

# The Mind and Art of Nathaniel Hawthorne

By ROBERT E. SPILLER

*For the purposes of a better understanding of the writers of today, a re-examination of the art of Nathaniel Hawthorne is doubly interesting. A Puritan himself, he was a profound and penetrating critic of the philosophy that is the base of American civilization. Again, he was a lonely traveler on a road now dusty with the passage of writers—the road of the psychological novelist. This article is one of a series of re-valuations of great figures in America's literary past.*

A SENSE of unfulfillment, almost of failure, seems unavoidably associated with the name and work of Nathaniel Hawthorne. "I thought him a greater man than any of his works betray," wrote Emerson soon after his death, "that he might some day show a surer power . . . Now it appears that I waited too long." And critics since Emerson have not hesitated to repeat this impression. Yet Hawthorne's position in that small company of pioneers who first brought distinction to the literature of America remains unquestioned. It might almost be said that, if originality of matter and form be one of the more important attributes of genius, his place is preeminent even in this limited circle.

There are a number of factors in Hawthorne's background, in his personality, and in his writings which give reason for this feeling that he failed in his destiny. He lived at a time when his nation was on the eve of its cultural majority, the age which Lewis Mumford has optimistically dubbed "The Golden Day." A fringe of wilderness had been converted into a modest imitation of the European scene; the newly cleared ground was ready for cultivation. Men like Irving, Cooper, Longfellow, and Hawthorne cheerfully undertook the task. Lacking tradition, they imported it or they manufactured it from the limited past of their own memories. Lacking original forms, they experimented or imitated. Materials they had in abundance, but even here they sometimes borrowed.

HAWTHORNE was an integral part of one of the oldest existing traditions in America, the Puritan; and at the same time he was the prophet of its decline. Whatever that tradition may signify in its entirety—and Kenneth B. Murdock's recent plea for an inclusive definition of the term is a timely admonition—Puritanism at its height was a religious conviction which resulted in stability of government, of economic conditions, and of individual conduct. Hawthorne lived at a time when the foundations of that stability

were being undermined, when its dogmas and its practices were being questioned; and he pulled away some of the underpinning himself. He felt that his generation had built its house over an unquiet grave—that the very qualities of iron will and certain faith which his ancestors had believed to be virtues, were in reality vices, now living as ghosts to torment their children's children. The sense of inherited sin, either that of commission or that attendant upon intolerance, is the keynote of the best of Hawthorne's writings.

But he was not content to view this decay of the New England past with an esthetic objectivity. Neither was he willing to accept the terms which the future laid before him. He viewed the coming age of industry with suspicion and alarm. The Celestial Railroad carries him to the very gates of Paradise, but he hears only the glad angelic welcome of the two poor pilgrims who had climbed by the way of Bunyan. The dream ends before we are told whether or not the last step, the crossing of the river by ferry, was as easy as the others on Mr. Smooth-it-away's improved railroad to Heaven. "The wheels, as they began their revolutions, threw a dash of spray over me so cold . . . that with a shiver and a heartquake I awoke." The chill of the future was as ominous as was that of the past.

A REVIEW of the facts of his life leaves a similar sense of unfulfillment. His early hermit-life in Salem, his unsuccessful efforts to take his part in the business and social spheres, and his final inability to enter into the spirit of the European scene, all reveal

him as a solitary and a provincial. Such happiness as he found in human associations was concentrated upon his home life both before, but more particularly after, his marriage, and upon his small but intimate circle of friends. Lloyd Morris, in his recent biography of Hawthorne, has felt perhaps too keenly the pathos of a life so spent, and he has painted his portrait of

the "Rebellious Puritan" in pastel shades, to the great indignation of Julian Hawthorne, who remembers vividly the wholesome comradeship which he enjoyed with his father. But there is nothing irreconcilable in these pictures. Hawthorne's lonely habits of thought were not the results of a shrinking or morbid temperament. "This claims to be called a haunted chamber," he wrote upon a late visit to his former hermitage (1840), "for thousands upon thousands of visions have appeared to me in it; and some few of them have become visible to the world."

The solitude of Hawthorne was the isolation of self-sufficiency. He is at his best when writing of the scenes of his own life dimmed and merged by long hours of meditation. His romance is of the introvert type. It seeks for strange places and strange times within the mind rather than in the far away. With Sophia and the children, or with Bridge, Ticknor, or even Melville, Hawthorne was friendly and at his ease. But his own descriptions of his experiences at Brook Farm and in the Salem Custom House show how limited was his horizon in these matters. "What, in the name of common sense, had I to do with any better society than I had always lived in?" exclaims Miles Coverdale in "The Blithedale Romance." "It had satisfied me well enough. My pleasant bachelor-parlor, sunny and shadowy, curtained and carpeted, with the bed-chamber adjoining . . . Was it better to hoe, to mow, to toil and moil amidst the accumulations of a barnyard; to be the chambermaid of two yoke of oxen and a dozen cows?"

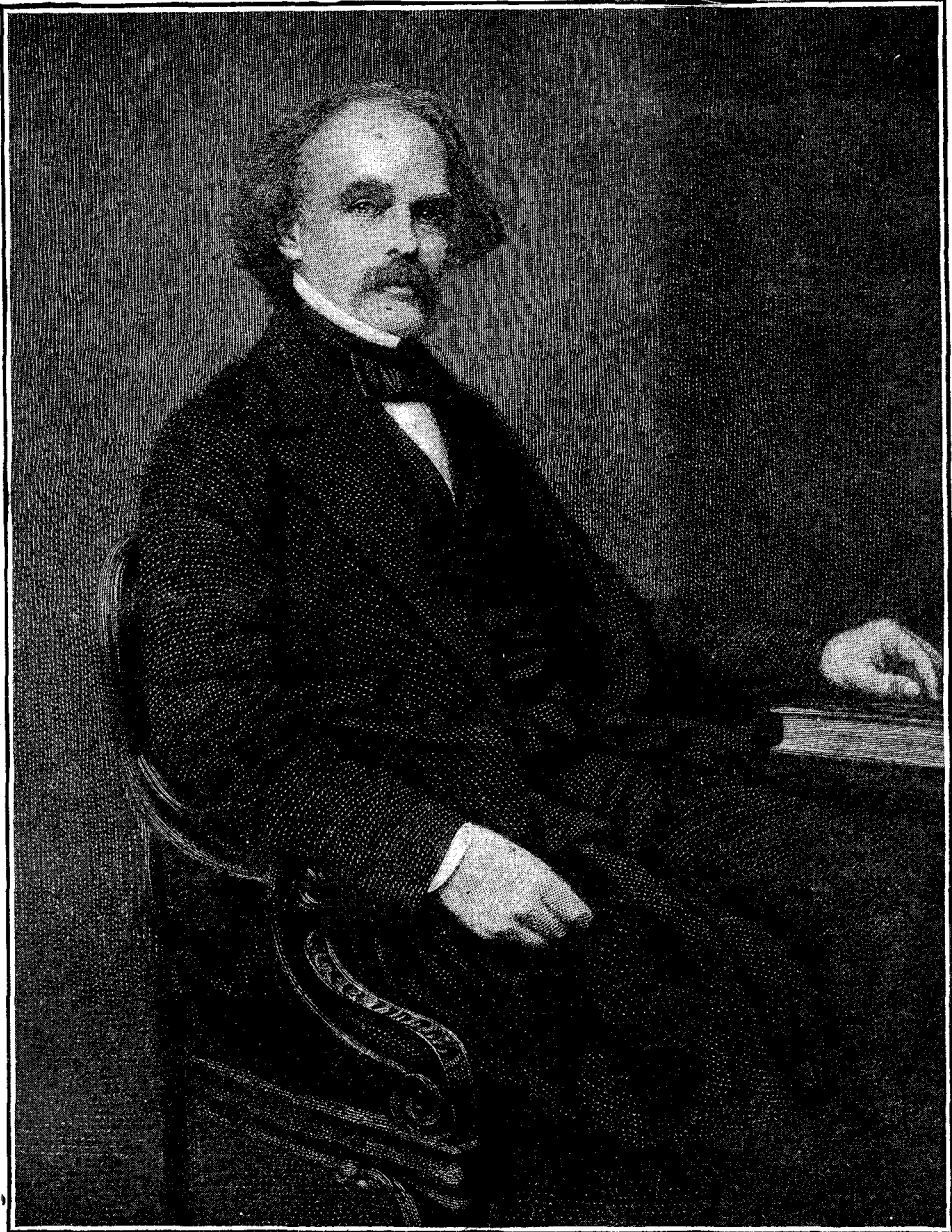
In the introduction to "The Scarlet

Letter" this same bachelor-parlor is again described with fond affection as the proper place for the brewing of romantic concoctions, but, exclaims Hawthorne, "during the whole of my Custom House experience, moonlight and sunshine, and the glow of firelight, were just alike in my regard; and neither of them was of one whit more avail than the twinkle of a tallow candle."

In thus recognizing his need for the proper time and the congenial place for his work, Hawthorne admitted both its strength and its weakness. It was this very quality of dreamy introspection that gave to "The Scarlet Letter," "The House of the Seven Gables," and the best of his seventy-eight short stories their originality and their chief significance. The theme of "The Blithedale Romance" was almost too full-bodied to thrive in such white and moonlit regions; and "The Marble Faun" suffered from being planted in a foreign soil, however native its roots. Much as he professes to have acquired at Rome a home-feeling as nowhere else in the world, and to have retained, from reading the old English wisdom, his feeling for "our old home," Hawthorne was never successfully transplanted from his own study, with its centre table and its windows looking out upon the grave New England scene.

WHEN Hawthorne is considered, therefore, in terms of his background or of his personality, he is apparently hedged about by restrictions and inhibitions enough to make him theoretically incapable of vital and enduring literary work. His success must have been the direct result of concentration upon that small territory which was enclosed by these high barriers. A fair judgment of the work of any author must depend first upon an analysis of that author's aims and methods as he himself conceived them. Secondly, it must question both the validity of those professions and the author's degree of success in their application.

Few writers have so clearly and frequently defined their esthetic creed as has Hawthorne. He was a writer of romance and he strove, by means of romance, to illustrate moral beliefs. Nowhere does he profess an impartial interest in the complexity of a single human soul in all its aspects; nowhere does he attempt the accuracy of the historian, or even of the realist. Legend, fable, and parable fall by



NATHANIEL HAWTHORNE

a novelist or short story writer in the modern sense he is exceeding his own aims.

"When a writer calls his work a Romance," he says in his preface to "The House of the Seven Gables," it need hardly be observed that he wishes to claim a certain latitude, both as to its fashion and material, which he would not have felt himself entitled to assume, had he professed to be writing a Novel." A romance owes fidelity only to "the truth of the human heart"; with particularized facts it need have nothing to do. The author may, with reasonable moderation, "so manage his atmospherical medium as to bring out or mellow the lights, and deepen and enrich the shadows of the picture." The "legendary mist," which the tale brings with it out of the past, aids in this process of blending details for the sake of a generalized truth or

belief which Hawthorne finds hidden in its folds.

Similarly, "The Scarlet Letter," with its scene laid in the familiar streets of its author's own village, requires dim light before it becomes romance. The finest scenes in the book occur in the shadowed depths of the forest or on the village street when the white moonlight reveals the minister standing in his lonely penitence upon the scaffold. Whether it be in his hermit cell, in the Old Manse, or in the Wayside, Hawthorne sees life truly, by his own definition, only when he has withdrawn from it. "From these quiet windows the figures of passing travelers looked too remote and dim to disturb the sense of privacy." The muddy Concord assumed in the sunset glow an ideal beauty which was more true than its own sluggish self. "We will not, then, malign our river



as gross and impure while it can glorify itself with so adequate a picture of the heaven that broods above it." And, in "Our Old Home," he affirms the same theory in no uncertain terms: "Sublime and beautiful facts are best understood when etherealized by distance"—or, he might have added, by any agency which generalizes and falsifies their immediate and confusing complexities.

Right or wrong, this is the creed of the romanticist as Hawthorne believed and strove to follow it. He never intentionally departs from it when he is writing fiction. Even the modern Arcadia of Blithedale failed to reveal a higher truth: "The clods of earth, which we so constantly belabored were definition within the limits of his self-restricted province; when he becomes never etherealized into thought . . . Our labor symbolized nothing, and left us mentally sluggish in the dusk of the evening." The minister's black veil was in itself a greater truth than the features which it covered. Donatello's ears were better unrevealed; he was a fawn at heart and his ears might have proved after all to be merely mortal. From the mind of the middle ages comes the belief that above the truth of facts is a higher and purer truth, comprehensible only to the visionary and demonstrable only through symbols. This Hawthorne believed and upon this belief he built his art.

**H**AWTHORNE was no mere moralist. "A high truth," he continues, "fairly, finely, and skillfully wrought out, brightening at every step, and crowning the final development of a work of fiction, may add an artistic glory, but is never any truer, and seldom any more evident, at the last page than at the first." In the distilled atmosphere of such a truth the story has a life apart from the complexities of this world; yet at the same time it becomes a mere illustration, a symbol. The ancestral footstep, the scarlet letter, Alice's posies, Donatello's fountain, and many other symbols occurring and recurring in Hawthorne's fiction point an accusing finger at a sin, sometimes in itself entirely undefined, but a sin never to be forgotten. Such thought is but an echo of old Michael Wigglesworth's insistence upon the eternity of all of that human action which involves moral good or moral evil.

"But allegory," says W. C. Brown-

ell, "is art only when its representation is as imaginatively real as its meaning. The mass of allegory—allegory strictly devoted to exposition and dependent upon exegesis, allegory explicitly so called—is only incidentally art at all." Coleridge, on the other hand, attempted to make place for such an aim within the limits of art by calling it fancy. "The fancy," he says, "is indeed no other than a mode of memory emancipated from the order of time and space; while it is blended with, and modified by the word Choice." This is what Hawthorne wished to accomplish by his work, and it is significant that Coleridge made his statement at about the time when the American was writing his romances. Fashions have at least something to do with our definitions of art.

"In the humblest event," wrote Hawthorne when he had settled in his first real home after his marriage, "I resolved at least to achieve a novel that should evolve some deep lesson and should possess physical substance enough to stand alone." During those three years in which, to Sophia, dreams became realities, to Hawthorne the reverse was the case. Realities—his life in Salem, the Custom House experience, his brooding upon his own ancestors and upon New England's past—formed themselves into dreams. His mind chose what it wished from the tangled web of his memory to spin a new and patterned fabric as fragile as memory itself. The novel which was to "possess physical substance enough to stand alone" was "The Scarlet Letter," by the consensus of critical opinion his masterpiece.

The problem of whether the greatness of this book was accidental should furnish the key to Hawthorne's significance as a writer of romance. Did Hawthorne, in spite of his professions to the contrary, write, as Brownell believes, a story "so exclusively a drama of the soul as to be measurably independent of an elaborate setting in a social picture," or do we find in it the expression of its author's obsessing moral vision translated into an allegorical painting of the long-past New England landscape? Herbert Gorman, in his recent study of Hawthorne, calls this book "the completest epitome of Hawthorne's genius," in spite of Hawthorne's own insistence that "The House of the Seven Gables" "is more characteristic of the author, and a more natural book for me to write, than "The Scarlet Letter"—and not

only more characteristic, but better as well. Gorman's further statement that the latter novel "is a moving series of symbols within a larger symbol from beginning to end" brings his criticism back to Hawthorne's own terms. But in "The Scarlet Letter" the moral truth is distilled from the particularized lives of the three individuals, whereas in "The House of the Seven Gables" it derives from a generalized sense of the past. Old Hepzibah and young Phoebe alike maintain their own lives, as did Feathertop, by deep breaths of mystic influence, in the one case of past deeds and thoughts, in the other of smoke from Mother Rigby's pipe. A review of Hawthorne's tales and sketches, the forms in which he did by far the greater part of his better work, will demonstrate that the method of "The Scarlet Letter" was the exception, that of "The House of the Seven Gables" the rule. The unity of the latter work depends neither upon plot consistency nor upon character revelation. The sin motif is introduced in the bass strings, and is sustained and tossed about by various voices, forming, over all, a tone poem of rich harmony and graceful dignity. The story is the best of Hawthorne in his most characteristic phase. It is not surprising that he felt it to be a more natural book for him to write than that in which he pointed the way to the condensed psychological fiction of the present.

Little has been said except incidentally of the many other volumes of Hawthorne's work. His four great romances, "The Scarlet Letter," "The House of the Seven Gables," "The Blithedale Romance," and "The Marble Faun," were framed by experiments in the same allegorical method: "Fanshawe" in his youth and those four abortive efforts to blend the themes of the ancestral footstep and the elixir of life with which his literary career was brought to a close. Upon his four major romances, however, supported by the many tales and sketches, which are often more apt and more perfect than the longer stories, Hawthorne's ultimate literary fame must rest. His tales for children, excellent in themselves, require no extensive comment, and his endless note-books, as well as "Our Old Home," although lighted by occasional glowing passages, are useful chiefly as comprehensive sources for the study of the man and his work.

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# On Loud Speakers

## The Art of Selling Radios

By STUART CHASE and  
F. J. SCHLINK

**A** CORNELL physicist has devised an ingenious apparatus to measure the noise of great cities. He has reported Herald Square in New York as the place where the ear-drums of the citizens of modern Babylon are most seriously assaulted. He is wrong. Two miles south, near the tip of this incredible island, there is an even more delirious racket. Cortlandt Street west of Broadway is the heart of the retail radio trade. Coming from the relative peace of the subway, one enters an inferno which all the fiends of hell might envy—or even a superintendent of a rolling mill. Here are batteries of loud speakers geared to the brass of a thousand trombones. Mounted in front of each little shop, they rock the ether with selections from jazz bands, lady trumpeters, tremulous sopranos, bellowing baritones, high-pressure orators—simultaneously delivered with a roar like the Pennsylvania Limited cleaving a rock-walled cut in the Alleghanies. The Cornell professor did well to avoid this spot; no scientific instrument could have reduced this chaotic din to orderly measurement.<sup>1</sup>

**B**EHIND the almost solid wall of sound are shop windows filled to overflowing with the amazing apparatus of the new art. Here are loud-speaker horns coiled like the bowels of a dinosaur; here are ball, bird-cage, and rat-trap antennas; static eliminators—about as effective as the command of King Canute. Here are placards announcing the world's greatest receiving set, challenging all comers, "the marvelous all-wave, universal, and trans-oceanic superheteroflex; the neu-rogenodyne; the unparalleled K-17 circuit with its kit of parts, ready-drilled panel, special dynatonic modulator, and cabinet—all for \$69.89." Here is the magic appeal of "razor edge selectivity" and sets with gleaming tubes sold like motor cars in "Monodyne balanced sixes and straight eights." Here are "genuine air-tone speakers," vario-densers, transifiers, radiohms, radio-trons, sonatrons, and supertrons, and that latest arrival, the shielded grid circuit.

On Cortlandt Street one can buy—if his ear-drums hold out—every variety

of device for broadcast reception. He can buy it sometimes long before it is technically fit for the market, and long after it should have disappeared from the market. Into this blaring world comes an endless succession of antiquated and unsuccessful broadcast receivers and parts, to be had for whatever the traffic will bear. Sometimes it will bear less than the cost of the materials that went into the goods, but even at this the bargain is usually a bad one. The seasoned and enlightened fan may, however, occasionally find a bargain of real quality.

**M**EANWHILE *caveat emptor* is the rule on Cortlandt Street. There is a recognized jobbing trade devoted to picking up obsolete models, sometimes in 50,000-piece lots, at next to scrap-metal prices, and then courageously attempting to unload them, at a handsome advance over cost, upon the unsophisticated customer as "one of the latest models." A certain czar of the jobbing trade descends upon New York every so often, his pockets stuffed with a fabulous amount of cash. He hires a dozen rooms in one of the great hotels and proceeds to entertain such manufacturers as have "distress stocks" on their hands. This is trade jargon for antiquated, obsolescent, and slow-moving sets and parts. This distress merchandise he buys in enormous quantities, paying cash on the nail. Then, with the utmost ability and enthusiasm, he will proceed to dump the lot on Cortlandt Street, and on the other cut-price stores all over the country. In fairness, it should be noted that on rare occasions some items of this distress stock are about as good as current models—once in a blue moon, better.

Hardened radio fans can recognize old apparatus by characteristic differences in design, but the thousands of newcomers on the market, the schoolboy and the exploring suburbanite, are grist to the mill of this spirited salesmanship. They may buy as an up-to-the-minute product a set with a well-known name upon it, but fabricated in the days when tone quality was a hobby

pursued by a few adventurous spirits in the laboratories of the Bell System. They may buy spavined storage batteries astutely revived for the moment; they may buy very expensive tuning coils, not nearly so efficient as bell-wire wound on an oatmeal box; they may buy "cone speakers" made by placing a conical cover over an obsolete horn speaker.

In brief, the commercial game in radio is, over great areas, on all fours with the Royal Nonesuch. In the cut-price stores models are changing so rapidly, due to the development of the technical art, competition is so keen, the danger of over-stocking is so great, that the harassed dealer is almost totally unable to exercise any critical function on behalf of the consumer. He has no time to study engineering; his task is to move his stock at prices which will keep him one lap ahead of the sheriff, and "let the buyer beware" must necessarily be his motto. Even in the stores which try to avoid cut-price salesmanship, there is no such thing as a dealer or a clerk who knows more about quality and value than the average intelligent fan.

**M**EANWHILE, if one learns little that is genuinely helpful from the dealer, he learns even less from the advertising of radio sets and accessories. In this department the copy often comes perilously close to the palmiest days of patent medicine-vending. "Radio Broadcast," perhaps the most dependable journal for the broadcast fan in the field, recently said editorially:

If the advertising is to be believed, all receiving sets possess unbelievable selectivity, marvelous sensitiveness, and magnificent tone quality, regardless of price. Rarely is there any enlightening information in a radio advertisement by which a prospective purchaser may judge the superiority of one receiver over another. Magical phrases are concocted to suggest fancied engineering superiority. The uninitiated must be guided by such medicine-man hokum as "utilizing the new intra-paralytic principle of interference submergence," or "mastertonic sliding trombone transformers."

These strictures, furthermore, affect a sizable fraction of the National pocket-book. Mr. Pierre Boucheron, of the Radio Corporation of America, speaking before the Harvard School of Business Administration, places the total sales of radio to date at nearly \$2,000,000,000, for which \$122,000,000 has been spent in advertising. The annual sales are now placed at \$550,000,000, and the annual advertising charge at between 6 and 7 per cent, or not far from \$40,000,000 a year. Meanwhile, for one or two per cent of this sum competent scientific tests could be carried out which would give a proper performance rating to every set and accessory on the market.

**B**EFORE proceeding in somewhat more detail to the Wonderland of radio salesmanship, it may be well to sketch briefly the basic engineering principles of this astonishing new art, an art which has placed nearly 10,000,000 instruments in American homes, and which entertains—or seeks to—upwards of 30,000,000 listeners a day.

The broadcasting station sends out into the ether in all directions waves of electrical energy pulsating at very high frequency, from half a million to several million reversals per second. (The current for household lighting is delivered usually at sixty reversals per second.) This incredibly rapid “carrier” wave is modified in intensity by superimposing upon it electrical waves representing the vibrations of sound, at frequencies of from 100 to 5,000—a band considerably narrower than the range of the normal ear.

The high-frequency carrier waves, modified by electrical waves of the useful sound band, come through the air to the aerial or antenna of the listener's receiving set. The set is a device which takes this electrical cocktail of energy, amplifies it from the inconceivably minute power level at which it arrives, separates the low-frequency energy (between 100 and 5,000 cycles) from the carrier frequency at a million cycles, discards the latter, and delivers the former, modified as little as may be, to the loud speaker. It is delivered in the guise of a rapidly varying electrical current, usually much distorted by the selecting, “rectifying,” and amplifying processes which have been going on in the receiving set.

The loud speaker is a kind of electric motor which takes the low frequency energy, and, with more inevitable dis-

tortion, transforms it into audible sound, more or less a replica of the sounds in the broadcasting studio.

Meanwhile the ether does not permit its permeation by carrier waves without a protest. It has other functions, both timeless and infinite. What business has a featherless biped in these awful mysteries? There are always present in the ether, cosmic movements of electrical energy which give birth to anarchic and freebooting electrical waves of various intensities and frequencies, which, so to speak, hitch-hike upon the carrier wave, and come crashing into the receiving set along with the invited guest. Lightning and atmospheric electrical disturbances originating in the play of rain, snow, and wind produce such parasites; so do high-power transmission lines and many electrical devices.

In addition there are great areas of radio shadow, or silent zones, due to tall buildings, mountain ranges, and forests; there are heterodyne whistles and howls due to stations whose waves are nearly enough of the same frequency to interfere; there are a variety of squeals and squeaks due to receiving sets that radiate swirls of energy through local oscillation. Finally, there are the telegraphic dot-and-dash disturbances which come from ship radio stations, sending messages with antiquated spark apparatus in or near the broadcast band.

**I**N short, the radio trail from microphone to ear-drum is both perilous and incredibly complicated. In the receiving set alone engineers have listed no less than twenty-five possible causes of distortion. Any one of them is capable of causing the terrible caterwauling heard on Cortlandt Street. Some sets as now manufactured have a dozen or more of these distortions working at once—some in the high-frequency amplifier, some in the detector, many in the audio amplifier. The last, and the plagues and fevers which beset the loud speaker, are the two weakest links in the chain of tone quality.

In these circumstances it is only too obvious that the accurate reproduction of a distant program is a problem requiring a maximum of technical skill and integrity, and that, failing such skill, terrible mutilations and distortions are inevitable. The ordinary radio merchant has no more knowledge of the forces and delicate relationships

with which he so blithely deals than he has of the theorems of Cartesian geometry.

**H**AVE you bought radio in terms of the technical outline set forth above? We profoundly doubt it. They imply too many reasons for caution; they do not lead to the quick consummation of a sale. Radio merchandising is not based on the facts of the technically accurate reproduction of sound, but upon the shrewdly developed assumption that *the set or the loud speaker are themselves creators of sound*. Sheer magic, but good salesmanship. If the matter were discussed in terms of *energy amplification and faithfulness of acoustic reproduction of received electrical energy*, involving comparative measurement of all essentials, magic would flee, and the selling talk, alas! be forced to descend from the realm of the fairies to the realm of the scientist. It can be so discussed whenever enough consumers want it, and very simply. The basic factors governing a reliable purchase for your money can be shown in the form of a simple curve upon a diagram not over two inches square—a curve which will tell practically everything that you need to know. Any bright high school boy could be taught the significance of the diagram in five minutes of instruction.

Early in 1927 a set of inferior tone quality equipped with a small horn speaker was widely advertised by one of the largest manufacturers. The copy carried a testimonial from a great musician as to its marvelous performance and superb tone. Yet, as a matter of science, the set could not decently reproduce over one-third of the tones to be found on the keyboard of the testimonial writer's own piano. Even relatively good sets fail faithfully to reproduce notes much below middle C, and begin to fail again three octaves above middle C. The new “AC” electric sets are particularly poor as to reproducing the lower frequencies. At the same time, there are zones *within* this range where the sound output practically disappears, due to distortions in the speaker.

The reason that even the best of radio reproduction does not sound perfectly ghastly is that the human ear has habituated itself to fill in enormous deficiencies in the sound waves it receives—just as it readily recognizes a friend's voice through the fearful dis-



tortions of the ordinary telephone. Nay more, we hear subjectively, as careful tests show, the deep harmonies of the organ and the piano when only the higher harmonics or overtones of the fundamental tone come through our graphophone or radio speaker. We automatically bridge wide tonal gaps with our aural imagination—but in doing so we lose much of the æsthetic quality of the music.

But in the case cited a musician's ear could not have bridged the gap. The great artist was either tone deaf or badly in need of money. One radio expert gave it as his opinion that to hear even an approximation to natural reproduction coming out of the small horn of that particular loud speaker was as likely as that the sun should come up out of the west. To radiate a fundamental tone in the region of the second C below middle C on the piano the mouth of the horn would have to be approximately four feet square and its length about thirteen feet!

One remembers the advertisement of one of the haughtiest of New York department stores, calling attention to a loud-speaker horn "shaped like the human throat." This is what the anthropologists call sympathetic magic. In the first place, only part of the sounds which come over the ether issue from human throats—nor are all throats shaped the same. Saxophones, pianos, organs, violins, even steam calliopes, contribute their very considerable quota. In the second place, the technical art of reproduction does not depend upon a parallel shape between loud speaker and the instrument, human or otherwise, making noises in front of the microphone. The connection is purely a magical one, unknown to science.

Technically, a speaker should be designed to have no natural resonant frequency of its own. Probably the best form devised to date is the "electrodynamic" cone speaker now very common in England—and just becoming well known to consumers here. Beware of any loud speaker whose dimensions are small, or which is not associated with a large baffle or wall area. Horn speakers of moderate size and sets comprising a self-contained speaker are now obsolete for those who like their music straight. Curiously enough, with many of the current sets a good loud speaker is a liability rather than an asset. The sets are so poor in themselves that they need a certain amount of deficiency in

the speaker to balance their own deformities and get the best—or the least awful—out of them.

LET us consider some samples from the mine run of advertising copy. Here is a sales appeal claiming amplification so great that one is ready to believe that with this set he could hear the ethereal disturbances produced every time a postman in Berlin rings a burgher's doorbell. Yet intelligent buying calls for a heavy discount upon all claims for distant reception. Distance can be secured under favorable conditions, and where one does not greatly care what the result sounds like or whether the music or the crashes predominate. But the inevitable distortions and mutilations of the wave coming from a long distance, and the load of "parasitic noises" that accompany it, and are added to in the set by the use of amplifying tubes and other apparatus, cannot be removed by any action of the set. Absurdly high amplifying power makes appealing advertising copy, but is useless or worse except for stunt purposes and the reproduction of cosmic firecrackers. The dependable and pleasing reproduction of music from distances above fifty to one hundred miles is simply not possible. From longer distances the signal is always liable to arrive decorated with sputters, squeals, crackles, and "selective fading." No elaboration in

in improving this fundamental difficulty. The only thing that can improve it is the antenna system, and here, alas! the profit margins are too small to call forth the needed sales effort.

Here is a picture (June, 1926) of a pair of lovers crooning over a new set: "Not for just a year, but always . . . complete and lasting satisfaction." This particular combination is long since obsolete. In effect, it was thrown into the discard by its own maker six months later. In November, 1926, the same company announced, in the same journal that carried the young love advertisement, a sensational new reproducer which completely outmoded everything that had gone before and which promised: "Every sound of voice and instrument with full clear natural tone, . . . perfect reproduction of every sound between 20 and 9,500 vibrations per second." Meanwhile such perfection of reproduction is as flatly impossible today as it was in 1926. Such perfection will probably always remain impossible, except to the elaborate and prohibitively expensive equipment of the laboratory scientist—including perhaps a horn fifty feet long and sixteen feet in diameter at mouth.

"Eight tube one dial Horrific . . . magnificent tone . . . super-selective . . . powerful distance getter. All-electric, or battery, 6 tube super for (Please turn to continuation, page 675)



*All the Loud Speakers on Cortland Street, New York City, Are Fed from the Same Station*