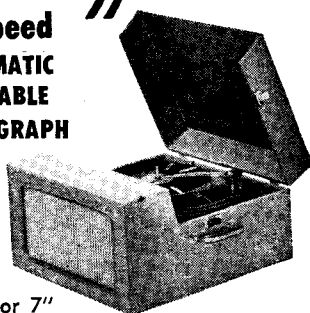


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The Hi-Fi Hobby

WHAT is high fidelity? The more we use that handsome term (and its abbreviation, hi-fi) the less likely are we to find a dictionary definition for it. Already it has the cheerful, all-embracing vagueness of dynamic slang. Already it has expanded into such subtleties of meaning—taken-for-granted that newcomers are rightly bewildered. We can disapprove of this linguistic inflation but we are not going to stop it. Forget the dictionary, and hop on the hi-fi bandwagon!

Many people, mistakenly, take high fidelity to mean merely an extended range of very high tones in phonograph or radio, where before they were missing. Mistakenly, because—whatever the slant of meaning—high fidelity involves all of the sound (high, low, and medium), and that whether we speak from the engineer's or the musician's point of view. We can hazard a beginning definition of the ubiquitous term as a high degree of faithfulness in the electrical reproduction of sound. Good, as far as it goes. But if we are to understand the grandly fuzzy concept of good music, good listening, and good engineering envisioned by hi-fi in the large—adjective and noun—we will go further. Hi-fi not only "means," but "is".

First, let us understand that High Fidelity is a hobby area, a thriving business, a conglomeration of custom-designed cabinetry, of tubes and dials, tangles of wire and pounds of solder, not to mention miles of tape and shelves of records. More than that, it is a way of thinking, a means of emotional catharsis and of creative activity. Hi-fi is a big-time hobby backed by a serious art and a profitable industry. For this we need a term of flamboyance, a good Americanism. Could we do better?

With that granted, look more closely at hi-fi sound. Faithfulness to what? To an "original," of course. As far as the listener is concerned that original can never be other than imagined. We do not normally hear the actual performances of which our records and broadcasts are facsimiles, and thus we have no direct and objective means of comparison. High fidelity for us listeners is necessarily faithfulness to an imagined original. If the sound seems right, if it is appropriate and realistic according to our inner standards of comparison, then we rightly and appropriately approve of it as a faithful sound.

The trouble with this conception, which is rigidly necessary, is that our

imaginings are too good. We can do far more than supply a mental original for comparison—we can re-create a large part of the music in imagination even from an obviously faulty reproduction, a mere sound sketch of its basic sense. To an experienced listener, Bach on a miniature portable is supremely faithful and more than adequate as a stimulus for creative inner listening. In this sense, reproduced music is not literal, nor is high fidelity a form of electrical perfection. The engineer's function as an imagination-stimulator is not the easiest thing to define!

But look at the engineer's own hi-fi. For him, high fidelity is faithfulness to the literal sound as picked up by the microphone. An objective, literal, and measurable exactitude, one would think. But is this an acceptable hi-fi for the rightful consumer, who hears music? If the mike picks up a sound that is musically unnatural in the first place—it often does—then we have faithful transferal of a basic distortion and no high fidelity at all. The technicians themselves put no rigid limitation on the term, for they are the first to speak of natural, realistic reproduction, in terms of musical pleasure, as their aim.

HI-FI, then, must compose the imaginative and the technical necessities. It must strive for the all-desirable literal reproduction of the picked-up music (though the laws of acoustics will not allow it in our listening rooms, however perfect the transmission) and it must equally account for the musical necessities and the historical, the cultural background—for one does not listen to string quartets in cathedrals nor symphonies in drawing rooms. A part of musical faithfulness is in the acoustics of every recording and broadcast, as witness Studio 8H. The complexities on both sides are immense and take co-operation of a high order between the musician and the engineer.

A beautifully suggested imagined original, creating that sense of "presence" which puts the imagined performers and, even more, the imagined composer, seemingly before our very ears; a reproduced sound that is technically low in the distortions, harmonic, intermodulation, transient, non-linear, that re-creates the contrived illusion of music itself with physical exactness—this is high fidelity at its present best. It makes a splendid hobby.

—EDWARD TATNALL CANBY.

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EDGAR M. VILLCHUR

ONE OF the most widely used musical devices of our era is the assembly of electronic equipment employed by the modern crooner. This device is not generally thought of as a musical instrument, but it could be validly described as such because it has its own characteristic quality of sound. As a musical instrument it is unusual in that, like the kazoo, it derives its vibratory energy from the voice mechanism of its player. Crooning is not singing in the rigorous meaning of that term, but use of the voice apparatus as the primary sound generator of a complex instrument which includes, as essential elements, a microphone, an amplifier, and one or more loudspeakers.

Musical instruments (with a few exceptions in the percussive group) contain two component systems: a vibrating source, such as a reed or stretched string, and a resonator or resonators which give the tone volume and quality. The human voice mechanism is also designed on this pattern. The vocal cords comprise the vibrating element, and the resonating chambers of the body, when properly controlled, are able to select and emphasize various overtones of the sound in such a way as to create a tone with a rich and satisfying harmonic structure.

The crooner abandons the traditional use of the vocal cords and resonating chambers. He substitutes for the full singing voice a sort of moan which changes the role of the body resonators and is inadequate in power for a public performance, but which is of sufficient intensity to serve as the input stimulus of a public-address system. His voice without amplification is ineffectual, like a piano with its sounding board removed, or the vibrations of cello strings stretched on a denuded frame.

The whispers, sighs, and soft moans of the crooner have a quality associated with relaxed effort. The mannerisms of delivery, the pronunciation of lyrics, the timbre, attack, and intonation of tones are all peculiar to

the quiet speaking voice and to the casual performance. But the whispers are those of a monster; they are of concert hall volume or louder. Such sounds could never have existed before the age of amplification. They are no more equivalent to a full voice of the same loudness than the sound of an oboe reed, played softly into a microphone and amplified, would be equivalent to the sound of an oboe.

In addition to the incongruous association of concert hall volume with a style of singing suited more to private lullabies than to public entertainment, the perceived tonal structure of the crooner's voice is radically altered by the increase in sound intensity. It has been experimentally established that the relative sensation of loudness of the various frequency components of a sound is strongly affected by the level of over-all sound intensity. The result is to give the fundamentals and lower overtones of the crooner's voice much greater prominence than they would have had at their original volume. Sound which is amplified, however faithfully, cannot have the same apparent timbre as the softer original. Furthermore amplification is never faultless. The crooner's voice must always be passed through necessarily imperfect electronic and electro-acoustic transmission media, whose distorting characteristics further influence the tone of the



complete system. IT is a contradiction of terms to speak of hearing a "live" performance of crooning. The crooner works with an electronically created sound. He cannot be called upon to give impromptu performances in random places, since he can only express himself through an amplifying system. If he has a good sense of pitch he can dispense with accompaniment in an emergency, but he cannot do without a microphone. Like the publicity photographs of an instrumentalist which show him holding his violin or flute, pictures of the crooner show him hugging his microphone.

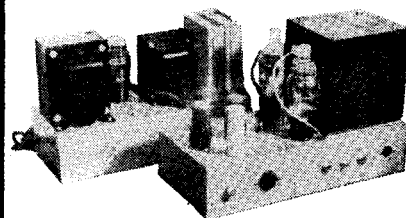
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Edgar M. Villchur teaches a course in sound reproduction at New York University.

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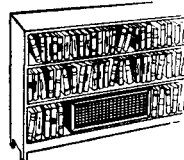
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