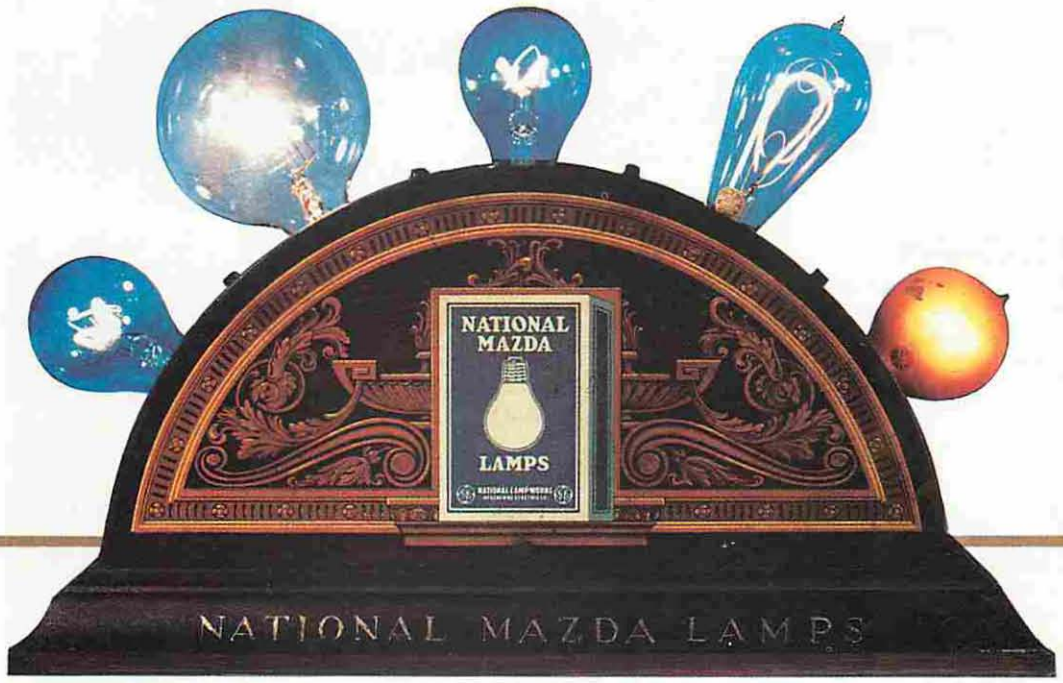
The message was electric

Images of electricity were first exploited to sell Victorian products; such advertising helped give electricity itself a high profile and promote technological progress



Fascinating filaments: The American artist Maxfield Parrish produced the famed Mazda calendars from 1918 through 1934. Another example of his work is this counter-top display. For consumers too sophisticated to admit reacting to the colorful lighted glass envelopes, the design of the display ensured they would recognize illumination by Mazda as appropriate to the most stylish homes of the period.

Nobody sells electricity anymore. So taken for granted is it in our lives that it goes unmentioned and uncredited when electrical appliance manufacturers tout their wares. Even power companies now "sell" efficiency and goodwill—it is no longer considered appropriate to encourage the public to purchase electric power. Yet it has not always been this way. Indeed, electricity has been one of the most exciting and telling themes in American advertising.

Because electricity was a prime factor in technological developments from the mid-1800s onward, popular images of it reflected very significant attitudes of the public toward progress in general. Advertisements of this critical era demonstrate the transition from the earliest perceptions of electricity as an awesome, quasi-magical panacea, to the 1930s view of it as a useful, convenient servant—remarkable, to be sure, but quite tame and predictable.

Both before and after the technological advances resulting in the practical, household availability of electricity, its powers attracted entrepreneurial attention. As a theme in advertising, electricity has promoted a host of products, events, and processes—some having nothing to do with electrical use—ranging from quack or specious implementations to modern appliances and power generation. Regardless of the potentials for real benefit, all the advertisements shared a fundamental marketing appeal to popular hopes and shared ambitions for better health, welfare, and living standards through progress.

There were two major phases in the use of electricity as an advertising tool that are evident in advertisements from the mid-nineteenth century through the 1930s, each definable in terms of its target audience's attitude and understanding regarding electricity. The first

Pamela W. Lurito
Historian of Technology

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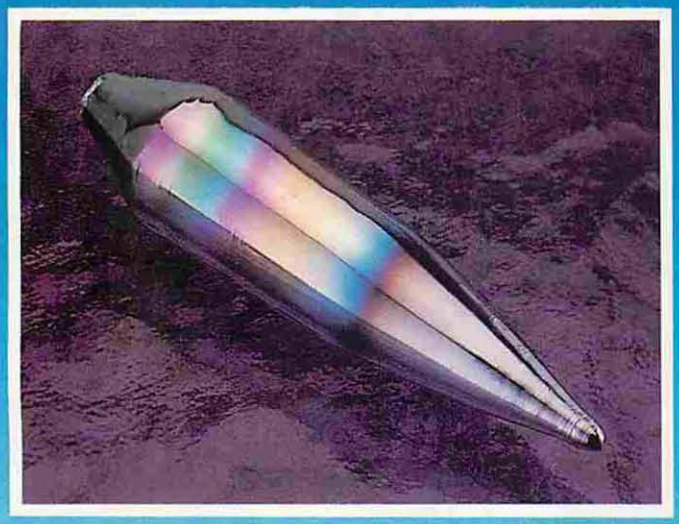
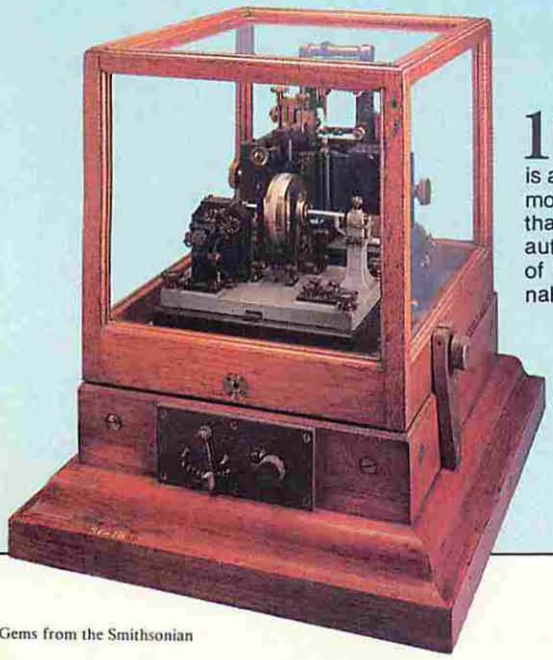


1960 Theodore Maiman was the first to demonstrate a working laser. One of his ruby crystals is shown mounted in a waveguide. Also, the ruby crystal used in the first laser demonstration and the laser head assembly is shown.

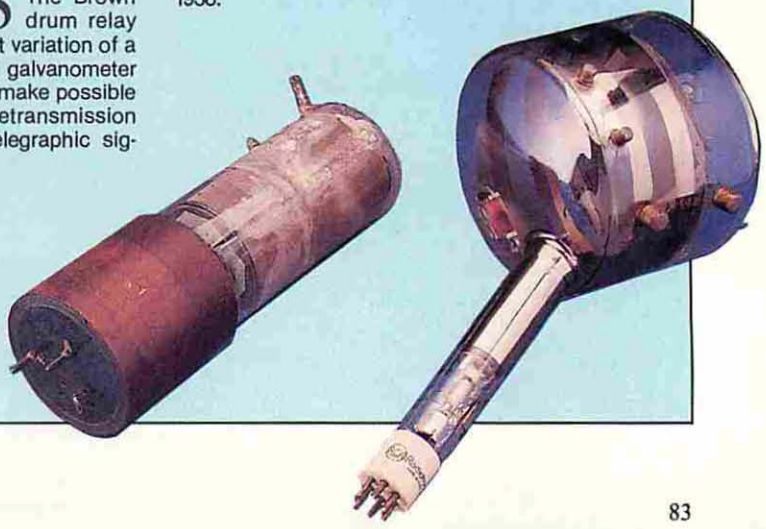
1951 Single-crystal silicon, grown by Gordon Teal and Ernest Buehler at Bell Laboratories in 1951. The crystal shown, one of several of Teal's in the Smithsonian collection, is remarkable for its size, symmetry, and the interference patterns due to the surface oxide layer.

1917 The superheterodyne principle was first demonstrated in France during World War I by Edwin A. Armstrong and his associates using this apparatus.

1927/1938 Through a series of related inventions, Philo Farnsworth and Vladimir Zworykin laid the foundations for electronic television. Shown are (left) Farnsworth's image dissector from 1927 and (right) Zworykin's iconoscope of 1938.



1915 The Brown drum relay is an elegant variation of a moving coil galvanometer that helped make possible automatic retransmission of feeble telegraphic signals.



Gems from the Smithsonian

From its collection of more than 17 000 historical electrical and electronic artifacts, the curator of the Smithsonian's electrical section selected these as seminal

1831 One of Joseph Henry's major contributions to the electrical profession was the construction of powerful electromagnets such as this unit built in 1831.

In 1846, when the Smithsonian Institution was officially established, Joseph Henry was named its first secretary—a position he held for more than three decades. During that time Henry did not encourage the development of a museum, believing that the very limited resources of the privately endowed fledgling organization should be allocated to scientific research. But he understood the value of displaying the artifacts of science as a way to improve public understanding and stimulate an interest in science among young people. So when Congress appropriated funds in the 1850s to support museum activities, Henry not only allowed his own apparatus to be displayed, but he also encouraged some of his friends to donate similar items.

Henry's electromagnet shown here therefore represents not only a technical milestone, but also the beginnings of a national museum where science and technology were of central importance.

The closing decades of the nineteenth century were exciting times for telegraphy, telephony, and lighting, and original apparatus from Morse, Bell, and Edison—among others— found their way into the halls of the new museum building (Arts and Industries), which opened in 1881 and which still stands today. In succeeding years the collections have grown to number about 17 000 items, ranging in sizes from silicon chips to an 85-ton dynamo installed by Westinghouse at Niagara Falls in 1894. The collections contain unique pieces, such as the "milestone" artifacts pictured here, as well as manufactured items that have changed the face of the United States.

Some are displayed in the Smithsonian's National Museum of American History, this year celebrating its twentieth anniversary. Others are on loan to other museums or to traveling exhibits. The rest are preserved in storage areas where they are accessible for study and available for new exhibits.

Henry's notion that these objects could be used to instruct and inspire is endorsed even today. However, the ways in which his expressed objectives are implemented have expanded as a new profession of historians of science and technology has developed. On display, the collections help professionals and lay visitors alike to understand science and technology in an historical context. In storage, they provide evidence for the research historian whose work will eventually reach the public through print or exhibits.

Milestones, and, of course, their more mundane but socially important spin-offs, continue to be generated. Many are added to the Smithsonian's collections—to be preserved, studied, and exhibited now and for generations to come.

Five "gems" from the Smithsonian predate the formation of the American Institute of Electrical Engineers in 1884, and the others were developed during the twentieth century.

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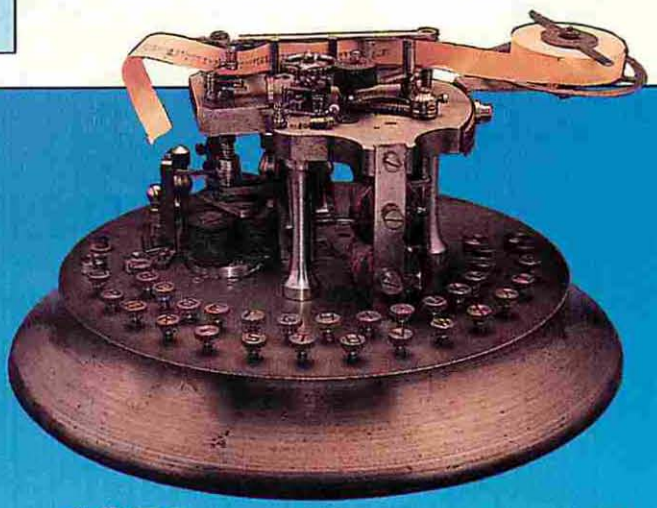
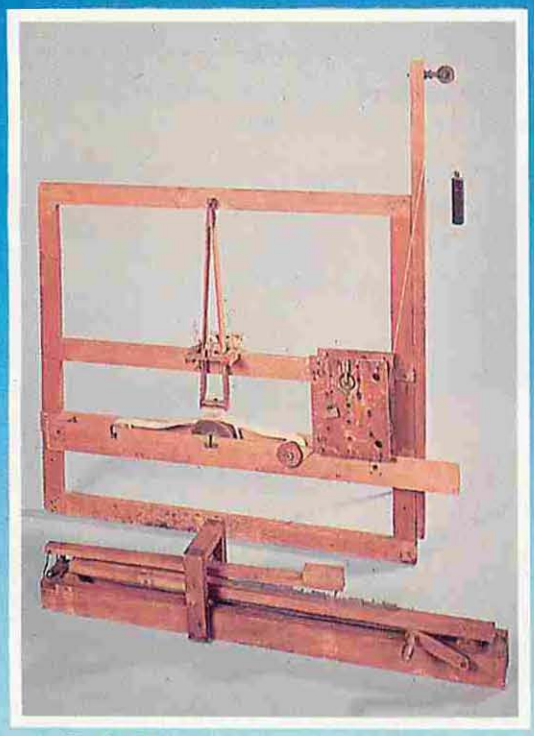
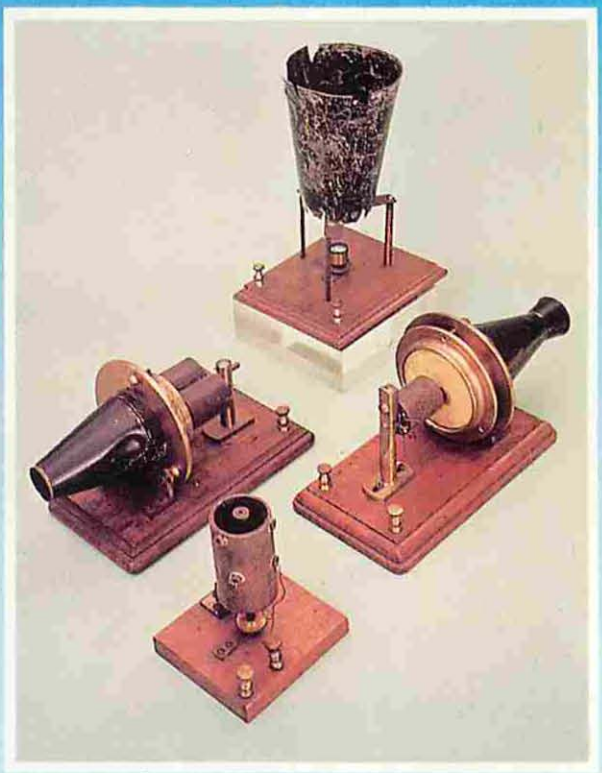


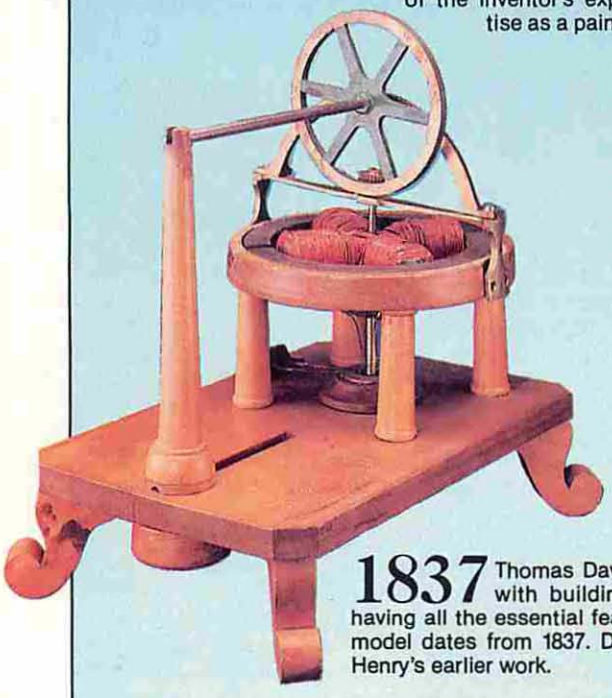
1873 Thomas Edison's successful printing telegraph made it possible to gain backing for his Menlo Park laboratory. The patent model of the telegraph is shown.



1837 The frame of the receiver for this revised model of Samuel F.B. Morse's 1835 telegraph is the support for an artist's canvas, not surprising in view of the inventor's expertise as a painter.



1876 The first major public demonstration of Alexander Graham Bell's telephone was made using these instruments at the U.S. Centennial Exhibition in Philadelphia in June 1876.



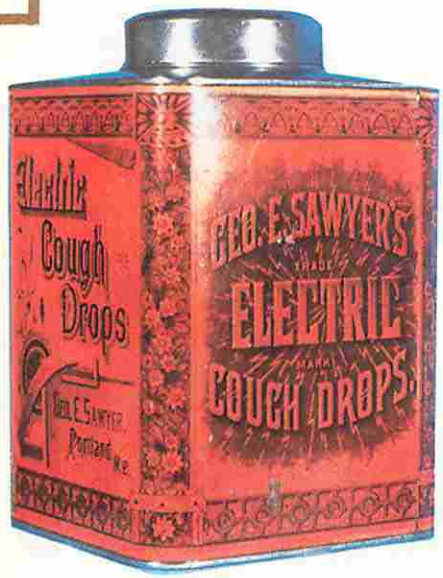
1837 Thomas Davenport is credited with building the first motor having all the essential features. This patent model dates from 1837. Davenport relied on Henry's earlier work.

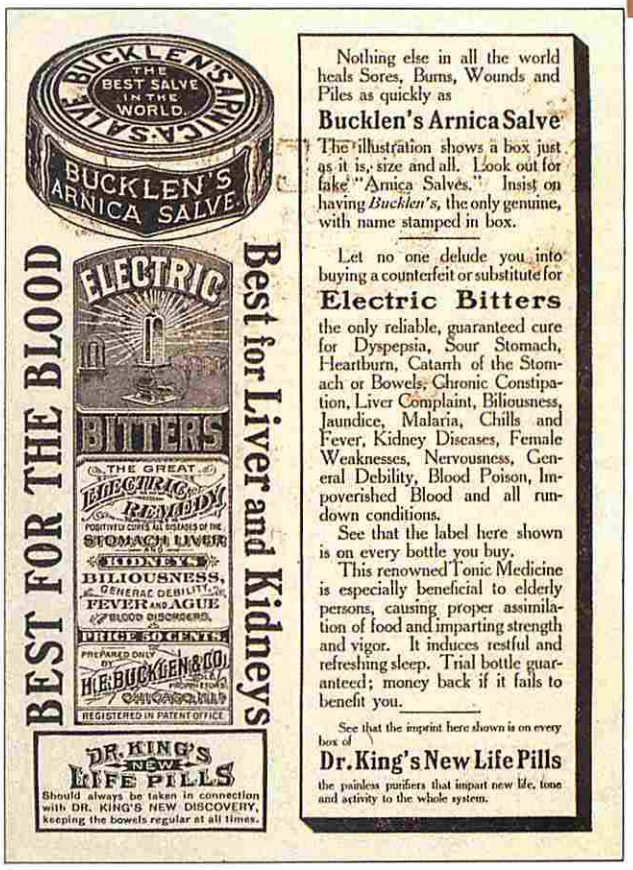
The photographs and information for this article were supplied by Bernard Finn, curator of the Division of Electricity and Modern Physics of the Smithsonian Institution's National Museum of American History.

audience was the general public before it had accumulated the education and experience necessary to assess electricity's realistic capabilities. The second audience evolved from the first as consumers of the early twentieth century learned to appreciate the true capabilities and limitations of electrical applications. The images of electricity in advertisements directed toward these two popular audiences dramatically reflect this growing sophistication.

Advertisements of the first phase were directed toward a nineteenth-century market where experiences with electricity were limited to hearsay, popular publications, theater lighting, occasional public utilities and transportation, the telegraph, and carnival-type demonstrations. To this audience, the powers of electricity were of a magical nature. Advertisers took advantage of this credulity by offering to bring the "magical spark" home to a willing and eager population. Although practical household applications of electricity were still well in the future for most people, the eagerness to make use of this highly publicized technological wonder was not overlooked by clever innovators and enterprising salespeople. Whether promising miraculous cures or pointing out wonderful associations between the powers of lightning and electricity in general, the ads directed toward this market were startling, exciting, and dramatic.

There existed a profound social and cultural foundation for what seems to us now to have been unaccountable mass





All photographs by the author

Bitter but good: In the heyday of Victorian innocence and hopefulness, electricity, with its strange and mysterious powers, was a prime candidate for both legitimate and unorthodox medical practice. The public's concern with health that sustained the notorious proliferation and profitability of nineteenth-century patent medicines likewise encouraged the genre of "electrical" therapies and medicines.

Consequently, many of the cures exploiting the expectations for electricity were nothing more than commonplace medicines that had been renamed to take advantage of any imputed powers stemming from the product's imagined association with electricity. The "Electric Bitters" was a good example. On its label and box, the bottle is shown being charged between electrodes. Nothing less than "the great Electric remedy" resulted from this alleged electrification. The "Electric Bitters" would "positively cure all diseases of the stomach, liver and kidneys, biliousness, general debility, fever and ague, and blood disorders." This astonishing list did not distinguish the "Electric Bitters" from other nineteenth-century bitters. Only the electrical motifs and claims were out of the ordinary.

Electroquackery: Few entrepreneurs approached the audacity of George A. Scott in making claims for curing all ills by applying electricity or magnetism to the ailing body. An enterprising Englishman, Dr. Scott marketed innumerable devices in America with extensive advertising campaigns. His first patents were granted in 1872 and he continued for over two decades to declare that "Electricity is Life." He seems to have held a Frankensteinian theory of health, claiming that the direct application of electricity to "diseased parts" was a sure cure for anything. Dr. Scott, however, found little need for the batteries and generators that some electroquacks felt obliged to offer. To avoid these encumbrances he offered a version of the "spark of life" that involved no spark at all. None of his products ever produced a current, the lightning bolts on their packaging, on the advertising, and on the products themselves notwithstanding. The decorated corset and brush boxes typify Scott's profusion of electrical motifs.

Germ of life: A classic example of extravagant claims for electrical cures was printed in *Scientific American* in 1880 for Dr. Scott's "Electrical Hair Brush." It was ornately embossed with designs that included an armored fist cluching lightning bolts and the slogan, "The Germ of All Life is Electricity." This "most remarkable invention" was to be used daily in place of the ordinary hair brush, as its composition supposedly produced a "permanent electric voltaic current which acts immediately upon the hair glands and follicles." Was it enough that this use would guarantee "a rapid growth of hair on bald heads" and remission from dandruff and premature grayness? It seems not, for Dr. Scott also promised "a safe, natural, five minute cure for nervous and bilious headaches." A seemingly limitless supply of testimonials would have the customer believe that the brush "immediately soothes the weary brain." Had the user any doubts, "this power can always be tested" by the little silver compass.


126 Scientific American.

DR. SCOTT'S ELECTRIC HAIR BRUSH.

A REMARKABLE INVENTION.

Made of Pure Bristles, not Wires—elegantly Mounted and Carved Back.

IT IS WARRANTED TO
CURE NERVOUS HEADACHE IN 5 MINUTES!!
CURE BILIOUS HEADACHE IN 5 MINUTES!!
POSITIVELY REMOVE DURF & DANDERUFF!!
PREVENT FALLING HAIR AND BALDNESS!!
CURE ALL DISEASES OF THE SCALP!!
PROMPTLY ARREST PREMATURE GRAYNESS!!
MAKES THE HAIR GROW LONG AND GLOSSY!!
IMMEDIATELY SOOTHES THE WEARY BRAIN!!
MONEY RETURNED IF NOT AS REPRESENTED!!

IT NEVER FAILS to PRODUCE
A RAPID GROWTH of HAIR
ON BALD HEADS, WHERE THE
GLANDS and FOLLICLES ARE NOT
TOTALLY DESTROYED.

A Beautiful Brush Lasting for Years.
Sent, postpaid, on receipt of $3.00;

MONEY RET URNED IF NOT AS REPRESENTED.

Remittances should be made payable to GEO. A. SCOTT, 842 Broadway, New York. Agents wanted in every town.

flights of fancy. The nineteenth century was characterized by its interest in and expectations of progress in all fields of science. William Ellery Channing wrote in 1841 that "Science has now left her retreats . . . . Through the press, discoveries and theories, once the monopolies of philosophers, have become the property of the multitudes." Public lectures and educational and self-improvement societies flourished throughout the nineteenth century and, together with the press and advertising promotions, stimulated the public imagination. Reinforcing the interest in science was a faith in progress that became the prevailing feature of American culture during the Victorian period—a confidence that real benefits would come to both individuals and society.

In this environment of hopefulness, the consumer advertisements of this era that used electricity as their theme either promised novel "electrical" means of solving old problems, or associated electricity and its wonders with standard and accepted products. Thus we find, on

one hand, ads for every variety of patent-medicine electroquackery, as highlighted in *Spectrum* in November 1978. On the other, there were advertisements for tobacco, razors, and other existing products featuring the electricity theme. The promotions of the first phase ran the gamut from wild claims and potentially harmful devices to the innocuous "buzz-word" association of electricity with otherwise unremarkable products.

Electroquackery included the application of the electrical theme to traditional patent medicines such as bitters and cough drops. Considerably more dramatic were the patent medicines and devices that promised to cure by the application of electricity or magnetism to the body. This concept was exploited for a variety of objects ranging from "Magnetic Hair Pins" and "Voltaic Electric Plasters" to so-called electric corsets, toothbrushes, belts, and assorted electric-shock devices. As Alfred P. Morgan, a student of the history of science, noted in *The Pageant of Electricity*, "when medicine was almost a total failure, it is not surprising that . . . anything so supernatural as electricity and magnetism should have been hopefully examined . . . ."

During the Victorian period, the consuming public—and most likely promoters themselves—did not know precisely what electricity *could* do, and consequently it did not know what electricity could *not* do. Imagination, ambition, and hopefulness, supplemented by a generous portion of greed, permitted free rein in setting the limits of claims for electrical potency. Furthermore, as nineteenth-century Americans eagerly sought some benefit from the developments they saw springing up all about them, they were caught in a frustrating bind. In this transition era, people were well aware of technological advances in electricity, but they were impatient for practical domestic and health benefits for the ordinary citizen. Whatever else they did, all the products of this phase gave everyone something "electrical" to take home as a share in progress.

As comical and fantastic as some of the Victorian exploitations of the electricity theme seem to us today, they did serve a valuable function beyond that of momentarily allaying frustration. In aggregate, the advertisements developed popular awareness of electricity. While they contributed little to a critical understanding of what electricity would someday mean to American lifestyles, these advertisements did help bring the image of electricity to the public. They also fed the enthusiasm and anticipation that would contribute to the success of the

A shocking Cupid: The anticipations and frustrations to which the Victorian electroquack advertising appealed could result in odd contradictions amidst the enthusiastic acclamations for the power of electricity. The German Electric Belt Agency of Brooklyn proclaimed "The Electric Era" in its extensive advertising. This was, in fact, the title of this 1891 pamphlet.

"The German Electro-Galvanic Belt" was claimed as a discovery "of more real benefit to the human race than all the others mentioned put together." Had this invention indeed cured all that the pamphlet claimed, this might have been a credible boast. After 23 pages of testimonial and descriptions of the care and scientific expertise that combined to create the assorted types of belts, we are told that "Magnetism and Electricity are two entirely different things. A little horseshoe magnet you buy in the toy store will spin a compass all day but no one ever claimed it had the power to cure disease." Yet, continuing in the same tone of pontification, but with less veracity, "Electricity is a subtle fluid that is released by the decomposition of some metal, and it cannot be generated unless there is some form of battery used to produce the current." While Dr. Scott was not specifically named in the course of all this explanation, he was no doubt among the "bogus imitators" against whom the case was so firmly stated. One wonders if Dr. Scott was perturbed over this assessment of his promotional methods. Did the explanation and claims win over a clientele? We only know that the German Electric Belt Agency operated for over 20 years. But, then, so did Dr. Scott.

The booklet most eloquently illustrates the bind of the Victorians' transitional mentality as it juxtaposes mystical and realistic symbolism. On the front cover, a Venus-like figure reclines amidst ballooning lightbulbs with a generator of sorts at her feet. Cupid, out of his usual element, carries a ticker tape to this goddess for her delight! Returning to reality, the back cover illustrates several electrical inventions. Even here, however, it seems that the collection of images was deemed incomplete without a final punctuation mark: one last bolt of lightning.

Inducing quality: Unlike the unadulterated quacks, many entrepreneurs elected merely to associate a common product with the theme of electrical progress. By virtue of the connotation alone, these advertisers sought a share of existing markets. The products illustrated here—magnetic hair pins, unelectrified "Electric Razors" and "Electric Lustre Starch," as well as "Electric Brand" canned vegetables—are just the beginning of a long and diverse list. Others included "Electric Cigars," "Electric Cutlery Company" knives and scissors, "Electric Spices," "Young America Electric Sparklers," and "Electric Baking Soda." Lightning bolts or sparks on many packages and advertisements were *de rigueur.*

twentieth-century power and appliance enterprises.

Public attitudes, aided by advertisements, made the transition from fantasy to practicality. A gradual shift in advertising saw campaigns designed to educate the public and to stir up its interest in genuinely practical applications of progress in electrical technology. This shift marked the beginning of the second phase of advertising that directed to the "modern" twentieth-century consumer audience. Though a few promoters continued with the unrealistic and fanciful themes described above, such ads were rarely found in national media after World War I. As a rule, advertising campaigns directed toward the increasingly knowledgeable, post-Victorian audience all shared a distinguishing characteristic: an emphasis on respectability. This was in part a reaction against Victorian electroquackery and other overreaching speculations. While these new campaigns sometimes exaggerated the lifestyle benefits that might accrue from the use of their products, the ads were careful to exercise restraint on the claims that could be judged objectively. As they built up a new market with broad and long-range prospects, these advertisers were quite aware of the advantages of a technically responsible program that fostered public confidence.

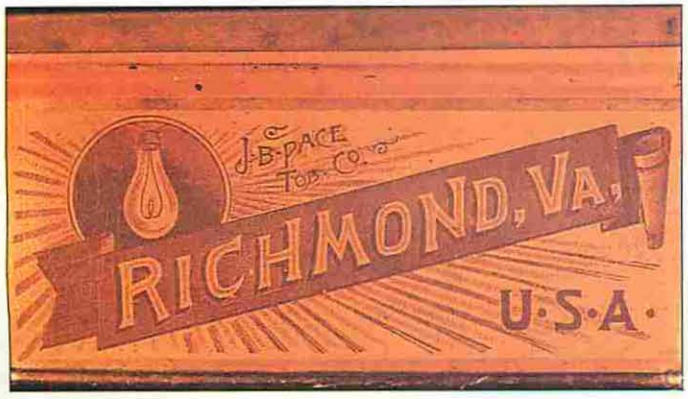
Many features of this post-Victorian period of electricity advertising were due to the changed nature of the businesses doing the promoting. The multiplicity of small entrepreneurs typical of the nineteenth century was overshadowed by fewer but larger companies, usually engaged in power production or appliance manufacturing. Some of the power-generating companies such as Westinghouse and General Electric also manufactured appliances to help extend the use of electricity. Westinghouse went one step further in its promotions by starting up radio station KDKA in 1920. It was built and initially operated without commercial messages solely to give people a reason to buy and use radios. Most of the twentieth-century ventures required immensely greater capital investment and research programs than did the Victorian products exploiting the electricity theme. The competitive intensity and long-range goals of these larger companies were also incentives to responsible advertising.

The appliance and power-generating industries found it important to communicate the merits of respectable promotional strategies to middlemen dealing directly with the public. They directed many advertisements to the retailers through the influential trade journal, *Electrical Merchandising*. For example, in 1919, General Electric emphasized to retailers that Mazda (the trademark of Edison's lightbulb and lighting appliances) was "not the name of a thing, but the mark of service." The Hoover Vacuum Co. squarely addressed the issue of dignified sales technique with the directive: "In selling Hoover there is no cleverness necessary. Just run your Hoover over."

In the early stages of this second phase there were also many advertisements for transition products that employed both electricity and either coal or gas. Most in this category publicized the advantages of adding electricity to an already well-known product. These advertisements tended to be the most conservative of all, not challenging the old, but simply

The future illuminated: A particularly attractive example of advertising by association is this tin box for "Electric Mixture Tobacco," sold from about 1890 to 1900. Around the box was printed a combination of symbols drawn from both reality and fantasy. Among the former are street lights, telegraph equipment, and an electric lightbulb. These images were mixed with fanciful elements including sparks, and the brand name was also spelled out in letters shaped like lightning bolts.

Tobacco was strictly a man's product in Victorian times, and the "Electric Mixture Tobacco" company apparently saw no reason to limit its imagination to the use of a mere display of electrical motifs. The fantasy was thus extended with the time-proven notion of featuring scantily clad women. The combination



resulted in a vision of four young women attired in seductive, futuristic costumes carrying strange electrical gadgets and wearing antennaed hats—all of which made them attractive representatives of some promised age. Whether or not this futurism exempted them from proper Victorian inhibitions, they made an arresting impression.

offering a new feature.

In early consumer advertising campaigns to develop markets for their products, the power and appliance companies had to keep in mind that the public was just learning to appreciate the benefits of electricity. There were a number of advertisements intended to educate as well as to tempt the consumer by illustrating and describing worthy applications of electricity. One innovation in attracting subscribers to the power companies was the "Wire-Your-Home League" first sponsored by the Philadelphia Electric Co. in 1916. This was a combination of public relations and advertising intended to "interest the housewife in electric service" through educational and economical appeals. This type of campaign was adopted by many other power companies around the nation by 1919.

During the first two decades of this century the evolution to modern ideas about electricity was far from complete. Indeed, there were still opulent displays of electricity's brilliance that far surpassed those of the Victorian years. The most exciting of these were in the 1910s, a transitional period in the growing public awareness of electricity's powers. Among the most spectacular of these events was "America's Electrical Week," Dec. 7-9, 1916. The events included parades, pamphlets distributed by the hundreds of thousands, media releases, politicians' praises, banquets, and special-price sales to the customer for electrical services. Climaxing the week's activities was an elaborate celebration for Woodrow Wilson's lighting of the Statue of Liberty, followed by an "electrical-vehicle parade."

The editors of *Electrical Merchandising* encouraged its readers to sponsor a campaign to "Brighten up for the Boys' Return" at the close of World War I. These celebrations included huge flags made up of incandescent bulbs and every other conceivable way of giving the boys an "electrical welcome."

These twentieth-century displays and their nineteenth-century predecessors differed not only in extravagance, but also in that most of the modern displays were supported and often directly sponsored by enterprising power companies whose intentions were to sell more than just seats to the spectacles. A national organization, the Society for Electrical Development, inspired and coordinated many of these projects. And the cover of patriotism and community involvement gave an essential aura of propriety to the showmanship.

Relating to this were a variety of campaigns to appeal to the self-image of those members of society who could afford electrification before 1930. Many American advertisers upon entering the twentieth century frequently tried to don a much-needed air of respectability by replacing the charming, albeit naive, pictures in Victorian advertisements with more "sophisticated" works of fine art and highly stylized commercial art. This search for artistic prestige and esteem may have resulted from the Art Nouveau craze of the 1890s, and the continued application of high artistic standards and experimentation in many advertising designs lasted well into the Art Deco era of the 1920s and 1930s.

One of the leaders in this trend was


THE ATLANTIC MONTHLY 55

MAGEE
ElectriCoal

MAGEE Combines Coal and Electricity by using EDISON Electric Equipment with their Coal Ranges

THE MAGEE ElectriCoal Range is dual in its make-up, combining a complete coal range and a fully-equipped electric range. The electrical equipment (Edison) includes an oven, broiler, and three top cooking discs. The electric oven, insulated on all sides, is a perfect fireless cooker. The coal range is complete, from the large baking oven to the efficient brass coil for heating water.

The Magee ElectriCoal Range is made in gray Por-cel-a (washable enamel) or in ebony black, both nickel-trimmed, with polished tops.

These ranges are carefully crated, with complete instructions, so that they can be shipped and installed anywhere.

Sold through local dealers or direct. Send for illustrated booklet

MAGEE FURNACE COMPANY
(Dept. F) Boston, Massachusetts

A foot in the door: The ElectriCoal Range was an intriguing hybrid—a truly transitional appliance, combining the energies of the last century and the new. The logic of this particular combination is significant. The manner of this 1922 *Atlantic Monthly* advertisement carries a message about the nature of people's reactions to technology in transition. If someone were aware of the advantages of cooking with electricity, but at the same time concerned about costs, availability, or reliability, coal and electricity might have seemed an excellent compromise. Rather than enumerate the limitations of each energy source as a rationale for the other, this ad said nothing. In other words, the very existence of the ElectriCoal and this noncommittal ad prove that when technologies are in transition, hedging one's bet is circumspect. Unfortunately, neither of the ovens has much size to it, and only half the burners are functional at one time. Many housewives may have regretted investing in this dinosaur. The conservative styling was that of the coal- and wood-burning stoves and that may have comforted doubters that there could not have been too much risk in this almost-modern contraption.

Sparkless cookery: An excellent example of an early twentieth-century advertisement that sold electricity itself rather than the product's qualities was this 1909 ad for cooking with electricity by the Georgia Railway and Electric Co. The headline reads, "Breakfast cooks itself with Electricity." As a young woman sits calmly at her table surrounded by her appliances, the copy reminds us that we could set up all the necessary breakfast devices—a coffee percolator, a cereal cooker, and an egg cooker—the night before, turn on the switch in the morning, "and your whole breakfast will be ready as soon as you are." The entire presentation bespeaks a calm appreciation of the lifestyle benefits of progress. Like the Victorian advertisements, this one promoted the qualities of electricity, but there is not a trace of a spark or lightning bolt to be found.

Breakfast Cooks Itself With Electricity

Put the coffee in the electrical percolator, oatmeal in the cereal cooker, and eggs in the egg cooker—the night before. In the morning turn on the switch—and your whole breakfast will be ready as soon as you are. You should have electric light in your house by all means—those who have it enjoy cooking with electricity.

Georgia Railway & Electric Co.

Phone 4945

Rural electrification: Selling electricity to rural America at the turn of the century called for a matter-of-fact approach. In a brochure distributed by the General Electric Co. of Schenectady, N.Y., between 1900 and 1910, the arguments for the use of electricity on the farm were practicality, economy, convenience, safety, and versatility—quite a convincing array. Beginning with the practical issue of power sources, the brochure then discussed well over a hundred uses of electrically powered equipment on the farm and in the farmhouse. Each of its 36 pages pictured a specific appliance, many in use. Not all photographs evinced great sensitivity for the farmers' circumstances, as some of the appliances are shown being used by fashionable ladies not likely to be farmers' wives. One photograph even shows a maid ironing linens.

The copy was designed to provide valuable reasons for using electricity on the farm. One, for instance, was that "Motors, lamps, and other electrical appliances 'eat' only when they work." On the other hand, not only must the hired hand and horse eat all the time, but they must also "rest for long intervals between the periods of productive labor."

Even the most objective, practical appeal for the use of electricity could not resist at least one subjective pull on the potential consumer. In this very restrained piece, the emotional appeals were limited to two well-placed introductory phrases. The first was aimed at the farmer himself, with "The progressive farmer is eager to adopt improved methods in the cultivation and transportation of his products." Introducing the section on electricity in the farmhouse, we find that "with the help of many small and economical labor saving devices much of the drudgery of housework may be done away with." The words "progressive" and "drudgery" were well chosen—perfect words to strike sympathetic chords with male and female readers, respectively.

ELECTRICITY ON THE FARM

General Electric Co.

SCHENECTADY, NEW YORK

B-3166-3

The following table indicates the amount of power required to run various forms of apparatus on the farm:

Machine	Approximate Horse Power Required Min.	Max.
Cream separator	½ to	4
Milking machine	½ to	5½
Grindstone	¼ to	1
Bottle washer	⅛ to	1
Water pump	1 to	100
Shredder	10 to	15
Ensilage cutter	10 to	20
Feed grinder	5 to	10
Threshing	10 to	25
Wood saw	3 to	5
Grist mill (small)	3 to	6
Grist mill (large)	15 to	30
Corn sheller	½ to	4
Hay press	3 to	6
Refrigerating	½ to	25

The exact purpose to which electricity may be used in farm labor may be considered under the heads of dairy work, barn labor, refrigerating and cold storage, workshop, field labor, transportation, irrigation, miscellaneous uses in the house and lighting.

Ceiling Rosette

11

Lurito—The message was electric

General Electric with its Mazda campaigns. Throughout the 1920s and into the 1930s, Mazda ads and packaging designs featured popular commercial artists and art styles. In his early days, for instance, Norman Rockwell created many ads for Mazda, and Maxfield Parrish became noted for his uniquely toned Mazda posters.

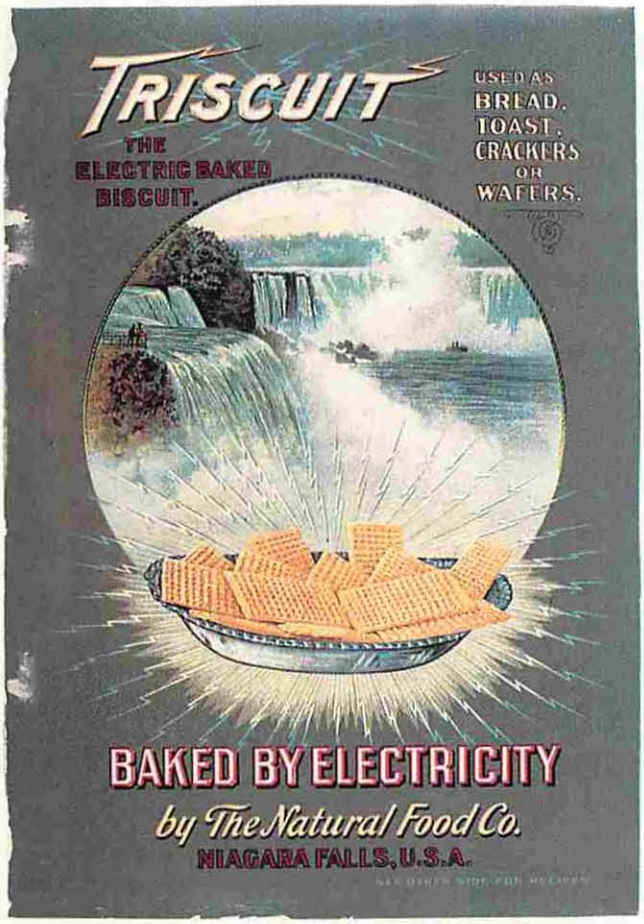
Electricity advertising also used increasingly sophisticated psychological tools after World War I. These included deliberate appeals to personal fears and concerns for family safety. The anxieties generated by the suggestive advertisements were instantly allayed by assurances of the safety of electricity.

Frequently, electricity was compared to the pollution and dangerous alternatives for lighting and heat. For example, none too subtle was an advertisement from the early 1920s for Eveready Flashlights that reminded the farmer of the dangers of the lantern left in the barn. Though it was unlikely that a farmer would feel his way in the dark after leaving his lighted lantern behind in the straw, the point was legitimate.

Effective advertisements play on both objective and subjective concerns of their target markets. The Victorian quack and buzz-word advertising *did* both, combining lists of benefits with the drama of sparks, lightning bolts, and the allusions to progress that were so popular. This combination faded as electricity's true benefits began to infiltrate people's domestic lives at the turn of the century. For many years, the advertisements for consumers' electrical goods and services avoided emotionalism—the objective benefits they offered were remarkable enough. Furthermore, conservative appeals were appropriate when heavy-handed promises were under increasing criticism. A legitimate new technology had to avoid any tarnish on its respectable image. Therefore, between 1900 and the mid-1920s, the very real call to modernity was the prime appeal electrical companies made to popular needs.

In the meantime, the advertising industry of the 1920s was learning to use drama as it had never been used before. The appeal of modernity was no longer a helpful suggestion but became a command. Gradually, highly subjective needs and fears were targeted. One dramatic scene in a magazine advertisement of the 1920s illustrated the physical danger of doing without proper electrical equipment. Playing on fears related to an even newer technology—that of the speeding automobile—this electrical product gained in respectability. Thanks to the Conaphore headlights of the Corning Glass Co., the automobile and its passengers were saved from certain disaster at a railroad crossing. The appeal to popular concerns began in Victorian advertising, of course, but the technique was perfected in the 1920s with ads like this. That the advertisement itself had created or amplified the concerns did not lessen the promised capability of the products to assuage them. Ruth Schwartz Cowan and other contemporary historians have effectively documented many of the strategies used by advertisers of that era to draw emotional responses [see To Probe Further for references]. The new sources of anxiety included guilt, embarrassment, and the needs for approval and love. The electrical industries picked up on these sales-motivating factors with predictable results.

The second period of advertising electricity had to persuade homeowners and builders to invest in wiring, appliances, and power-company subscriptions. The advertisements and promotions that did this were attractive and persuasive. Still,



Electrically baked: When two food-processing companies built major factories within earshot of Niagara Falls and powered them from the new and nationally acclaimed Westinghouse power plant there, both companies used their patronage of the power plant in their advertising. The Shredded Wheat Co. advertised that its products were baked in a "Palace of Light" after its Niagara Falls plant began operation in 1901. The Natural Food Co. manufactured "Triscuits" at the turn of the century, also in electric ovens, and publicized this feat with pride. The illustrated advertisement is typical of "Triscuit" advertising of about 1901–05 in that the falls are a central element of the design, and there is a profusion of lightning bolts reminiscent of the Victorian style. This advertisement typified the transition from exploiting the mere connotations of electricity to describing electricity's practical uses.

The power and the ecstasy: The artist whose Art Deco style became intimately associated with Edison's Mazda lighting systems was Maxfield Parrish. His fame in commercial and popular art was such that even today his ethereal images evoke that era. Parrish began doing Mazda calendars in 1918 and continued through 1934. General Electric historians have estimated that between 1918 and 1931, approximately 20 million calendars were distributed with Parrish prints.

The 1930 calendar illustrated here typifies Parrish's work both in its main image and in the overall design. Mazda considered this avenue of advertising so important that the highest-quality printing was employed at great expense. This particular piece, because of its intricate coloring and the volume printed, required more than 10 passes through the lithography presses. Where is the promotion for electricity in all this? The title, "Ecstasy," is the first clue that the appeal is to be found in the very "ether" and otherworldliness that embodied Parrish's art, far removed from the practical issues of power bills and unattractive overhead lines. The artful segue is revealed on the reverse side of the print, as we read:

> *The Dawn breaks. . . . And life, witnessing the victory of light, greets the newborn day with a heart filled with ecstasy, thankful for the new hopes, new achievements and happiness that come with light. . . . But we do not have to wait for dawn to enjoy this 'miracle of light.' Modern science has, happily, so perfected our lives that we have light at our finger tips. Nature's phenomenon is yours at the touch of a finger.*

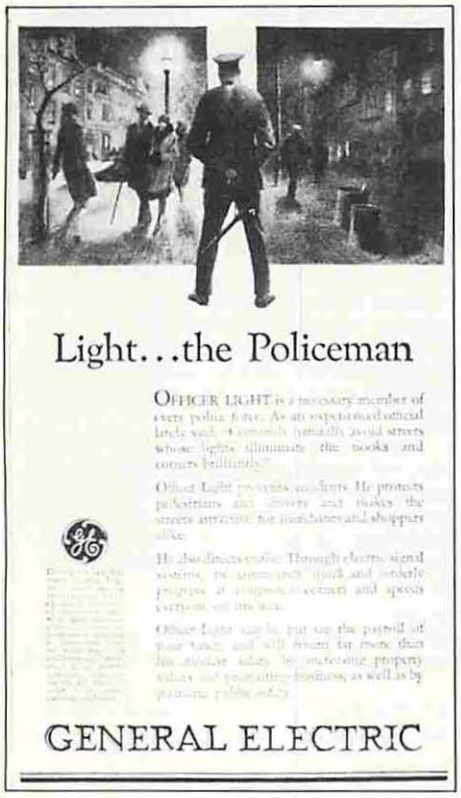
This touch of the mystical was all that remained of an earlier century's naiveté, yet the impact can be appreciated if we can imagine, for an instant, the thrill, the ecstasy, of turning on a light switch in our own home for the first time.

An eyecatching example of Parrish's work, in a different format, appears on the opening page of this article.

not even the sum total of these efforts seems sufficient to account for the rapid growth of electrification and the popular acceptance of its merits. In part, the explanation is in the objective advantages perceived by people as they witnessed electrification in public places and in the homes of others, and as public figures and journalists praised its benefits.

As the commercially motivated variable in the edification of the consumer, advertising reflected and affected the entire transition of popular attitudes toward electricity. The number of nonelectrical products associated with electricity reached a peak in the 1880s and 1890s, at precisely the time when most people would have had the greatest awareness of electricity without having household use of it. After that point, advertising enlarged and motivated the public's access to the practical applications of electricity. The result was a shift in advertising emphasis from the Victorian drama of the captured spark to

The home fires burn cheerily: One type of campaign was directed toward enhancing the propriety of electrification by means of homey family scenes showing how much warmer, safer, and more convenient life could be with electrical products. Such an ad is this large poster display featuring a happy Christmas scene, complete with electrical logs warming all. The figures are drawn in a cartoon style popular in the 1920s, giving the piece an up-to-date cheeriness. As we observe that both the young and the elderly are pleased with their gifts, we can find no brand-name attribution. Instead, this advertisement is a trade piece with which a retailer could tell his customers, "For Joyous Surprises, Give Something Electrical." Anything electrical would do nicely.



Safety first: General Electric promoted many aspects of electric light. Through Parrish's art, it was "Ecstasy"; elsewhere it was practicality; here it was safety. In most advertisements, GE marketed light for safety in the home. This advertisement, however, offered a level of safety more expansive. "Light...the Policeman" was an institutional ad in that it offered light to the concerned citizen, not the consumer. It emphasized the importance of well-lit streets to deter crime and prevent accidents. "Officer Light" could also "command quick and orderly progress" to speed everyone along at a modern pace. Urging that "Officer Light" be put on each town's payroll, GE closed with the assurance that he "will return far more than his modest salary by increasing property values and promoting business, as well as by guarding public safety." How could any responsible citizen resist this appeal?

Lightning strikes again: When lightning bolts reemerged in electricity advertising in 1934, gone were the awesome strokes of nature's mysterious powers. In their place was an amiable little fellow who personified the taming of electricity into a useful servant.

Created by Ashton B. Collins when he was commercial manager of the Alabama Power Co., Reddy Kilowatt has since served to visualize the applications, complexities, and cautions of America's increasingly electrical lifestyles. By the early 1930s the public had learned to trust electricity. Still, people in the industry like Collins felt the need for some means by which to communicate effectively with the lay public and particularly with children.

Collins' inspiration for Reddy Kilowatt came during a summer lightning storm, when, the story goes, he caught sight of four bolts in a form suggestive of human limbs. He imaginatively insulated the ends of the limbs with rubber safety gloves and boots. Then, to make sure the creature would be receptive to human requests, Collins gave it ears in the shape of electrical outlets. And he gave it a lightbulb for a nose. Today, Reddy Kilowatt is a registered trademark and service mark owned by Reddy Communications Inc. It is used under license by many investor-owned utility companies.

the personalized dramas calculated to promote electricity's realistic uses.

To probe further

A History of Electricity by Edward Canby (New York: Hawthorn Books, 1963) and *The Pageant of Electricity* by Alfred P. Morgan (New York: Appleton-Century Co., 1939) are valuable background resources; both convey a sense of wonder about and respect for electricity.

Nothing recalls the excitement of the era more than the hard-to-find original materials. An exuberant Germany catalogue is *Die zweite industrielle Revolution: Frankfurt und das Elektrizitat, 1800–1914* (Frankfurt: Historisches Museum Frankfurt, 1981). (Dr. Bayla Singer of the Franklin Institute recognized the four ladies pictured on the Electric Mixture Tobacco tin from the catalogue and alerted the author to it. It appears that the image was originally drawn from a ballet that celebrated the triumph of progress.)

Another category of sources focuses on the intellectual and cultural history of scientific ideas held by the nontechnologist. *The Growth of American Thought* by Merle Curti, third edition (New York: Harper and Books, 1964) is an excellent foundation, and Chapter 13 is especially helpful. Donald Zochert's "Science and the Common Man in Ante-Bellum America," *ISIS,* LXV, (December 1974) details the ways in which ordinary people became interested and involved in science before the advent of mass education and media.

A fine history of advertising itself is *The Story of Advertising* by James Playsted Wood (New York: Ronald Press Co., 1958).

Within the last decade, there has been excellent scholarship that ties together the histories of advertising and technology. A central work in this new field is "The 'Industrial Revolution' in the Home Household Technology and Social Change in the 20th Century" by Ruth Schwartz Cowan, *Technology and Culture,* Vol. XXIV, no. 2 (April 1983). The literature in this genre is exciting and growing fast.

Nothing is more intriguing, however, than the history of quack medicines and their promotion. With neither legal nor social restraints to inhibit them, hucksters probed the limits of human credulity. There are many entertaining accounts of the exploits of nostrum peddlers, but few approach the reliability of *The Toadstool Millionaires: A Social History of Patent Medicines in America* by James Harvey Young (Princeton: Princeton University Press, 1961). De-

Western Electric in stitches: "Why don't you sew this way?" Why not, indeed, for after all, "It is the modern way." A paragon of the most straightforward phase of advertising electricity, this 1917 advertisement in *McCall's* presented its contribution to modernity by way of a sensible suggestion. The message offered neither a Victorian placebo for all of life's ills, nor a covert admonition threatening domestic inadequacy if ignored. The overall strategy of this transitional advertising genre was singularly aimed toward educating the public about what electrical appliances could really do. The copy itemized the objective merits of the Western Electric sewing machines: convenience, ease, speed, and low cost. The picture likewise communicated a simple message: an ordinary young woman posed contentedly at her work, demonstrating the machine's operation. That's all. This approach presented Western Electric as a responsible producer, offering its practical appliances on their own merits. The only trace of the earlier advertising extravagances is the stylized treatment of Western Electric's trademark, a subtle reminder of the source.

The magic returns: As remarkable as the realities of electrical appliances were by the late 1920s, it no longer sufficed to sell them on their merits alone. Competition and the inevitable need to expand markets propelled the electric industries into modern advertising strategies. Through these new techniques, advertising has learned to create its impact by manipulating its audience's motivations. Promises about what the product will do are often secondary to what the consumer will feel or become when he gives the product its chance to perform. If this sounds like magic, it certainly has made an effective replacement for the mysticism of Victorian lightning bolts. And so once again there was drama in selling electricity.

The primary subject of this 1929 Hotpoint advertisement, for instance, was not the range and its objective merits. The subject, instead, was a promise of magical transformations. Placed in a home, the range would become an "Electric Maid" and would in turn transform any perfectly ordinary housewife into "The Modern Mother." The appeal was not at all like the 1917 Western Electric invitation to "try the modern way." Rather it was an imperative to become modern.

voted specifically to the electricity-related "cures" is the excellent article by Dennis Stillings and Nancy Roth, "When electroquackery thrived," *IEEE Spectrum*, Vol. XV, no. 11 (November 1978).

About the author

Pamela W. Lurito is a professor at Chamberlayne Junior College in Boston, Mass. She received her B.S. from Radcliffe College and her M.A. from Tufts University; she has completed her doctoral courses in history at Tufts University. She received a grant to do biophysical research at the Detroit Institute of Cancer Research and has developed and taught courses in the history of advertising at various Boston universities. A member of the Society for the History of Technology and the Victorian Society in America, she is currently writing articles on the history of advertising, with emphasis on advertising as a historiographical resource that can provide valuable insights into the relationship between technology, commerce, and popular culture. Professor Lurito lectures frequently on these topics. ◆

The general public has been in awe of electricity from the earliest times. Advertisers and promoters exploited this fascination even in the Victorian era—before practitioners of the electrical arts understood electrical phenomena well. The mystical properties of electricity proved a boon to electroquacks who foisted upon the ill-informed consumer a multitude of medicines and devices whose most outstanding characteristics were unproven claims to cure whatever ails one. Many advertisements of this era promised novel "electrical" means of solving old problems. In other advertisements, electrical properties were also attributed to passive products like hairpins and kidney beans. Later, electrical products and electricity itself were advertised in a more credible manner. Historian Pamela W. Lurito recounts the early history of electricity in advertising in her intriguing article that begins on page 84.

P.W. Lurito

During an experiment at the Tokamak Fusion Test Reactor in Princeton, N.J., last June, this glowing hydrogen plasma discharge was maintained for 15 seconds. The duration of the plasma is important for studies of energy-confinement time—the time during which energy is stored in the plasma. This, along with plasma temperature and density, is crucial for energy break-even—namely for the generation of energy from fusion reactions that is equal to that needed to heat the plasma. One way of confining the plasma is by magnetic compression.


Sid Medley, Princeton Plasma Physics Laboratory

In typical compression experiments planned for the TFTR, the plasma's major radius can be abruptly changed from 3.0 to 2.1 meters. Here the plasma is confined at a major radius of 2.5 meters. Ion and electron energies at the center of this discharge exceeded 1 kiloelectronvolt (equivalent to a temperature of 10 million Celsius), about one tenth the temperature needed for plasma ignition. More on page 64.