to the side of his Telephot, so that his friend could see the strange apparatus standing on a table about ten feet distant from the Telephot.

"What is it?" inquired Edward, stepping closer to his Telephot face-plate, and catching himself, added, "Oh, I know, it is your famous"—

At this juncture, by one of the pranks of "Central," Edward's face disappeared from Ralph's face-plate and his voice was cut off simultaneously. Some one in "Central" had disconnected the line. For a few minutes Ralph tried to have the connection re-established but finally gave up in disgust, saying unkind things about the Teleservice Co. As he was just about to hang up the receiver, a soft light suddenly appeared on the face-plate of his instrument, and immediately after, the face of a strange beautiful young girl. Inasmuch as it was 4 o'clock in the afternoon, he was surprised to see a lamp burning on the table behind her, and by closer inspection also to notice the evening gown of the young lady.

She was as startled as he and both exclaimed simultaneously: "Oh!"

Ralph, catching his breath, could only stammer, "A thousand pardons for intruding; it seems "Central" made a mistake as usual."

Her reply startled him still more:
"Pardon Monsieur, je ne comprends pas!"

"Aha," thought Ralph, "she is French, I'll fix that in a hurry."

He quickly turned the small shining disk of the language-rectifier on his instrument, till the pointer rested on "French." He then repeated his question.

"Yes, is it not annoying," he heard her say in perfect English, thanks to the rectifier; but realizing that this was hardly a very polite answer, she added: "but sometimes wrong connections are so delightful!"

He bowed in acknowledgment of this.

"What a strange place you have," she was looking over the many curious devices of Ralph's laboratory as far as the focus of the face-plate allowed.

"May I ask where your delightful laboratory is located?"

"New York," he said pleasantly.

"Just think of it, you would never guess where I am," she laughed as she spoke.

"Oh that is not such a terrible hard guess. To begin with, before I rectified your speech, you spoke French, hence you are probably French. Secondly, you have a lamp burning in your room although it is only 4 o'clock in the afternoon here in New York. You also wear evening dress. It must be evening where you live, and inasmuch as the clock on your mantelpiece just points to 9, I would say you are in France, as New York time is five hours ahead of French time."

"How clever. Only not quite right. I am not French, nor do I live in France. I live in Western Switzerland and I am Swiss. Swiss time, you know, is almost the same as French time!"

Both laughed. Suddenly she said:

"Your face looks so familiar to me,

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and associate editor of *The Dial*, cites these experiences among a community of tinkerers in the pages of *Modern Electrics* as foundational for his later theories of what he called technology’s “spiritual contribution to our culture.”

! [] (images/me_cover_hypnobio.jpg)

Modern Electrics, which began as a mail-order catalogue for exotic, imported wireless parts, gradually evolved into “A magazine devoted entirely to the Electrical Arts.” The magazine profiled international developments in new media technologies, summarized the latest U.S. Patents awarded to electrical experimenters, and solicited amateur blueprints, designs, and techniques from readers. What sets *Modern Electrics* apart from other technical publications of the period like *The Wireless Age* and *QST* is the way in which its writers enlisted fiction in their attempts to find a language suited to the analysis of emerging media such as radio, television, or the more exotic osophone and telegraphone.

For instance, when readers submitting a design encountered difficulties in describing its specifications – perhaps a certain component was technically or economically unfeasible – they would stitch their incomplete engineering diagrams together with narrative threads. In a tradition that continued throughout Gernsback’s later publications – including *Electrical Experimenter*, *Radio News*, *Science and Invention*, and most famously, *Amazing Stories* (the first ever science fiction magazine) – *Modern Electrics* pioneered a kind of writing that combined hard technical description with an openness to the fantastic. It was a mixture out of which an entire literary genre emerged to tackle the question of the distinctive specificity of “medium” in a new wireless age.

Today, the phrase “science fiction” conjures up images of bug-eyed monsters, ray guns, starships, and sonic screwdrivers. But in the opening decades of the twentieth century, before a century’s accretion of images, narratives, and clichés, that which was not yet called science fiction consisted of a great number of concrete practices all geared toward a reckoning with the technological revolutions in everyday life. “Science,” wrote Gernsback in the inaugural issue of *Amazing Stories*,

through its various branches of mechanics, astronomy, etc., enters so intimately into all our lives today, and we are so much immersed in this science, that we have become rather prone to take new inventions and discoveries for granted. Our entire mode of living has been changed with the present progress, and it is little wonder, therefore, that many fantastic situations ... are brought about today. It is in these situations that the new romancers find their great inspiration.

For Gernsback, “science” is synonymous with “applied science,” an amalgam of science and technology that saw no division between the explanation of complex things and the often fantastic incursion of those things into modern life. The paradox at the heart of Gernsback’s project is that science, that supposed vehicle of enlightenment rationality, can *itself* produce enchantment and wonder.

This is not a perspective unique to Gernsback's emphasis on the *applied* sciences. As Philip Fisher reminds us, it is often the very act of scientific explanation that renders the object or phenomenon in question marvelously strange. He writes, "every stage of explanation . . . has consistently dispelled the extraordinary only to produce, in the very act of explanation, newer forms of wonder."

Our literary historical challenge in working with this material, then, is to recover the sense of radical openness that greeted not only the basement tinkerer working through the feasibility of transmitting images over a wire, but also the author of "scientific fiction" stories (as they called it then) who possessed a highly sophisticated awareness of the fact that . . .

! [] (images/sws_cover_goggles.jpg)

Two hundred years ago, stories of this kind were not possible.

-Gernsback, "A New Sort of Magazine

Often, these individuals were one and the same, weaving together functional and fictional devices in a manner that served for them as a form of scientific discovery in itself.

Today, I will examine the circumstances of science fiction's invention in America. In contrast to the deeper history of utopias and political satires in the European tradition that would be drawn upon in the twentieth century by H.G. Wells, Olaf Stapledon, Aldous Huxley, and J.G. Ballard, I will argue that science fiction emerged in America as a discourse on media.

[MUTE]

While some of the most influential histories of science fiction have subsumed the genre within a larger continuum of utopian literature (as does Frederic Jameson with his emphasis on the transhistorical "desire called utopia"), this approach ends up emphasizing the vast worldbuilding enterprises of the American left (as in Ignatius Donnelly's *Caesar's Column* from 1890 and Edward Bellamy's 1888 record best seller *Looking Backward*), while papering over the smaller-scale, everyday concerns of the technologists and technocrats on the other side of the Atlantic (most notably, Rudyard Kipling).

This approach also overlooks many of the speculative energies that were both inspired by and reflected in literary productions: cinema, tinkering, popular science, exhibitions, and industrial design. Setting aside the literary historical syntheses of those science fiction critics looking to elevate the status of the genre by associating it with utopias and political satires, my concerns are quite different.

I'll proceed instead through a speculative question of my own: what would a literary history constructed from objects look like? Because the history I have in mind here is not one of *literature* as a body of works but the far more slippery *fiction* as a relation to reality, or what has even been called "a form of lived experience," this is not entirely a question of book history, with its emphasis on the material practices and circulation of literature. In fact, perhaps a shift in emphasis is necessary, from the question of literary history to one of *fictional history*. In revisiting the genealogy of what Gernsback first christened as "scientific fiction," I want to get at the production of those particularly otherworldly moments of everyday life, those moments that seem to extract us from the flow of the ordinary and provide us with a new perspective on it.

For Michael Wood, fiction can be seen as

something we find in the slightest hints and verbal gestures of ordinary life, whenever we speak playfully or ironically, or call something by a name that is not its own; whenever we see or say that people and places have markedly changed while stubbornly, loyally remaining the same.

While book history takes up the materiality of literature, the materiality of fiction presents us with some potentially thornier questions. How are fictions expressed not only in literary form, but in organizations, plans, engineering diagrams, standards, and physical media machines? How might we conceptualize or model this moment of exchange between the material and the possible? Science fiction, a literary genre that emerged out of an electrical parts catalog, provides one starting point for such questions.

I'll proceed by providing, first, a crash course in science fiction studies, for those of you who haven't been lifelong fans, as I have. What's important for our purposes is to look at some attempts that have been made in the field to account for the genre outside of its literary productions. Second, we'll take a look at some of those early 20th century electrical experimenter magazines and their significance as media historical documents. And finally, I'll say a bit about what makes this moment interesting for contemporary conversations on gadgetry.

STUFF ON HISTORY OF SF CRITICISM

The Popular Iconography of Possible Media

! [] (images/eico_store.png)

So let's come back to *Modern Electrics* magazine. *Modern Electrics* began as the mail-order catalogue for Hugo Gernsback's Electro Importing Company, founded in 1905. Through this catalog and their retail store at Broadway and Chambers St. in downtown New York (TriBeCa), the company provided access to specialized wireless and electrical equipment not found anywhere outside of Europe. Electro Importing catered to a diverse clientele, providing their more advanced basement experimenters with the first vacuum tube offered for sale to the general public in 1911, and manufacturing for their novice users the first fully assembled radio set commercially available in late 1905, the Telimco.

! [] (images/telimco.jpg)

After several issues of their 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."

! [] (images/me_catalog1908.jpg)

While the magazine 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 Correspondent and Berlin Correspondent 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.

But the hallmark of the magazine became its more speculative articles, those that were willing to extrapolate fantastic 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.

! [] (images/signaling_mars.jpg)

Six months later, Gernsback wrote an article on what would become one of his favorite 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 and best time of year to signal 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 signaling to us, and gave us up, as we did not have intelligence enough to understand.

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.

! [] (images/signaling_mars_insert.jpg)

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 signaling, from San Francisco to the Pacific Mail Line steamship Korea as it made its way across the ocean.

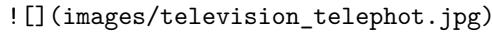
Left there as if to vouch for the plausibility of the idea that we'll soon be able to connect with our nearest planetary neighbor, the clipping provides a wonderful sense of how it was people read these magazines. Though the Gernsback titles eventually became infamous for their sometimes outlandish claims — 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 — these projections 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.

In the Gernsback publications, the technical capabilities of a given device was always less important than what that device implied. Sometimes, these implications would simply take the form of overblown statistics, as it did for the aforementioned Telimco, a radio set “guaranteed to work up to one mile” in the catalog, but which actually had a range that could have been no more than 300-500 feet and whose untuned circuits “must have caused extensive interference to any nearby stations.”

Other times, writers in the Gernsback publications would explain away the limitations of impractical prototypes by focusing more on the next steps that would have to be taken. Television, or rather the potential of transmitting moving

images over a wire, was one such speculative apparatus that remained completely open to the tinkering and discoveries of individual readers throughout the history of these magazines, regardless of the technical difficulties involved in achieving this long sought-after dream.

As a kind of boundary object between the well established technical infrastructure of radio and the more intensely imaginative creations like “electronic vibration adjusters,” television provides an object lesson in the way the Gernsback magazines encouraged a kind of popular technological literacy through depictions of gadgets and gadgetry.

 (images/television_telephot.jpg)

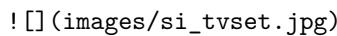
Television was a familiar topic throughout the run of the Gernsback magazines, beginning with a 1909 *Modern Electrics* editorial, “Television and the Telephot.” The article introduces a system first described by Berlin-based technologist Ernst Ruhmer for transmitting images over a wire, one which bears more of a technical resemblance to today’s liquid crystal displays (LCDs) than the electromechanical Nipkow disk scanners common at the time.

In this photograph, Gernsback stands in the Electro Importing Company offices next to a crude prototype displaying a 5x5 pixel cross transmitted from one display to another. Ruhmer’s system used light-sensitive selenium cells arranged in a mosaic, transmitting differences in light intensity through variable current strengths. The greatest benefit of this set up is that the entire image is transmitted across a single wire, as opposed to one wire for each individual pixel. This multiplexing was a unique solution to the problem of translating a two-dimensional image into a one-dimensional electrical current, which was seen as the biggest stumbling block to television at that point.

But even still, this was an entirely unworkable prototype, in that selenium has an incredibly slow refresh rate – each “cell” of selenium pictured there would take at least a couple seconds to loose its charge, so an entire moving image was still largely out of the question.

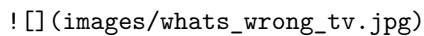
Unlike other technical publications that just reported on the latest electrical R&D and leave it at that, Gernsback and his writers would follow such developments through to their logical conclusions, locating the material conditions of possibility under which a new signal processing technique, for instance, might be scaled up into an entire medium. Depicting a certain gadget always meant locating the inherence of an entirely new form of communication by building all sorts of projected functionalities into the apparatus.

Throughout the late 1920s, the Gernsback magazines covered a range of methods for transmitting images over a wire or across the airwaves, some of which Electro Importing continued to experiment with on their own, and others they merely reported on (including the Semat machine, and the Nipkow disk).

 (images/si_tvset.jpg)

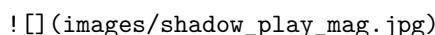
By 1927, *Radio News* and *Science and Invention* had turned to the Nipkow disk model, and published several feature articles detailing how to build your own television receiver. In one editorial for *Radio News*, Gernsback describes the television as just a simple add-on or expansion kit to a normal domestic radio set. “I am quite certain [he writes] that the final television apparatus on your radio set will take up no more room than your present cone speaker.”

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 appear as little more than the sum of individual building blocks that one can pick and choose from out of the pages of the *Electro Importing Catalog*.

 (images/whats_wrong_tv.jpg)

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. The May 1927 cover of *Radio News* portrays a woman sitting next to a television receiver, or more precisely, a mockup of what such a receiver might eventually look like. The caption asks readers to judge “What’s wrong with this picture?” and send in their answers for the chance to win \$300 (possible answers: a single colorized element in an otherwise black and white image; the clock in the broadcasted image displays a different time than that on the wall of the viewer; a transparent screen). Such a challenge doesn’t require a working knowledge of how to construct a prototype of a television set or read a circuit diagram of how it is to be wired. Instead, it encourages the viewer to participate in a kind of thought experiment about how something like television might one day function.

The shape of media to come took on an iconography all its own through the illustrations of Frank R. Paul. Paul’s depictions of gadgetry circulated widely beyond their original publication venues in a way that has never before been given any attention. Plans for the osophon, a device Gernsback designed to replace headphones by transmitting sound through vibrations in the jawbone of the listener, were published and reviewed in the German journal *Der Radio-Amateur*.

 (images/shadow_play_mag.jpg)

Paul’s sketch of a man using a tuning fork to calibrate the speed of the 1928 *Science and Invention* Nipkow disk television receiver was republished the following year in the Chinese film journal *Shadow Play Magazine* as an illustration of recent research into television, what was referred to in the article as, directly translated, “wireless cinema.”

This is something I’ve had to table at the moment simply because the project is getting so large, but further research into the global circulation of these images

could reveal what we might think of as an emergent, transnational media culture in the early 20th century that thrived off discussions of recombinant technologies and dreams of a media saturated future.

This popular iconography of possible media, at once legible to the non-expert and open to an informed conversation on how these things of the future might function, was part of a wider culture of devising a language for new media, and provided one of the foundational strands of a science fiction genre. When not in actual practice, there was a real energy behind the fictive swapping out of components from a given device and remixing them or replacing them with parts that had not yet come into being.

While television was a real, if not improbable prospect for the work of the basement experimenter, there were other devices Gernsback and his staff reported on that thrived entirely off of the incorporation of projected functionalities not yet within the realm of possibility.

! [] (images/newsophone.jpg)

For instance, mobility is often added on to the end of articles covering other innovations or proposed devices to further articulate their potential as a new means of communication or information delivery. In an *Electrical Experimenter* article on the “newsophone,” a system in which users call a central telephone exchange that connects them to phonograph recordings of the latest news, the prospect of receiving this information on the go is floated at the article’s close.

A great dream of the future, . . . which most probably the readers of this article will live to see before a great while, is the radio distribution of news by central news agencies in the larger cities, to thousands of radio stations in all parts of the world. Then any one can simply ‘listen in’ on their pocket wireless set, connected to the nearest metal body such as a radiator, iron bed or umbrella, and receive the ‘Latest News.’

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. For Gernsback’s Electro Importing and Experimenter Publishing Companies, this modularity was a product of both technical experimentation and a popular means of imagining such hybrid media. So, while broadcasting experiments were conducted at Gernsback’s radio station WRNY, his magazines reported on the effects of various instruments and signal processing techniques on the auditory perception of the station’s listeners. Articles and editorials 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. 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 radiophone, which was a combination of wireless telegraph and telephone, or the “telephot” which was a combination of the photograph and telephone.

 (images/ee_cover_telephot.jpg)

The telephot was one extrapolation never far from Gernsback’s discussion of all the various television apparatuses – basically 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:

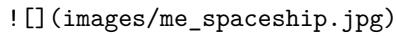
if you could see yourself in your own Telephot, as well as the picture of your friend, it is obvious that there would be a ‘mix-up’ of personalities, the consequence being that you could not recognize your friend nor yourself, while your friend at the other end could of course not recognize you nor himself.

This kind of modularity among actual, proposed, and imagined components of speculative media is characteristic of the coverage of both real and imagined devices, both of which were treated as speculative apparatuses for future improvement.

Coming from this angle to the first works of narrative science fiction that emerged in these magazines, it’s striking just how seamless the transition is from technical experimentation to narrative speculation. While most science fiction critics’ attention to the early Gernsback confines itself to the serialized publication of his novel *Ralph 124C 41+*, the generative “what if” questions of science fictional worlds were already very much at work in the experimenter magazines all the way back to their catalog origins. Science fiction wasn’t just a narrative phenomenon, it was a mode of technical interaction.

Gernsback framed the writing of scientifiction stories as a kind of tinkering in itself, an educational enterprise that engaged both the writer and reader in a series of thought experiments that could lead to practical innovations. Scientifiction stories, he wrote in the inaugural issue to *Amazing*,

supply knowledge that we might not otherwise obtain – and they supply it in a very palatable form. For the best of these modern writers of scientifiction have the knack of imparting knowledge, and even inspiration, without once making us aware that we are being taught.

 ! [] (images/me_spaceship.jpg)

The way in which new technologies were described in these stories and articles was meant not only to amaze but to provide “knowledge” of their significance. One of the questions I’m interested in here, is what happens to technology when we understand it not through a scientific explanation of how it works – through its technical specificities or engineering makeup – but through a kind of outright wonder in the face of countless new possibilities laid out before us. Gadgets like the telephot and newsophone aren’t exactly presented as tools that perform useful tasks so much as they are astounding objects that perform in a way that before seemed unlikely or even *magical*.

Here, we see the relationship between wonder and knowledge brought into question through new kinds of technical objects that challenged conventional modes of understanding. This was a formative moment not only for science fiction but media studies itself. These amateur experimenter magazines sought to describe and reproduce the estranging effects and imaginative possibilities of new technologies, in effect giving rise to a critical discourse on media long before it became a topic of academic inquiry.

An excavation of early scientifiction thus has implications not only for science fiction studies (which largely ignore this period in the history of the genre), but also for media studies and the question of how it might go about analyzing the imaginative dimensions necessary to any instance of technical interaction. Everyone picks up a tool in the subjunctive mood: what does this make possible that wasn’t before? How hard do I have to swing it? Even, why doesn’t it work?

A fuller understanding of these imaginative dimensions is important not only for the tools we use every day, but for the study of historical and future technologies as well.