

# High-Fidelity

SUMMER ISSUE  
VOL. 2 No. 1

Published by Milton B. Sleeper

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The Magazine for Music Listeners



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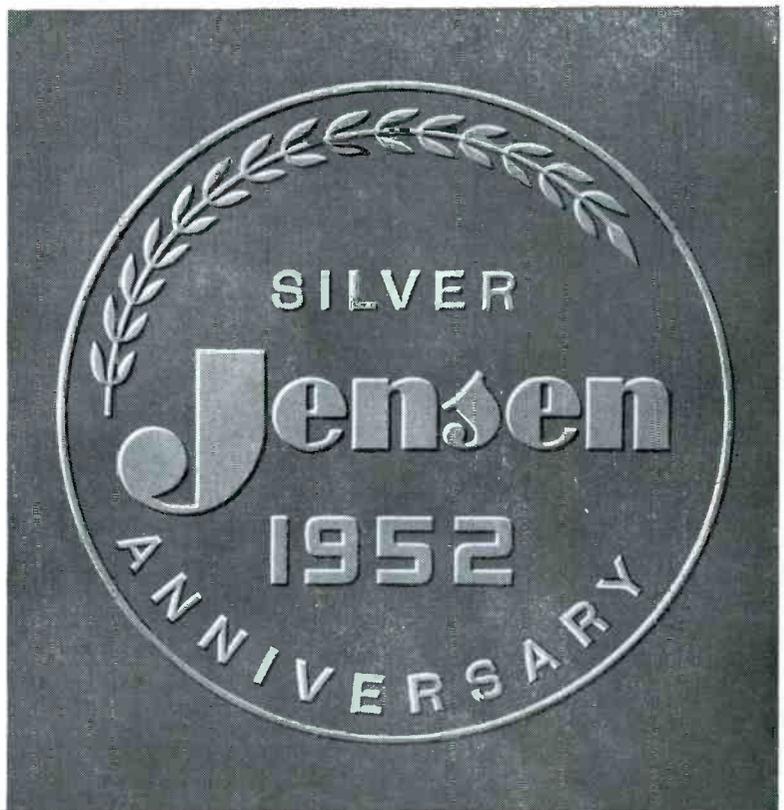


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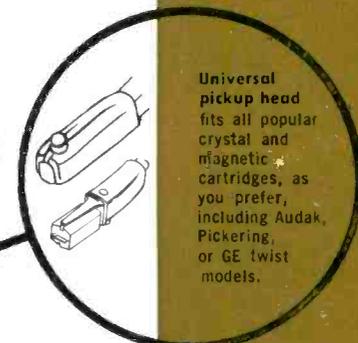
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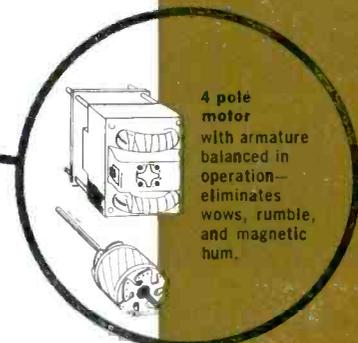
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## AUTHORitatively Speaking

This month's cover portrays a television and radio-phonograph installation which would fit gracefully into almost any home. It was designed and engineered by Lowe Associates in Boston.

Four months ago, we unpacked a new FM tuner and, after a quick look at it, sat down to read the long and detailed instructions sent with it. We thought those instructions were unusually well written. So we called the manufacturer to find out who wrote them. "Our chief engineer". We then asked the C.E. if he thought he could explain, equally clearly, a little about how FM tuners worked and a lot about what tuner specifications meant in terms of user satisfaction. "Well, I can always try." He tried, and we think he succeeded — with exceptional lucidity. Thus we have the article, beginning on page 17, by Howard Spindell of Browning Labs.

In this issue, we inaugurate a new feature on page 37: A London Newsletter, by Donald W. Aldous, who is in a position to know what is going on: he is executive secretary of the British Sound Recording Association, member of many technical and non-technical committees, and a writer well-known in the English periodicals.

Some men face a crisis and are overcome. Others, more rare, overcome the crisis. George A. Brewster is one of the rare variety. His crisis was several cabinetsful of audio and radio equipment, a small living room, yet the only commercially available cabinets wasted space, as far as his equipment was concerned. Instead of giving up in despair, he designed his own cabinet and, on page 39, tells how he did it.

By popular acclaim, we gladly present for a repeat performance, Edward L. Merritt, Jr., who brings us up to date on *The Music Between*, beginning on page 48.

Time was when corner enclosures for speakers were almost unknown and Paul Klipsch was considered a dangerous radical. Now they are so widely accepted that one manufacturer will soon be able to advertise, "Name the corner, and we can fill it!". That's why we asked Howard Souther, chief engineer for Electro-Voice, to tell about the whys and wherefores of this type of enclosure. This he does — on page 65.

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# High-Fidelity

THE MAGAZINE FOR MUSIC LISTENERS

Volume 2 Number 1 Summer 1952

CHARLES FOWLER, Editor

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MILTON B. SLEEPER, Publisher

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# AS THE EDITOR SEES IT

**O**F THE many letters in the Readers' Forum of this issue, three point up different aspects of a similar problem: how high should high fidelity be?

John Timm asks for an article on DDT for the bugs of high fidelity. He mentions rumble, hum, and many another complaint familiar to owners of wide-range music listening systems. The hum may not be in the system; if the equipment is really good, it will reproduce the hum which broadcast station engineers overlook and the rumble which strays into records. It will also, of course, reproduce every musical whisper, every crashing crescendo. The bad, yes; also — the good.

But, says another reader, there is not enough good — on records, anyway. Too many records are of a quality inferior to the equipment on which they are played.

This is true, but the situation is improving, certainly insofar as producers of classical records are concerned. The improvement achieved over the past three years cannot be denied, and more and more companies are releasing records of outstanding sound quality. The Music Between is in a state of turmoil; some is recorded very well, some, very badly. Popular and jazz items seem to be consistently poor.

Finally, H. M. Evans joins an earlier correspondent in annoyance over having purchased what reviewers stated was an outstanding high fidelity recording, only to find that it had been played half a dozen times with the record shop's worn out needle, scratched by careless handling, and generally reduced to a condition which made it unplayable — on hi-fi equipment. Mr. Evans advocates adoption of an English custom: mint copies — that is, records in factory-sealed jackets, guaranteed perfect, of top quality all the way around.

We shall add to this our own story, presaged by the article in an earlier issue by Carl Eton on his experiences with jazz records. A manufacturer, moderately well known for its popular records, sent us three 78's for review. Two were identical with what one would buy in the record shop. Quality was poor: no highs, no lows. The third record was a "white label" — intended for disc jockeys and marked Not For Resale. Quality: excellent. In other words, this company can do it, but not for the public.

Another company, also best known for its popular 78's, lately entered the LP classical and semi-classical field. Some of its releases have been of outstanding recording

quality. Recently some ten-inch LP's came in for review. They screeched so badly in the highs that nothing could be done to make them bearable.

The last records to be cited in our story are the 78 rpm. jazz pressings privately recorded by E. D. Nunn, whose activities were mentioned in the previous issue of HIGH-FIDELITY. They are proof positive that it *can* be done.

Logically, we come to the conclusion that high fidelity can be too high — sometimes. It can be too high nearly all the time with pop records; frequently with semi-classical records; occasionally with classical releases.

It can also be too high *within* the music reproducing system itself. The system must be balanced. This subject was discussed at length in an article in HIGH-FIDELITY No. 2, but it is too important not to be mentioned again, briefly. In essence, a wonderful loudspeaker will show up the faults of an amplifier; a wonderful speaker *and* amplifier will bring out all the rumble in a turntable; and a superlative *system* will reproduce with unpleasant clarity the rumble and wow in a record.

However, there are occasions, more and more and more of them, when everything is just right — from the microphone in the recording studio to the speaker in the living room. Then the original is indeed re-created in our homes. Then — and only then — is high fidelity never too high.

**F**INALLY, a suggestion for record manufacturers (especially those in the pops and jazz field) to consider: if it is possible to produce "white labels", why would it not be feasible to manufacture a few extra copies, wrap them up carefully, as Mr. Evans suggests, replace the Not For Resale notice with one which reads, "For use only on high fidelity reproducing systems"? Granted, the market now is small — certainly when compared to one which buys over 1,000,000 copies each of top pop hits every year. But the market is growing; eventually it may well encompass the entire home market.

The sooner it is cultivated, the sooner we shall be able to write another editorial, reversing our suggestion and recommending that the users of old-fashioned equipment be not forgotten . . . that special pressings (with black labels?) be made available to them, bearing the statement, "For use only on low fidelity equipment." That will be the day!

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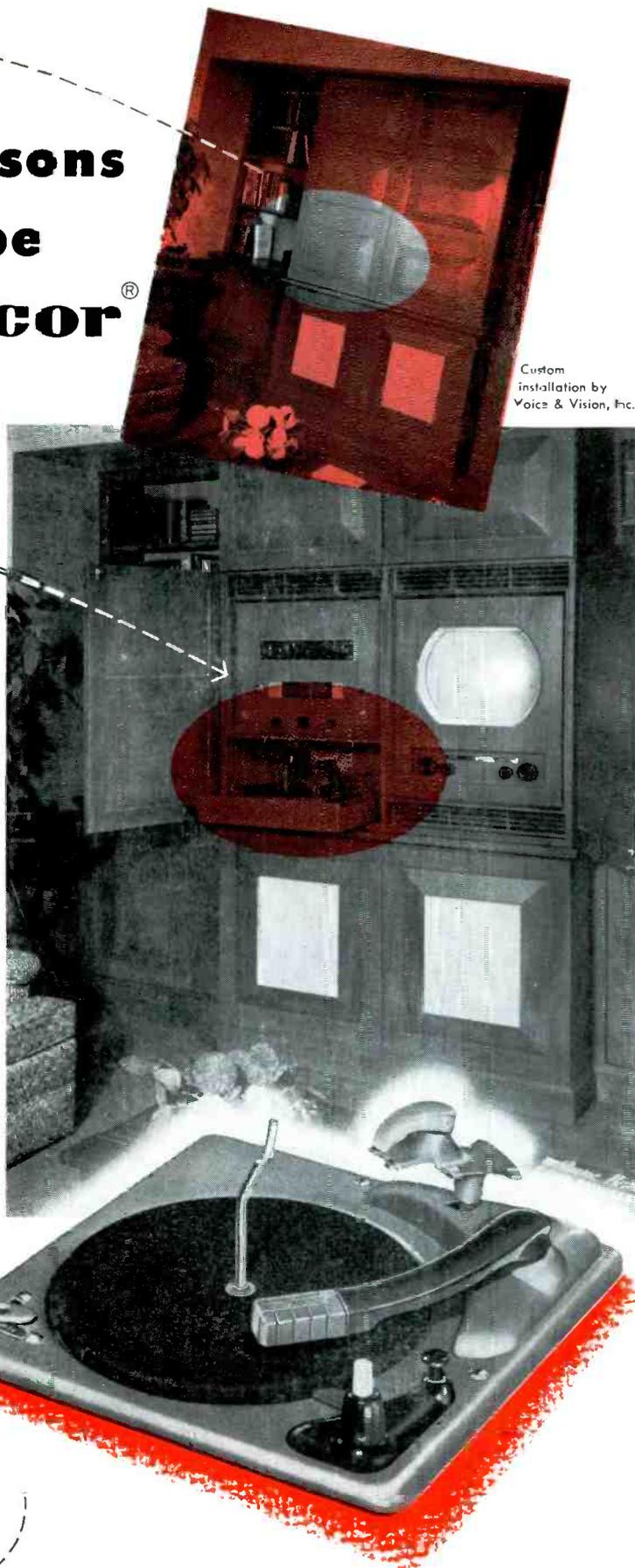
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## Noted with Interest:

### Standard of Comparison

Elsewhere in this issue, we mention use of a tape recorded at 15 ips. as a standard against which to compare a batch of pre-recorded tapes. The story behind this tape has given us a long chuckle of merriment which we shall not soon forget. The tape itself has been played and re-played until we wonder if it is really true that tape never wears out.

The story begins last Winter, when our publisher shoveled the snow out of his drive and betook himself to the land of the Brahmin. Perhaps the shoveling was too much for him, for no sooner had he arrived in Boston than he was infected by a fever which was sweeping the area: WBGH was on the air. Enthusiasm and excitement had not run so high since the Tea Party. Needless to say, a story in full was the result. Please see HIGH-FIDELITY No. 4, page 60 ff.

Among our readers, reaction to the article was primarily a sustained, dreamy-eyed look. Others said, in effect, "Hunh!". At least one pair of readers took the time to spell out exactly what they meant by "Hunh!" — in one of the best-humored, most enjoyable letters we've received in quite a while. To wit:

"Dear Mr. Sleeper:

"We look askance at your remarks about the technical performance of non-commercial stations in the Spring issue of HIGH-FIDELITY. We at WUOM welcome comparison as to technical operation with any station, commercial or non-commercial, in operation today.

"For some years now, WUOM has been covering a large part of the state of Michigan with non-commercial programs, largely musical, of highest quality. We average two or three live music remotes weekly, with many studio pickups of smaller instrumental groups. All of our recording is done on tape at 15 or 30 ips., and we supply many hours of recorded program material to stations in and out of Michigan.

"We are enclosing a few excerpts of tape from some of our typical pickups. If you have time, you might listen to them, and perhaps they might help you revise your ideas about educational broadcasting. This is Step One in a carefully laid plot to move the High Fidelity Capital of the World from Great Barrington to Ann Arbor.

Sincerely,

Dean W. Coston, Studio Supervisor

Robert M. Burd, Recording Engineer  
Station WUOM, Univ. of Michigan"

With that as a good start, we ran through the tape. Now we are off our feet! Everything was there ... full frequency range ... dynamics aplenty ... clarity ... and it all wound up with a combined chorus-orchestra-organ "explosion" which has not yet failed to bring listeners in our home right out of their chairs.

To Waldo Abbot, director of broadcasting at WUOM, a low and reverential bow. Another bow to the men responsible for catching sound at its best. And to all concerned, a gentle prod in a lower left rib: how's for an article for the Fall issue of HIGH-FIDELITY?

*Continued on page 9*

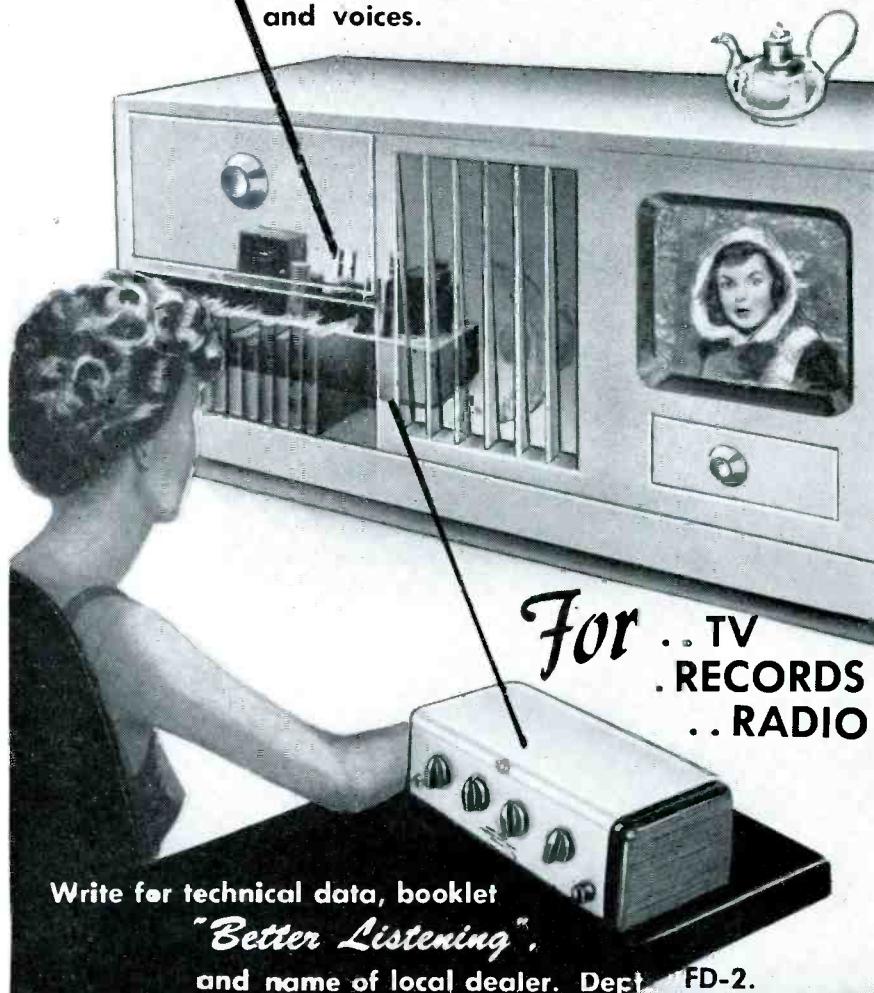
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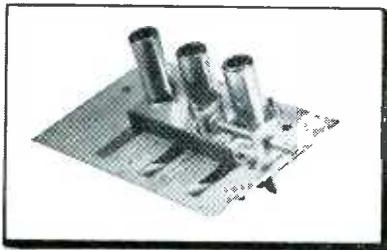
**NOW** you can  
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**COMPLETE VERSATILITY** is the byword in this new tuner design. Through the addition of the AM circuit, the Collins tuner will meet all requirements for home music systems and installations where a fine tuner is required.

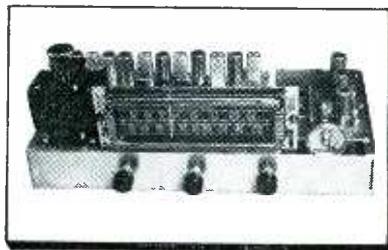
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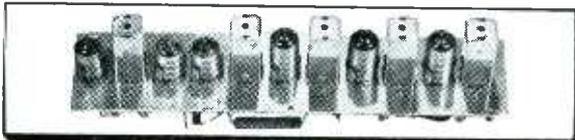
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## NOTED WITH INTEREST

*Continued from page 7*

### WAJL to WUOM

Speaking of FM station WUOM reminds us that we were somewhat startled by a report from them concerning the latest fashion in gifts for successful broadcasters: another radio station. Yes, that's right. We have just re-read the release, to be sure of our facts, and it says that FM station WAJL of Flint, Michigan, has been given as a gift — lock, stock, and antenna — to the University of Michigan, which plans to operate it as a relay point for WUOM programs.

### Photographers: Proceed with Caution!

In this item, we bring to your attention that Peerless Camera Stores<sup>1</sup> (*italics ours*) has started an audio department, well stocked with a variety of speakers, amplifiers, tuners, turntables, and whatnot. Camera stores have long dealt in tape recording equipment, but Peerless is one of the first to go whole hog into audio. It is an interesting move, but one which is fraught with danger for those who have hitherto followed the quiet and cellar-bound hobby of photography. They are likely to walk into the Peerless store intent on the purchase of an enlarger and walk out with an amplifier. Which will transmute them into a noisy species, habitat living room.

### Chicago Residents: Note

Well-known Voice and Vision has opened a new demonstration room at 54 E. Walton Street (900 North), which is reliably reported to be one of the handsomest high fidelity showrooms in the U. S. Better stop in for a look and listen.

### Springfield (Mass.) Residents: Note

A short while ago, we had an interesting discussion with George Karpovich of Springfield Sound Co. (772 Worthington St.). His organization has been in the public address and intercommunication systems field for several years and is now in the process of expanding to include a demonstration room for high fidelity equipment. This is good news for anyone within driving distance of Springfield; we need reliable sales and service hereabouts. Springfield Sound will be especially glad to have visitors at this time, for they want suggestions on how best to meet the needs of future customers.

### Compliments on a Complement

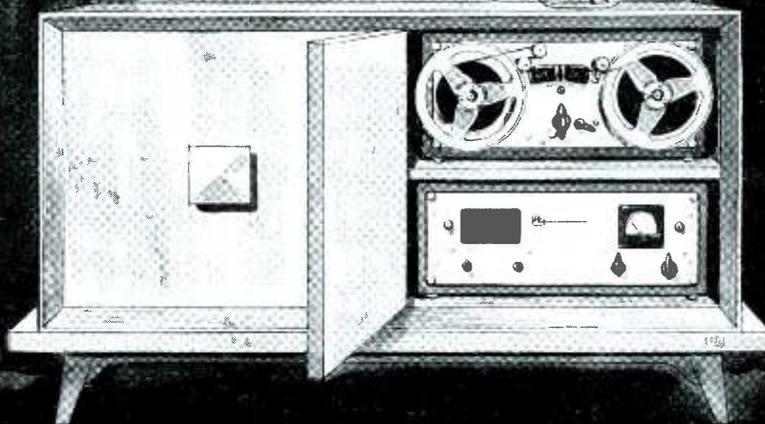
Vic Brociner has earned many a well-deserved compliment for his preamplifier-equalizer unit,<sup>2</sup> and seems likely to earn more compliments for a complement to that unit: a control amplifier "intended to provide additional amplification and controls for selection of inputs, volume, bass and treble". The preamp-equalizer works di-

<sup>1</sup>138 East 44th St., New York 17, N. Y.

<sup>2</sup>Described in HIGH-FIDELITY, No. 3.

*Continued on page 82*

*captures all the brilliance  
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Here's the ideal instrument to complete your modern home installation of high fidelity sound equipment. Magnecorder, first choice, 3 to 1, of America's radio engineers, gives you matchless sound reproduction . . . so true and life-like you can't tell it from the original music.

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**New *Gray* 108-B Arm for all records has new suspension principle**

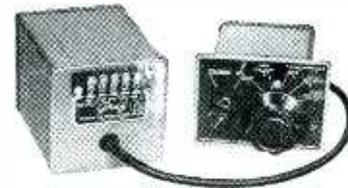
Perfect tracking of records and virtual elimination of tone arm resonances are only two advantages of this versatile, specially-designed arm — the finest yet developed! It satisfies every requirement of LP reproduction, permits instant changing from 78 r.p.m. to LP (micro-groove) or

45 r.p.m. and *assures correct stylus pressure automatically*. GE or Pickering magnetic pickup cartridges are interchangeable and slip into place quickly and easily. Maintains perfect contact with bad records, accommodates records up to 16" in diameter.



### 106-SP Transcription Arm —

Assures fidelity of tone for every speed record. Three cartridge slides furnished enable GE 1-mil. 2½ or 3-mil. or Pickering cartridges to be slipped into position instantly, with no tools or solder. Low vertical inertia, precisely adjustable stylus pressure.



### Gray Equalizers —

Used as standard professional equipment by leading broadcast stations, these specially-designed equalizers assure highest tonal quality... new record reproduction from old records... constant velocity frequency response for conventional or LP records. Uses GE or Pickering cartridges.

Please write for bulletins describing the above equipment.

## GRAY RESEARCH

and Development Co., Inc., Hilliard St., Manchester, Conn.

Division of The GRAY MANUFACTURING COMPANY—Originators of the Gray Telephone Pay Station and the Gray Audograph



*Walter E. Ottum*  
President

## Readers' Forum

SIR:

I wish I had the time to say all the nice things I would like to say about your magazine. I certainly have enjoyed reading every issue — practically every article. The Magazine has proved to be more than I expected.

However, I would be remiss if I neglected to mention the pleasure and information I obtain from such scholarly articles as "Ludwig van Beethoven on Records" by C. G. Burke. These are more than worth the price of the Magazine alone for it saves me time as well as expense in enlarging my record collection. I know I represent only one vote — but I'm for more articles like that.

While I appreciate that most people like the non-technical articles, I believe everyone would be willing to see one article on circuits. I know I like to ponder over intricate schematic diagrams, as if I understood everything about them. Perhaps it's because I do like to tinker with circuits — adding this or changing that. Perhaps there are more people like me?

*Edwin Schwarz*

Devon, Conn.

SIR:

I have just finished reading my latest HIGH-FIDELITY Magazine. Although it is a very good magazine, and very interesting, I find it a bit over my head (I am a very green greenhorn). I usually take it to a friend of mine, who runs a radio shop, and he explains things to me.

I am fascinated by the setup by Albert Kahn. Would it be possible to get the details such as what is the make of tuner, tape recorder, transcription turntable, television set, tweeters and the horns and 18-in. speakers?

Is it possible to get a sketch, or a diagram of the construction and the hookup of all component parts?

I have been looking around for a long time for such an installation.

*Paul G. Frenzelas*

Roosevelt, N. Y.

Write to Howard Souther, Electro-Voice, Inc., Buchanan, Mich.

SIR:

May I say a word in defense of the maligned wives referred to in your Readers' Forum column? Being myself one of these apparently heartless and unappreciative spouses, I feel some affinity for the gals under fire, and would like to point out some justification for our attitude.

To begin with — we are not all dolts with unmusical ears. It should be understood that a goodly percentage of us enjoys music in many or all of its classifications, and appreciates high fidelity reproduction with the most avid of the audiophiles. However, we, in our admitted vanity, lose some of the

*Continued on page 13*

## In the home that is wired for magic you'll find a **BROWNING TUNER**

Today, the ether is a treasure house, if you have the key to unlock it. Great music, better than ever before, with all the ultra-fidelity of microwave relay from concert stage to radio transmitter

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### MODEL RJ-20B FM-AM TUNER

- Armstrong FM circuit; 20 db quieting with 6½ microvolts
- Separate r.f. and i.f. on both bands
- AFC on FM with ON/OFF switch
- AM bandwidth selection, 9 kc. and 4 kc.
- Drift-compensated
- FM audio 15-15,000 cycles ±1½ db.
- 20 db treble and bass boost
- self-contained power supply.

### MODEL RJ-12C FM-AM TUNER

- Armstrong FM circuit; 20 db quieting with less than 10 microvolts
- Separate r.f. and i.f. on both bands
- AFC on FM with ON/OFF switch
- Drift-compensated
- FM audio 15-15,000 cycles ±1½ db
- AM audio 20-6600 cycles ±3 db
- Triple-tuned i.f.

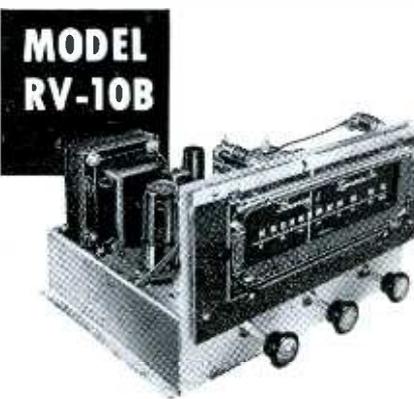


### MODEL RV-10B FM TUNER

- Armstrong FM circuit; less than 10 microvolts for complete limiting
- AFC on FM with ON/OFF switch
- 2-stage cascade limiter
- Tuned r.f. stage
- Drift-compensated
- High impedance output.

Learn the full specifications for Browning high-fidelity — write for complete performance curves and data on these models.

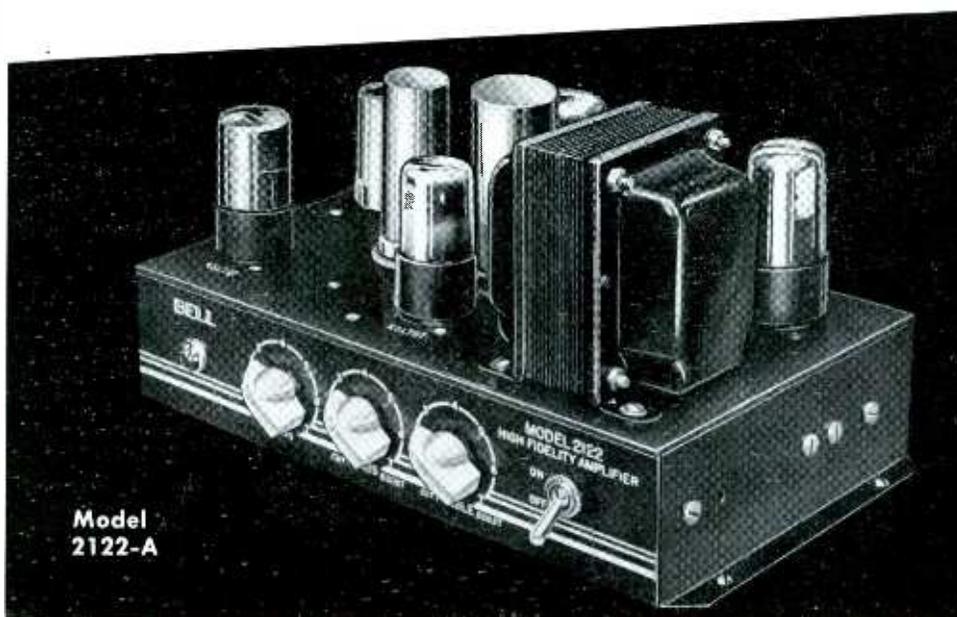
In Canada, address:  
Measurements Engineering Ltd.  
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**BROWNING**  
Laboratories, Inc.  
Winchester, Mass.



in photography, the lens controls the quality!...



Model 2122-A



Model 2122A-R

with four-foot extension cables to permit more flexible installations.

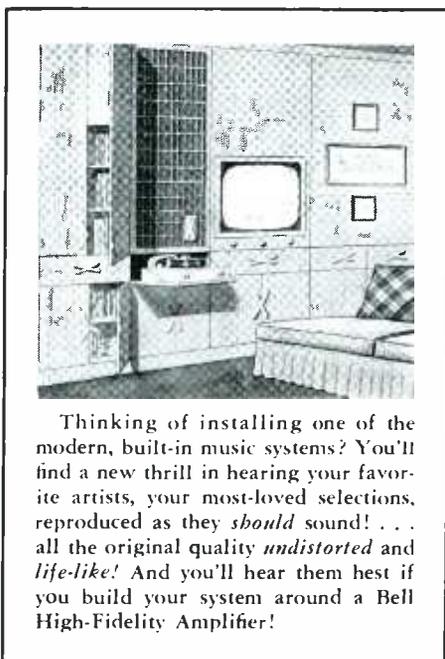
... in a sound system, it's the amplifier!

CHOOSE A

**BELL**

Custom High Fidelity Amplifier

*for a new thrill  
in listening*



Thinking of installing one of the modern, built-in music systems? You'll find a new thrill in hearing your favorite artists, your most-loved selections, reproduced as they *should* sound! . . . all the original quality *undistorted* and *life-like*! And you'll hear them best if you build your system around a Bell High-Fidelity Amplifier!

As a fine camera lens picks up every detail for the eye, a Bell High Fidelity Amplifier reproduces all the vivid sounds of the original voice or music — sounds normally lost by inferior equipment. That's why more and more discriminating listeners are choosing Bell's modestly-priced amplifiers as the heart of their custom-built home music systems.

The Bell Model 2122-A is especially designed for those who want a quality amplifier at a medium price. It's a versatile unit with four separate inputs, including one for radio tuner, one for any crystal pickup, plus two special inputs for the newer magnetic type of pickup. Built-in pre-amplifiers and individual equalization of each of these magnetic inputs assures proper match and response.

Bass and treble boost with attenuation makes it possible for the operator to adjust the tone to his most exacting taste. Output impedance is adjustable for proper matching to most speakers.

For a more flexible installation, Model 2122A-R comes equipped with a special control panel and four-foot extension cables. This remote-controlled unit has all the outstanding features of the 2122 Amplifier, and, in addition, lends itself ideally to the modern, built-in type of audio installation.

OUTPUT: 10 watts at less than 3%. Peak: 15 watts.  
 FREQ. RES.: Plus or minus .75 db 30 to 15,000 cycles.  
 HUM LEVEL: 65 db below rated output.  
 INPUTS: 1 radio, 1 phono, 2 Magnetic.  
 OUTPUT IMP.: 3-4, 6-8, and 15-18 ohms.  
 TUBES: 1-5Y3GT, 2-6V6GT, 2-6SL7GT, 1-12AX7.  
 SIZE: 7½" deep, 6" high, 11½" long.

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TODAY!*



**BELL SOUND SYSTEMS, INC.**

555-57 Marion Road

Columbus 7, Ohio

EXPORT OFFICE: 401 Broadway, New York 13, N. Y.

READERS' FORUM

Continued from page 11

delight in a near-perfect hi-fi system if, rather than being attractively housed in a cabinet or wall installation, it is strung out in myriad components from one end of the living room to the other! It doesn't look half as pretty as it sounds.

One other complaint: admittedly, the most natural reproduction is obtained by playing recordings fairly loud, but I for one, choose to become acclimated gradually to the grandiose passages in, say, *Pictures at an Exhibition*; and I'm slightly more amenable to listening in the approved fashion when I can sit down and pay full attention. At the wrong times the din can be distracting.

In praise of your magazine, I've found it to be the first of its kind which an unscientific mind such as mine can digest and I was very favorably impressed with our first copy.

How about some more articles and pictures on installations with a few suggestions on how to keep the price down, while still maintaining faithful reproduction?

Pamela Wheeler

Norwich, Conn.

SIR:

Please note from the enclosed that I am three times as confident of your efforts as I was in my charter 1-year subscription. As the *Fortune* of audio, you have done a remarkable job.

At times the whole high fidelity effort has seemed, to my non-technical mind, to be a kind of fool's errand. It has seemed rather like using a 100-octane fuel in a Model T.

LP pressings aside, the breach between today's fine components and the phonograph records which line our shelves is great and very nearly intolerable.

May I humbly suggest that when the matter is next discussed that someone put forward my notion that the "most important component" of an audio system is the record which at that moment resides on the turntable.

Do not let the audio engineer forget that a great cultural treasure lies yet engraved on the millions of "shellac" pressings which people have lovingly collected. We do not intend to throw these records away (as a matter of fact, I just yesterday got from England a new English Columbia pressing of Leon Goosens playing a wonderful oboe concerto — on shellac, of course).

Perhaps someone will have the good sense to design a "collector's circuit" which will permit us to play our wealth of fine music and great performances without bracing for the surface grindings of an "open" position on a compensator and the contained dull rumble of one of the muting position.

James T. Maher

New York, N. Y.

SIR:

I read with interest the report on the Columbia AL series of records, and I own a few of the discs. But it occurred to me that

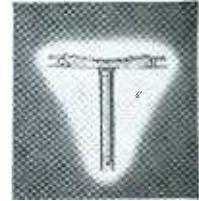
Continued on page 15



PHONOGRAPH ACCESSORIES



Photo courtesy Tulsa Daily World



**New Reversible Stylus (RPJ-013)** incorporates sapphire\* tip for standard play and diamond tip for LP and 45's. "Double twist" arm permits stylus to follow every tiny record groove. Ask your G-E dealer for a demonstration today.

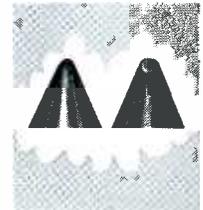
\*Natural and synthetic sapphires are used.

11 to 1 choice with High Fidelity Group

● **What phono accessories are best?** Take a curb-stone poll among the record enthusiasts you know. Chances are the majority of them use G-E cartridges and styli to extract a full measure of enjoyment from recorded music. The group in the picture, audiophiles of Tulsa, Oklahoma, are a case in point. Of their members, all but one have home music listening systems equipped with General Electric cartridges.

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**G-E accessories are easy to install.** If your music dealer is out of stock, write us for the name of the nearest supplier in your area.



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Gentlemen: Please send me, without cost or obligation, your Soundcraft Magnetic Tape brochure showing how I can get better recording results.

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Soundcraft Tape is easy to sell, because it's so superior. The Tape-Chest will make it easy to sell reels *five at a time!*

1. Pre-coated for greater adhesion.
2. Constant speed coating process for output uniformity.
3. Each foot checked to guarantee absolute output uniformity.
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THE ONLY RECORDING MATERIALS  
PERFECTED AND MANUFACTURED  
BY RECORDING SPECIALISTS

Please write Reeves Soundcraft for additional information.

## READERS' FORUM

*Continued from page 18*

the ill-fated 7-in. discs are ideal for the purpose. I believe Columbia stated a few years ago that there was a maximum of 8 mins. possible per side.

Almost all record changers will handle the size, and certainly there would be no problem of storage. The manufacturer would find such a size cheaper to manufacture and ship. I believe the disadvantages of inconvenience and pinch effect are relatively minor.

I, for one, hope that some manufacturer will use the 7-in. size for medium length works.

*Ronald Pesha*

Tulsa, Okla.

SIR:

Congratulations on your first year of publication. Enclosed find my renewal for a three-year subscription.

I agree that it would be greatly appreciated if advertisers would quote prices in their ads in your magazine. I always feel that if an advertiser does not want to quote a price he is ashamed of it.

Can't send you flowers, so am sending this card of my wife's instead. Your publication certainly deserves it.

*W. J. Hammond*

Pharr, Texas

The above was written on a birthday card. Thanks, Mr. Hammond.

SIR:

You will observe that I decline to use a hyphen in HIGH FIDELITY. The reason appears in the letterhead. Sheer pedantry, natch.

*W. H. Burke*

Department of English

Kalamazoo College  
Kalamazoo, Mich.

SIR:

Reference is made to C. A. Anglemire's letter in the Readers' Forum concerning their Masterworks Record Club.

Enjoyed Mr. Anglemire's account of their club. We have something similar here but it originated in a little different manner. In working for the U. S. Fish and Wildlife Service, we more often than not find ourselves stationed in some of the more remote sections of the Country. Far removed from FM, TV and, more especially, hundreds of miles away from live concerts, our only contact with the musical world is through the recording medium.

There are three of us, and our families, stationed at the Seney National Wildlife Refuge who are intensely interested in classical music. The Seney Refuge is located in the heart of the timber country of Michigan's Upper Peninsula and a long way from nowhere. Two of us have hi-fi installations.

*Continued on page 106*

*The BEST BUY in Recorders!*

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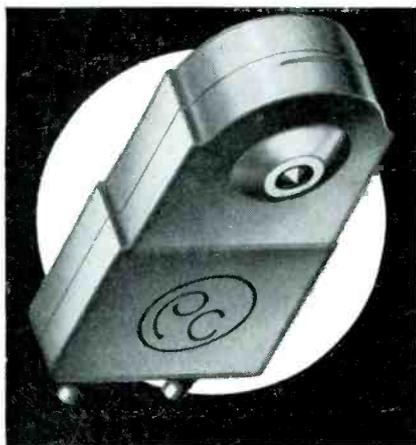
Write for Bulletin A-211

AX-77

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Yes, Bach, Beethoven and Brahms are now better than ever — we don't mean we've improved their music, but we *do* mean we've improved the reproduction of their *recorded* music.

It's the new, improved Pickering Cartridges that give credence to this claim. Yes, Pickering Cartridges are *different*. They're *improved*. They're *better than ever*. Pickering patented Cartridges with Dynamic Coupling\* are superior in every way, by providing . . .

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REMEMBER Pickering engineers and designers have but one objective . . . to produce products that will please the music lovers' insatiable appetite for the flawless recreation of recorded music . . . for the utmost in quality insist upon Pickering Audio Components. . . . Pickering diamond stylus cartridges . . . not only wear longer but, *more important*, they preserve the musical quality and prolong the life of your record library.

\* *dynamic coupling*  
assures

- constant stylus contact with the record grooves over the entire audio spectrum (20-20,000 cps)
- full frequency response • full transient response
- NO RESONANCES • NO MISTRACKING • NO GRINDING OF GROOVE WALLS

## PICKERING *and company, incorporated*



• Pickering High Fidelity Components are available through leading Radio Parts distributors everywhere; detailed literature sent upon request. Address Department H



Oceanside, L. I., New York

# how to select an

# FM Tuner

By FREEMAN A. SPINDELL

**M**ANY, many words have been written concerning the merits of various types of amplifiers, speaker systems, and phonograph pickups appropriate to high fidelity sound reproduction. Because this information is available in such abundance, the non-technical buyer is able to make an intelligent selection of these items. Unfortunately, this is not true of FM tuners. Little comprehensive material has been published to help the average audiophile interpret the technical specifications of these devices and to evaluate various features in terms of desirability or convenience. It is the purpose of this article to provide a basis for understanding the factors which should be considered when selecting an FM tuner.

Fundamentally, the function of a tuner is to accept *radio* energy from the antenna lead-in and to convert the modulation or variations of this energy into *audio* signals having a magnitude suitable for feeding an amplifier. The ideal tuner would perform this function without introducing any distortion or noise, and its audio output would be identical to the signals fed into the transmitter from the studio. While these theoretical goals are never quite reached in practice, the approach can be amazingly close and, logically, the rating of a tuner's performance is established by how nearly perfection is achieved.

There are, of course, many factors which influence overall performance. Some of these factors present no difficulty to the designer. Others are major problems. Solutions are limited by the technical state of the art, or must be the subject of compromise for economic reasons. The sensible selection of an FM tuner requires a knowledge of what these problems are, and a means of judging the degree to which the designer has met their challenge.

## Sensitivity

This term requires definition before it becomes meaningful in connection with FM tuners. Basically, sensitivity is determined by how weak the received radio signals can be and still provide listenable output. Greater sensitivity permits reception of weaker signals.

One way of specifying sensitivity is characterized by the simple statement, "20 microvolts sensitivity". The inference here is that when a broadcast signal of 20 millionths of one volt is applied to the antenna terminals of the tuner, an audio signal of useable average amplitude, probably  $\frac{1}{2}$  to 1 volt, will be delivered by the tuner to the audio amplifier. This type of sensitivity specification, stated alone, is relatively meaningless because it says nothing at all about how much noise<sup>1</sup> will be mixed with the signal.

A considerably better idea of useful sensitivity can be gained from the qualified statement, "10 microvolts required for 20 decibels quieting". The decibels indicate, in this case, the loudness of the noise output in proportion to the loudness of the speech or music output. Some idea of this relationship may be had by noting that the difference in loudness of average noise between an active office and a quiet residential interior is about 20 db; between an average residence and a quiet whisper 5 ft. away, 30 db. Ratings which specify sensitivity and quieting are a good indication of tuner performance on weak signals. Fewer microvolts for more db of quieting indicate that quieter reception of weak signals may be expected.

<sup>1</sup>The noise referred to is that resulting from all sources, internal and external, which is heard when tuning between stations and as background noise on weak signals.

It might be inferred from the foregoing that high sensitivity is of value only in fringe areas where strong signals do not exist. Certainly it is of primary importance under such conditions, but since higher sensitivity results in an improvement in quieting on strong signals as well as weak, this quality is valuable to urban listeners as well.

Improvement in the ratio of quieting to sensitivity of one type of tuner over another is generally attributable to increased overall amplification, improved limiter or ratio detector performance, and meticulous design in the early amplification stages for minimum internal noise generation. Each of these factors represents added items of expense to the manufacturer in more components or higher engineering costs. As a result, FM tuners having high sensitivity are relatively more expensive than those which are mediocre in this respect.

### Selectivity

An FM tuner on which the dial is set, let us say, to 100 megacycles, will receive not only a 100-mc. radio signal, but will respond as well to frequencies slightly higher and lower than this. Actually, not one single frequency, but a range or band of frequencies is received at any dial setting. If this band of frequencies is narrow, the selectivity is said to be high; if broad, the selectivity is termed low or poor. It would be well to point out here that in FM tuners, the best unit is not the one having the highest selectivity but, rather, the unit having a selectivity characteristic which is most nearly correct. What is correct will be made plain a little later.

Radio signals carrying music and speech are not confined to a single transmitted frequency such as 100 mc., but are spread out over a band centered *about* such a frequency. Regulations of the Federal Communications Commission require that this band be no wider than 150 kilocycles; that is, 75 kc.<sup>2</sup> above and below the station frequency. The FCC also specifies that there be a 50-kc. idle space between the edges of these bands or channels. This condition is illustrated graphically in Fig. 1. The ideal FM tuner would respond equally well to any frequency within the channel to which it was tuned, but would accept no energy at all from the channels immediately above or below it: the adjacent channels. This would require a selectivity characteristic best described by the drawing in Fig. 2. The process of tuning would simply slide this curve along from channel to channel as desired.

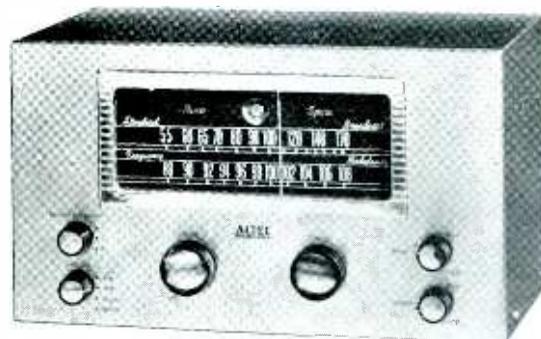
In any practical tuner, the selectivity characteristic is determined by the intermediate frequency<sup>3</sup> amplifier, particularly by the design of the IF transformers employed. The achievement of a characteristic approximating that

<sup>2</sup>For sake of comparison, the audible frequency range is approximately from 20 to 20,000 cycles; AM broadcasts are transmitted on frequencies from 550,000 to 1,650,000 cycles (550 to 1,650 kc.); FM broadcasts use the range of 88,000,000 to 108,000,000 cycles (88 to 108 mc.)

<sup>3</sup>The sequence of operations, so to speak, in a tuner (either FM or AM) is roughly as follows: 1) amplify the radio frequency signal picked up by the antenna, at its original frequency (tuned radio frequency amplification or TRF); 2) shift the frequency to an intermediate radio frequency and amplify some more—IF amplification; 3) convert frequencies from radio to audio; and 4) amplify—if necessary—sufficiently to drive the average amplifier.

## Typical FM Tuners

Radio receivers capable of tuning the FM band are legion. Among the commercial console and table types, there are dozens of makes and hundreds of models. Most include AM; many TV sets now have FM tuning sections. Then there are a group of receivers designed primarily for amateur and short wave use; some of these provide FM tuning. Finally, there are the FM tuners used principally for custom installations. Five typical units are shown here and on page 20; there are many, many more. For a complete review, manufacturers' and mail order catalogues should be consulted.



Altec-Lansing model 303-A FM-AM tuner. Includes preamplifier for magnetic cartridges; separate bass and treble tone controls; input selector switch; record compensator. Power supply built in. For complete report, see page 92.



Bogen model R604 FM-AM tuner. Controls: tuning and selector. Latter provides AM, FM, power off, and two spares. Automatic frequency control incorporated; may be disabled by external switch. Armstrong circuit.

shown in Fig 2 would be enormously expensive and all out of proportion to the cost of the tuner. Indeed, this ideal curve is, at present, impossible of realization. The practical design of IF transformers yields characteristics which have various shapes, three representative types of which are shown in Fig. 3. A study of these curves will reveal that a design difficulty lies in obtaining uniform response across the entire channel width and, at the same time, minimizing the response to the channels adjacent to the one desired. If the response curve is narrow, as in the case of high selectivity shown in Fig. 3-A, much of the energy contained in the regions near the edges of the channel is rejected. This results in so much distortion that it is easily discernable by the ear. If, as in Fig. 3-B, the response is made wide enough to accept the entire channel with reasonable uniformity, the adjacent channels will also be partially accepted, resulting in interference. Obviously, some kind of compromise must be made and, for the simple reason that FM is a high fidelity medium, uniformity of response across the 150-kc. channel is of first importance, with adjacent channel rejection occupying second place on the list. This is further justified when it is re-

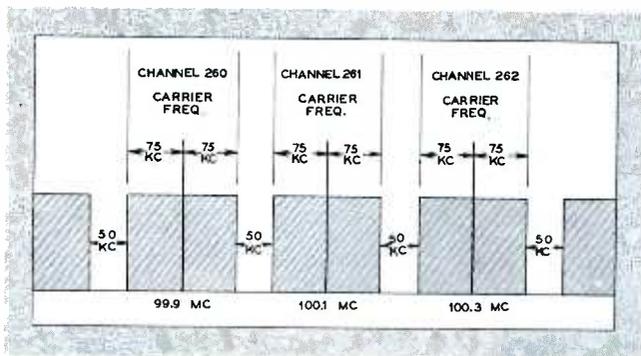


Fig. 1. Channels used by FM broadcast stations are centered around a carrier frequency with a 75 kilocycle band on either side of the carrier. A 50-kc. band separates channels.

membered that adjacent channels are usually assigned by the FCC to stations which are geographically far apart and unlikely to interfere with one another. Actually, curves similar to that of Fig. 3-C are obtainable and satisfy both requirements reasonably well.

At this point, it is interesting to note that the normal channel assignment for AM broadcasting is only 10 kc. wide. This seriously limits the audio range which can be transmitted by this medium. Comparing this 10-kc. channel to the 150-kc. FM channel makes it rather apparent why so much better fidelity is possible through FM transmission and reception.

Specifications for FM tuners frequently describe this selectivity characteristic as the "bandwidth" and may state, "Bandwidth of 150 kc.". This is not very definitive. Comparisons may be made more readily when the reduction in response at various bandwidths is stated in decibels. The ideal method of analysis is the study of actual curves established by measurements made on the tuner.

## Automatic Frequency Control

Automatic frequency control (AFC) is incorporated in the better FM tuners as an aid to correct tuning. Accuracy in FM tuning is essential. For the reception of any particular channel there is *one* precisely correct point of adjustment and even minor errors in setting the dial will result in distortion, noise, or both. These defects are emphasized by

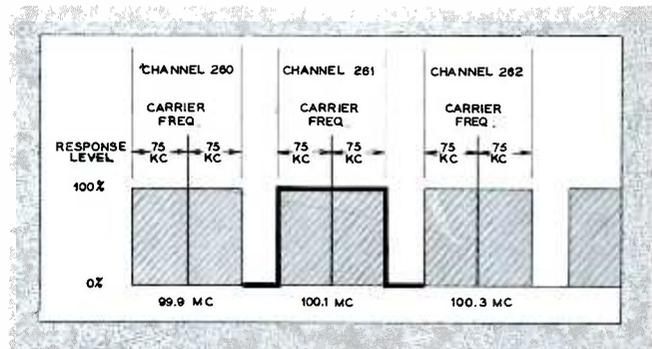


Fig. 2. The frequency response characteristics of the ideal tuner would exactly match those of the broadcast station, shown in Fig. 1 and indicated above by the heavy line.

the high fidelity amplifiers and speaker systems normally used in conjunction with FM tuners. Tuning by ear alone is inadequate and, in tuners not having AFC, a tuning indicator is indispensable.

While the theory and circuitry involved in AFC is complex, the advantages can be explained easily. In effect, the AFC circuit is an electronic brain which recognizes the direction and amount of mistuning and acts upon this information to restore correct tuning. This action is apparent when dialing an FM tuner having AFC. As the dial is turned to the vicinity of a station, usually to the ragged edge of reception, the station will abruptly snap into proper tune. It will remain so until the dial is turned almost completely past the station. Then the signal will be suddenly lost. With AFC, the dial settings for correct tuning cease to be critical.

Additional benefit is gained by AFC in the following way. Even though great care is exercised in tuning, there

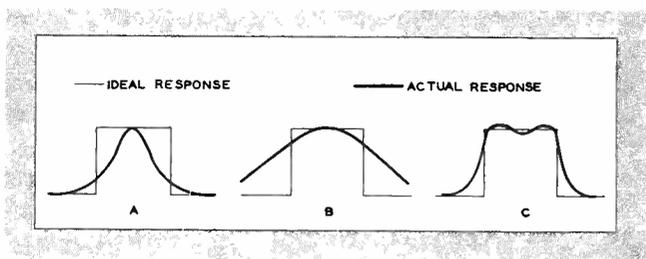


Fig. 3. In actual practice, tuning characteristics shown in A, B, C, above, are achieved. Both A and B are poor; C balances wide frequency response against good sensitivity.

are various forces at work within the tuner to cause the tuning to change, or drift, during the period of operation. More important among them are physical expansion of components due to rising temperature, and changes in AC line voltage. Well-designed tuners are compensated for these changes as far as possible but they remain threats to

good performance. The AFC circuit does not differentiate between manual mistuning and errors arising from within, and will continually correct any residual drift without requiring retuning.

There is a relatively minor drawback created by AFC. In the case of a weak signal very close to a strong signal on the dial, the AFC circuit may exhibit an affinity for the stronger, and skip right over the weaker, signal. For those who enjoy logging weak signals, this may be annoying at times and is the reason why the better-designed FM tuners are provided with a switch to disable the AFC.

## Audio Fidelity

Many FM broadcasts contain sound from 20 or 30 up to 15,000 cycles. To make use of this range, the FM tuner must be capable of flat frequency response between these limits with a minimum of distortion. That is to say, the strength of the signals picked up by the antenna must be amplified equally by the tuner, regardless of their audio frequency. Tuner specifications usually include figures to indicate how well the audio range is reproduced and, therefore, they may be readily compared.

It is important to note that any response specified, unless otherwise noted, is that of the tuner alone and may be considerably altered by any equipment connected to the audio output. One must remember, for example, that shielded cable has a definite capacity per foot and the length of cable used between the tuner and the amplifier may cause considerable loss of high audio frequencies. It is good practice, therefore, to use cable having low capacity per foot and to make this connection as short as possible. Details of capacity-per-foot may be obtained from manufacturers or suppliers. Generally speaking, it is unwise to exceed a total capacitance of 50 to 75 micromicrofarads (mmfd). Coaxial cables, such as RG-59/u, have a capacitance of about 21 mmfd. per ft. Garden-variety shielded wire generally runs higher than coaxial cable.

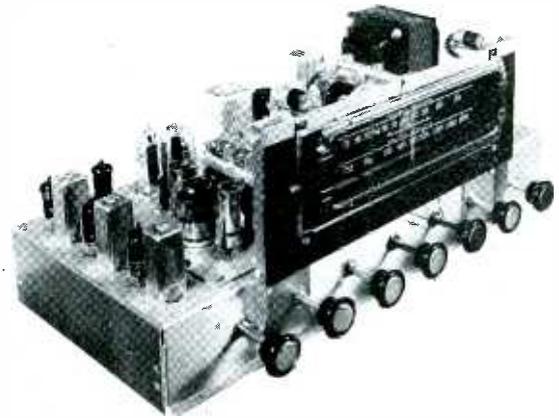
Low frequency response may be impaired if the amplifier input impedance is too low. For example, to maintain response within 3 db down to 30 cycles, where the output condenser in the tuner is .05 mfd., the amplifier input impedance must be greater than 175,000 ohms. Requirements for minimum low frequency loss are usually fulfilled, but high frequency attenuation, caused by excessively long interconnecting cables, is a too-common fault in many installations.

These considerations will serve to point out that tuner and amplifier are not completely independent and thought should be given to the compatibility of these units when purchasing equipment or planning installations.

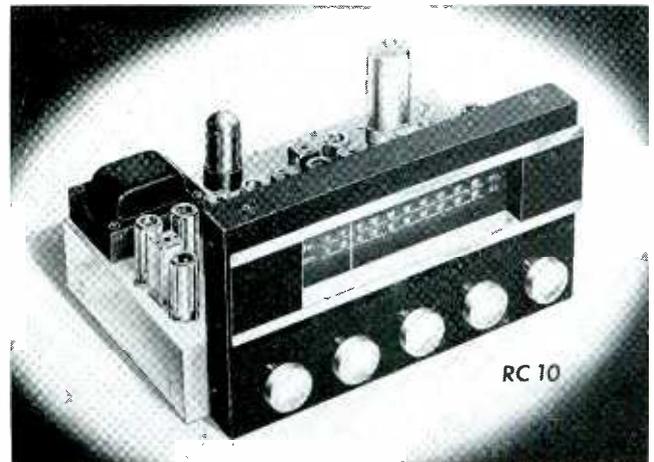
## Tone Controls

Tone controls may be more accurately described as devices which alter the frequency response of the audio circuits in the hi-fi system. They can be designed to boost or attenuate independently either the high or low frequencies, and they may be associated (physically) with either the tuner or the amplifier, or they may be in a separate control unit.

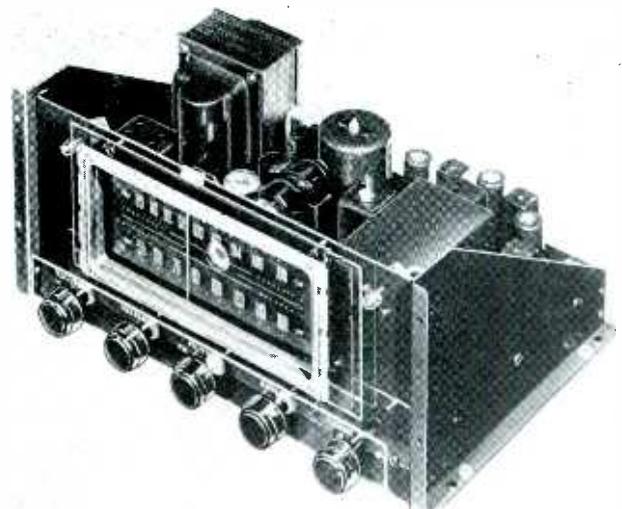
## Typical FM Tuners



Browning model RJ-20A FM-AM tuner. Controls: on-off; tuning, separate bass and treble tone controls; volume; AM frequency bandwidth; selector switch providing AM, FM, and three spare positions. Armstrong circuit. AFC.



Radio Craftsmen model RC-11. Controls: separate bass and treble tone controls; on-off and volume; tuning; input selector which provides three spares. Built-in phono preamplifier for magnetic cartridges. Armstrong circuit. AFC.



Sargent-Rayment model SR-51 FM-AM tuner. Controls: volume; bass and treble tone controls; tuning; input selector which provides two spares. Ratio detector.

The purpose of such controls is to permit the listener to alter the tonal balance to please his ears. While theory indicates that a flat, uniform response over the entire frequency range of hearing should sound best, tests have shown that individual preferences vary, due to conditioning and other factors such as room acoustics. It is also possible for the sound, as transmitted, to be improperly equalized by the broadcasting station. Some improvement can be achieved in either case through the use of tone controls which are adjusted to the point where the results are most pleasing. It is decidedly important, where tone controls are used, that there be well defined knob positions for flat response so that a basic, normal condition can be easily restored. It is generally unwise to duplicate tone controls on both tuner and amplifier unless it is determined in advance that one set will remain idle. The use of both sets may produce excessive boost and thereby cause distortion.

### Distortion

Strictly speaking, distortion in an FM tuner means that the audio signals have been altered in the receiving process and, therefore, are no longer exactly the same as those fed into the transmitter. Through common usage the term has come to apply only to alterations which are undesirable because they are, or are likely to be, objectionable to the ear. The effects of tone controls, for instance, is not considered distortion since they contribute to pleasant listening.

Distortion may arise from several sources, the more important of which are: improper—generally too high—selectivity, and non-linearity of discriminator or ratio detector characteristic. These may be design weaknesses or may be due to maladjustment of otherwise adequate components. Distortion may also arise in poorly-designed audio stages through which the signal must pass on its journey to the audio output.

For purposes of comparison, the specifications indicating percent harmonic distortion are worthy of study. These are generally available from manufacturers of FM tuners and indicate the amount of distortion present when adjustments are correct.

Another source of distortion that should be pointed out lies, not in the tuner, but in the lack of compatibility of tuner and amplifier. Too large an audio signal fed into an amplifier may cause serious distortion by overdriving one or more of the amplifier tubes. This must be avoided. Unfortunately, no general statement can be made, since output voltage will vary from tuner to tuner and the range of acceptable audio voltage is not the same in all amplifiers. Recourse must be made to the tuner and amplifier manuals which usually point out these values. In all cases, the tuner output must not exceed allowable amplifier input unless a volume control is incorporated which is situated electrically between the two units.

Reference to the literature and instruction manual supplied with the tuner will indicate whether the output is directly from the discriminator or ratio detector, or whether the output is fed from a cathode follower. Too much emphasis cannot be placed on the importance of carefully reading all material supplied with the tuner, since the

precautions to be observed for any particular type will ordinarily be found there. Adherence to these recommendations is mandatory for good results. Ideal conditions for one type of tuner may not even approach the proper conditions for another type and a little study of technical requirements will pay big dividends in good results.

### Operational Convenience

Custom high fidelity installations offer a first-class opportunity to go off the deep end of complexity. The wise prospective purchaser will examine equipment from the point of view of convenience and simplicity of operation. Granted, there is a certain minimum of complication which must be expected due to the several pieces of equipment and operating functions involved. However, a little paper planning will permit a sensible control arrangement.

Access to the tuner panel knobs is essential since the tuning control must be adjusted when a different station is desired. This being the case, the tuner should logically be the main control center, and to this end it is wise to select a tuner which provides several input connections for phono, TV, and other equipment.<sup>4</sup> These should be selectable by means of a panel switch which will also select the tuner function desired and pass the signals through the tuner volume control to the amplifier. In this way, the one volume control will govern the audio level from any of the available sources. Selection of the desired source can be made at the tuner panel, resulting in a very convenient knob layout.

### Mounting the Tuner

In general, FM tuners may be mounted in any position unless specifically ruled out by the manufacturer's directions. All electronic equipment generates heat which must be dispelled, principally by convection. For this reason, as great a circulation of air as possible should be allowed and cabinet openings placed so as to form a "chimney" effect. Hot air, being lighter, will rise and attempt to escape at the top of any enclosure.

If the tuner is mounted within the same enclosure as the speakers, there is always the danger of acoustical feedback, which may make the entire system "sing" at an audio frequency. When this condition must be endured, it is decidedly good practice to mount the tuner on sponge rubber, making sure that no part of the tuner, including dial parts or control shafts, touches the cabinet itself at any point.

### Conclusion

It is hoped that the foregoing discussion will be of value to the prospective purchaser of an FM tuner. It may also offer suggestions to the person who now has a tuner but feels he is not getting the most out of it. Only one cardinal rule should be remembered: Read the manufacturer's instructions carefully—and follow them!

<sup>4</sup>An alternative is to concentrate all control functions, except tuning, in one "nerve center", as it was called in the first issue of HIGH-FIDELITY.—Ed

*You can bounce your LP records on the floor with almost complete certainty that they will not break. But, before you do any bouncing, the record must be pulled out of its jacket — and this must be done with care. Buckle the jacket, and don't touch the record surfaces with your fingertips!*

*These instructions might well be issued with every LP record, for they serve to emphasize two contradictory characteristics of LP's: they break with difficulty, but damage easily. The 78-rpm. records, with which we have been familiar for so long, reverse LP characteristics: they crack and break easily, but are not so susceptible to dust and scratches.*

*However, if LP's are correctly handled and cared for, they will live to a ripe — and quiet — old age. What rules of LP health and well-being should be followed? For an authoritative answer, we asked William S. Bachman, Director of Engineering and Development for Columbia Records, to tell us exactly what to do to prolong LP record life and to keep surface noise to a minimum. "That's easy," he said, "Just..."*

## *Follow these* **FOUR lp COMMANDMENTS**

**1.** Always handle the record by its edges, or by one edge and center



Unless you have washed your hands within the past two minutes, your fingertips are greasy. If the grease is transferred to the record surface, dust and gritty particles will adhere to the spot and, within a short while, that area on the record will be noisy. The illustration for rule No. 2 shows how the record can be held in one hand.

## 2. Buckle the record jacket when removing or replacing the record



LP records have delicate surfaces. The vinylite is tough, but the grooves are not cut as deeply as on a 78 rpm., so the needle or stylus rides nearer to the surface, and a light scratch is more likely to be audible than one of similar depth inflicted on a 78. Hold one edge of the jacket against the body and squeeze — the cardboard will pop open and only the edges of the record will touch. Buckling the jacket will allow you to handle the record by its edge and slide it easily into container.



## 3. Before playing, wipe the record lightly with a soft, slightly damp cloth

Wiping with slightly damp, soft cloth picks up dust and reduces static electricity which would attract dust from the air while the record is being played. Also, wiping before each playing removes the very fine particles of needle tip which wear off the needle as the record is played. For a more detailed discussion of this point, see the previous issue of *HIGH-FIDELITY*

## 4. Store albums vertically; store singles either on edge or flat, in stacks



Since the vinylite from which LP's are made is flexible, there is danger of these discs becoming bowed—or warped—if they are subjected to uneven pressure. Thus, if a stack of 12-in. records are piled on top of a couple of 10-in. discs, the edges of the bottom 12-in records may tend to bend down. Similarly, a group of albums piled on top of one another are likely to bend the records in the albums near the bottom of the pile.

*Continued on page 105*

# Music for the Group

By WILLIAM D. DIEMER

**T**HROUGHOUT the Country, music-listening groups are springing up. Many are small — a few neighbors and friends who get together from time to time for an evening of music. Others have grown until an audience of 50 to 100 is not unusual.

All such groups have one common problem: selection of material for balanced, interesting programs. The larger groups have another common problem: administrative organization.

International House, in Chicago, has had an active and large group for nearly 20 years. This article is the story of that group — how it came to be, how it is organized, how it selects its programs, the problems it has faced and the success it has had. The article is presented with the thought that that which has been learned over the years by International House, may be of help to small as well as large music-listening groups.

## International House: the Audience

International House, graduate dormitory on the University of Chicago campus, houses about 350 men and 180 women from countries all over the world, and from almost every state in the Union. It is designed to be more than a residence hall for the foreign and American students who live there: It attempts to provide a complete life, a home away from home. The detailed list of the activities sponsored by the House and by its residents adds up to a picture of a full and varied social and intellectual life. For instance, each week there are four record concerts, three dances, a movie and a panel discussion group. Thus, the Music Committee, whose story this is, competes with many other activities for the students' limited recreational time. Nevertheless, it is highly successful.

## Activities of the Music Committee

The single most important activity of the Committee is its presentation of four record concerts each week. The best attended (about 80) is the two-hour concert given every Sunday morning. There are two concerts during the week, on Tuesday and Thursday evenings, each 1½ hours long, which draw an attendance of twenty to thirty. A Saturday afternoon opera program, which is also a vehicle for presenting the longer choral and symphonic works, draws an attendance of about fifteen or twenty.

The Committee also operates a record library for those residents who own phonographs. At present, the library includes 175 albums of standard 78 rpm. records, and 35 LP records. Still in its first quarter of operation, the library serves about twenty residents.

The Committee also serves as an organizational focus for other musical activities of interest to the residents. During the Autumn Quarter, 1951, it sponsored a series of Music Appreciation classes. The topic, probably inadvisedly chosen, was analysis of the Beethoven quartets. Attendance was about twenty-five at the beginning, but fell off sharply later. The consensus of observers was that the topic, though profound, quickly exhausted the interest of the average non-professional student of music. Most recently, the Committee has sponsored the formation of an informal music-making group of residents who have some skill in performing or singing. Its character is perhaps best described by its title, "No Audience Allowed".

## History: Before the Music Committee

The record concerts have been a feature of the House's activities throughout its history. At the time it was com-

pleted in 1932, the Carnegie Foundation donated an excellent custom-built phonograph, and 50 albums of 78 rpm records. These records were used to present the initial program of two 1-hour concerts each week.

The Sunday morning concert program was begun in the Summer of 1950. It quickly proved to be one of the most popular activities in the House, as evidenced by the attendance figures.

The Saturday afternoon opera programs were also begun in 1950. At first they were broadcasts of the Metropolitan Opera during its 16-week season. The recent flood of recorded opera on LP has led to the development of this series as one of record concerts rather than of broadcasts. Undoubtedly, the continued competition of the Met has reduced attendance at these programs.

### History: Since the Committee

Until very recently, the programming and presentation of these concerts was the work of a single interested resident, appointed by the House administration. The formation of a Committee in September 1951 undoubtedly stimulated the development of the musical program. The most noticeable result has been an improvement in the quality of the music. When a number of persons combine their judgments on what is to be played, their greater common pool of musical experience and taste broadens the scope of the programs.

Another important result of the formation of the Committee has been the modernization of the phonograph. It now features a two-way speaker system, an all-triode amplifier, and a separate control unit including the record player, volume, bass, and treble controls.

### Membership

The Music Committee exists as an integral part of the International House Council, the general representative of the residents to the House administration. Its membership is voluntary, its organization is loose and free. There is little in the way of rigidly described and assigned duties.

During its first year of operation, there has been a gradual change in the character of the membership. At first it included principally residents with a greater than average interest in music. They tended to overweigh the programs in favor of works not on the standard concert repertoire, which led to a loss of interest on the part of the majority, and their gradual withdrawal from the work of the Committee. The trend is now towards active solicitation, by the Chairman, of the cooperation of those residents who, by their conversation and frequent attendance at the concerts, show the greatest interest, the widest knowledge, and the best taste in music. Thus, the membership of the Committee is evolving from a voluntary basis to an invitation basis.

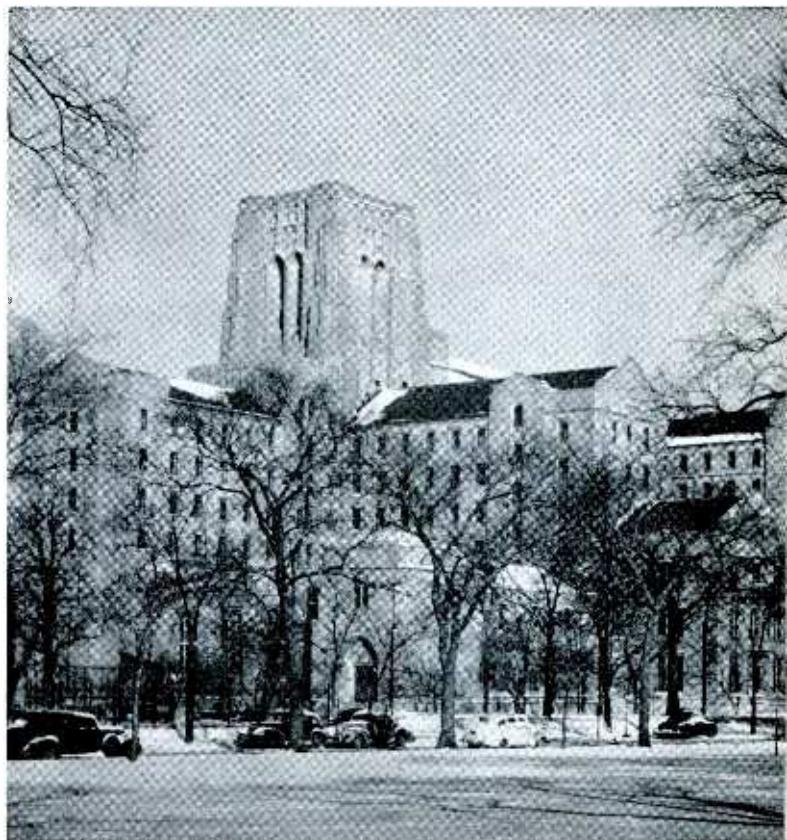
### Organization

As a part of the International House Council, the Music Committee has a specified range of activities. The Council defines the area of concern for the Committee as the

"promotion of musical activities of interest to the residents".

To carry out these and the other duties it has assumed, the Committee has set up five Sub committees: Programming, Record Concerts, Opera Concerts, Music Appreciation, and Cataloging.

The Programming Subcommittee is responsible for selecting the works to be played at the concerts. The Record Concerts Subcommittee, usually consisting of two persons, is in charge of collecting the records to be played, and presenting the program. The Opera Concerts Subcommittee, usually consisting of one person, is in charge of selecting the opera, obtaining the records, and presenting the program. The Music Appreciation Subcommittee was to be charged with the responsibility of presenting a series



*International House, Chicago*

of Music Appreciation classes. The experience of the first series of this class, however, has led to the dissolution of this Subcommittee. The Cataloging Subcommittee has charge of the comprehensive list of records available in the House Collection and those available for borrowing from the private collections in the House.

This organization works out almost as well in practice as it looks on paper. The Programming Subcommittee has naturally excited the greatest interest of the members. Outside of the necessary routine supervision and coordination by the Chairman, it has functioned well. The isolation of the Opera Concerts Subcommittee in the hands of one person has enabled it to continue functioning effectively as a separate body. The time demands placed upon the Cataloging Subcommittee, and the exactitude it requires,

calling for a special sort of personal interest, have led to its function being completely assumed by the Chairman.

### Source of Records

The Programming Subcommittee draws upon three sources for the records used at the concerts: The House Collection, several private collections within the House, and a neighborhood record shop.

The House's original collection of 50 albums of 78's has been expanded through donations or by purchases to its present size (175 albums of 78's, 35 LP's).

About a dozen residents of the House have offered the Committee the use of their private collections. These total about 300 LP's and a few albums of 78's.

About one-third of the records used are borrowed from The Disc, an exceptionally well-supplied record shop.

A comprehensive card catalogue lists the records available both in the House Collection (except that most 78's are not bothered with) and in the private collections. In addition to the usual information (composer, title, artists, and orchestra), these cards include a more thorough analysis



*Members of the International House Music Committee, whose successful activities are discussed in this article.*

of records listed as "Miscellaneous Collections" in the Schwann catalog, and also the name of the owner, and sometimes the playing time of each selection. The playing time is obtained in some cases from actual performance of the records, and in other cases from that given in HIGH-FIDELITY. This timing is proving of increasing value in enabling the Subcommittee to judge more accurately whether its programs fit within the agreed-upon time limits. The cards also list the dates on which the record has been played.

### Development of Committee

For the first quarter of its operation, the Programming Subcommittee consisted of various interested members of the Music Committee, each of whom was in complete charge of programming a single week's concert. With the second quarter of operation, the Music Committee decided that this plan led to too fragmented a series. Each

programmer, tended to operate in isolation, without reference to what had been played before. To correct this fault, subcommittees were composed of groups of three persons, each subcommittee being in charge of planning the programs for three consecutive weeks. Each Subcommittee was to give consideration to the sequence of programs, and work more towards a balance of musical periods and forms.

The programs are being cast increasingly often into a mold whose principles have been evolved through experience. One of the principles most frequently applied is that the concerts should not include a large number of short works. As a general rule, the Sunday concerts include four or five selections, and the evening concerts, two to six selections.

Another principle is that a variety of music forms must be presented. The Sunday program, particularly, usually includes one choral or vocal work, chamber music, often a work for solo piano, and ends with a symphony.

Some degree of temporal continuity is also required. Acting upon the assumption that there is, at least within the minds of the listeners, a development of mood in music corresponding rather closely to the historical development of music, the works selected for a given program are presented in the order of their composition. This foreknowledge of temporal order is a factor which also preselects the works. This order is often altered to some extent by the principle that variety should be provided by alternating large-scale works with chamber music, or that various timbres should be alternated. That is, a work such as a piano sonata may be suitably followed by a chamber work such as a string quartet, thus achieving good program balance.

The majority of listeners appear to prefer programs with a heavy representation of works familiar to them. Their argument is based upon the view of music as relaxation and enjoyment. Those in charge of preparing the programs view the programs as a means for widening the acquaintance of the members of the audience with the whole of the classic repertoire, with emphasis on those works which are judged by most critics as those of greatest merit. Certainly both views are strongly defensible, and the Committee does not pretend that it has the most satisfactory answer to this controversy.

Experience has shown one way of lessening the conflict. The smaller audience at the evening concerts is usually more receptive to the latter kind of thinking, whereas the audience at the Sunday morning concerts, perhaps by the mere fact of its being larger, is inclined to the former view. Thus, the Subcommittee has gradually evolved programs including the more familiar works for the Sunday morning concerts, with the introduction of one or two more esoteric works, and a greater emphasis on the broadening of the repertoire, at the evening concerts.

### Special Events

Some variety in the record concerts is offered by special musical events. During the first year of its operation, the Committee planned two such events. During the week of March 23, it offered a week of programs devoted to the music of Beethoven, in commemoration of the 125th anniversary of his death. Later in the year it will sponsor a

piano recital by one of the music students living in the House as a part of one of its Sunday morning programs.

### Expansion of Record Collection

In making its most recent purchase of records, one member of the Committee sought to simplify the problem by drawing up a set of criteria to be used in making the selections. To a large degree, these criteria were developed with specific respect to the total context of musical activities at International House. Stated in question form, they were:

- 1) Will the record be played?
- 2) Is it a selection not in the present House Collection?
- 3) Is it a selection not in any of the private collections?
- 4) Is there a good recording available?
- 5) Is it a good bargain, i. e., more than one work on a record, etc.?
- 6) Does the selection add variety to our present collection? Balance of forms, piano music, vocal music, chamber music, symphonies, etc.?

With these criteria, a tentative list of records was drawn up, including about three times as many titles as could be purchased. At the Committee meeting, further suggestions were requested. From this list, several selections were made by consensus, until the full sum available had been spent.

### General Principles of Organization

From the foregoing account, it is apparent that the Music Committee at International House has developed a system intended to be highly responsive to the particular environment within which it works, guided by the overall philosophy of music as a broadening aesthetic experience. Thus, the total pattern of the Committee's activities cannot be transferred to other groups working in different situations.

What are the unique characteristics of our situation? Several important ones appear readily. On the advantage side are a very knowledgeable and appreciative group of students, both as audience and as programmers; a compact social community, making communication a relatively simple process and a potent influence; and a virtually unlimited repertoire of records. On the disadvantage side, the most serious difficulty is the limited time available to most graduate students here. Its primary effect has been the channeling of all responsible activity into a few hands.

Yet there are many characteristics of the situation which are common to all music programming groups. Everyone will be faced with the problem of reconciling the opposite views of music as relaxation and enjoyment, versus a means for aesthetic education. Everyone will be faced with the problem of maintaining an effective working organization.

From our experience, it appears that the Chairman is the crucial focus of the activities of a Music Committee. The ideal Chairman, it seems to us, is one who combines both a good organizing ability and a broad and discerning musical taste. It may well be that these two characteristics are incompatible within a single person. If this is actually the case, the die should be cast in favor of the organizer. To balance this one-sidedness, the Chairman should have ready

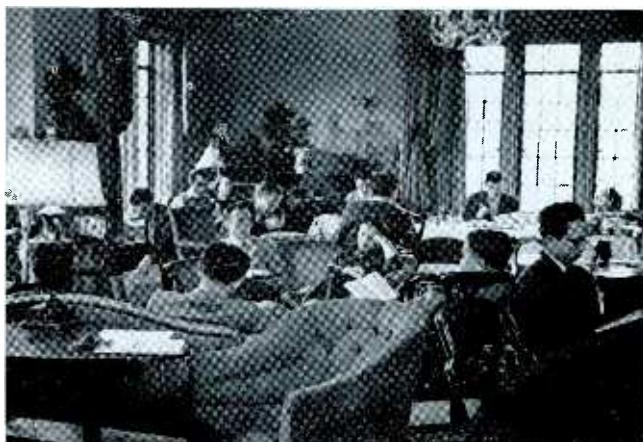
access to the opinions of those who have musical taste, and be responsive to these opinions. It further appears that, if a balanced program is desired, there must be several of these "consultants". Even the most knowledgeable per-



*Two members of the audience portray a study in concentration.*

sons have a preference for a certain period or a certain type of form.

The music program is a reasonably successful activity; the concerts are always presented, almost always exactly as programmed; they provide a program varied and interesting enough to excite comment from many of the audience; and the audience continues to attend.



*Complete comfort induces maximum enjoyment of the music.*

From this discussion, other groups interested in promoting similar programs may be able to draw worthwhile ideas. The Music Committee cannot provide a blueprint for organization. All the Committee can do is to indicate what has seemed to it to be the central problems, so that other groups can either forestall them, or at least be able to recognize them as problems rather than as human idiosyncracies. It hopes also that the account will give ideas for specific activities useful to other groups.

# Music—

## at home and

Not many years ago, the only way one could hear good music was to attend a concert. Without doubt, that is still the best way . . . but today, it is possible to bring into the home and the office an increasingly exact facsimile of "the real thing". Furthermore, with the advent and

popularization of custom installations, music has become a living and active part of our everyday environment. As is well demonstrated by the photographs on these six pages, attractiveness and listenability can — and should — be one and the same thing. This portfolio of installa-

tions includes the simple and the elaborate, as well as designs for both home and office. They have been selected from the work of the following custom installation engineers, to whom we are indebted for the loan of photographs: Custom Television Co., 1947 Broadway, New York 23, N. Y.; Customcraft, Inc., 1636 Connecticut Avenue, N.W., Washington 9, D.C.; Lowe Associates, 169 Bay State Road, Boston 15, Mass.; Nathan Margolis Shop, 28 High Street, Hartford 3, Conn.; and Weingarten Electronic Laboratories, 7556 Melrose Avenue, Los Angeles 46, Calif.

The installation shown on this page includes FM-AM radio, extension speakers controlled from the receiver, a record changer (at left) and record storage compartment, located between the changer and the receiver.

On the facing page, the upper illustration shows an office TV installation. An interesting feature is that special precautions were taken so that when the TV set was in use in the executive offices, the employees behind the partition could not hear the sound from the speaker.

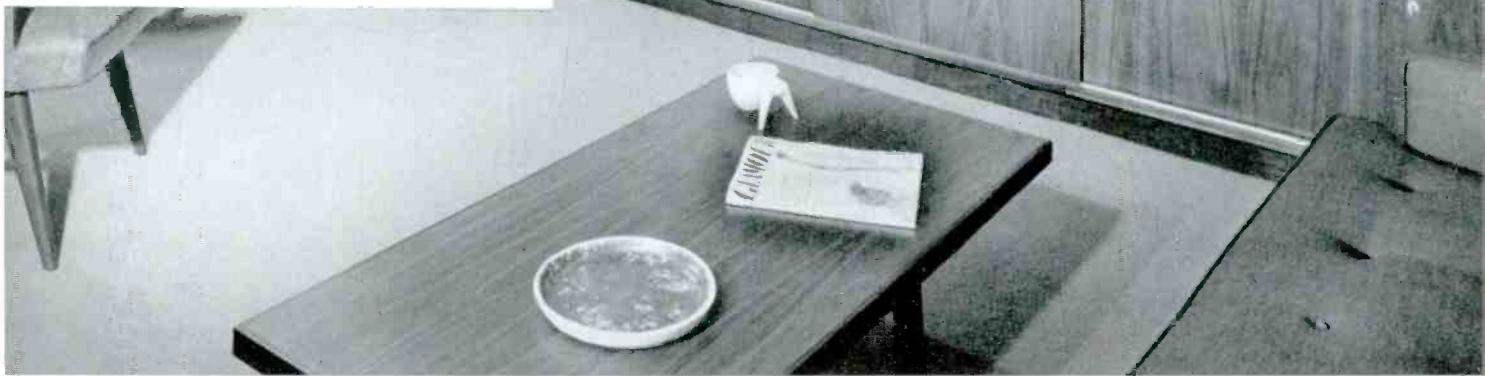
The installation shown at the right has a 20-in. TV unit which includes FM radio. The speaker has an area surrounding it of about 15 cu. ft. The chassis is, of course, serviced from the rear. One of the sliding doors shown houses a movie projector and the other, a record cutting and playing unit.

WEINGARTEN—LOS ANGELES





in the office





CUSTOMCRAFT—WAS—INGTON

A wall installation which has everything: television, FM-AM tuner, and record changer — as well as plenty of space for desk, bar, and book and record storage facilities.



# Part of the fixtures . . .

LOWE—BOSTON



Here is a space saver for the modern home: a wall installation designed to provide a complete home entertainment center without using up any precious floor space. Ventilation is afforded by a cool air intake at the top rear of the record storage compartment allowing a flow up through the electronic equipment and emptying into the attic above. The loudspeaker, located behind vertical louvres, is an Altec Lansing 603-B. The television chassis is an RC-100A, the tuner is an RC-10 and the amplifier is an RC-2. The record changer is a Webster - Chicago equipped with Pickering cartridges.

At the right is a straightforward design constructed in an existing cabinet. First requirement for the installation shown below, left, was to utilize an old family heirloom. The TV front panel, the changer drawer, and speaker compartments had to be specially made. Even the TV knobs were antiqued to conform to the style of the cabinet. The cabinet itself was made about 6 ins. deeper to accommodate the depth of the TV chassis. Two 5-in. speakers were used instead of trying to squeeze in a 12-in. unit.



CUSTOM TELEVISION—NEW YORK

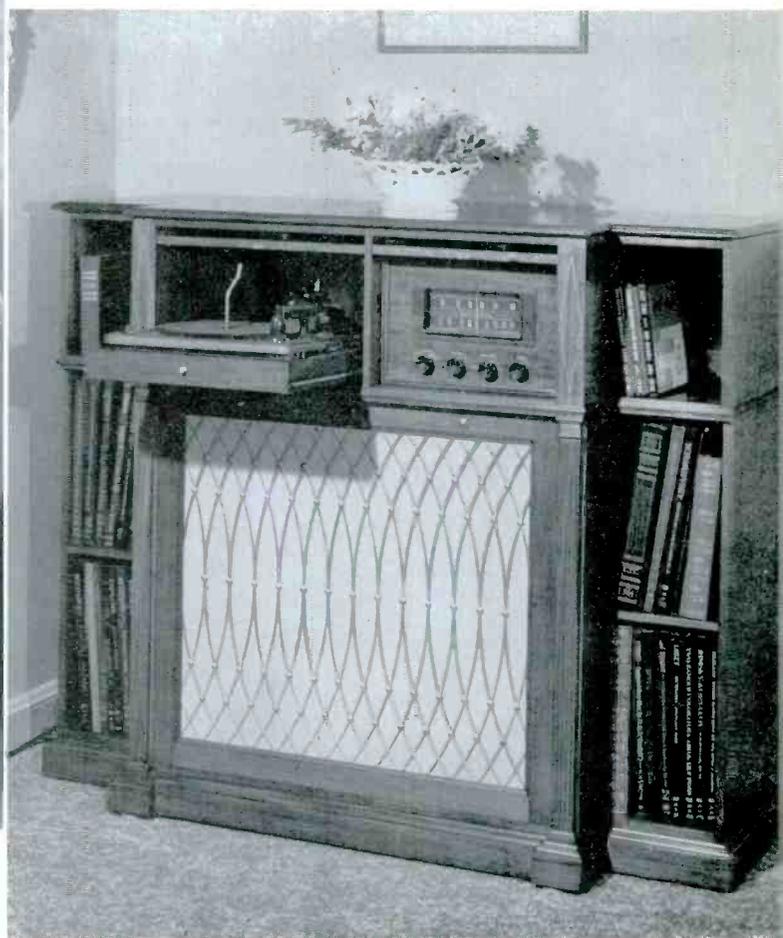
## Part of the furniture

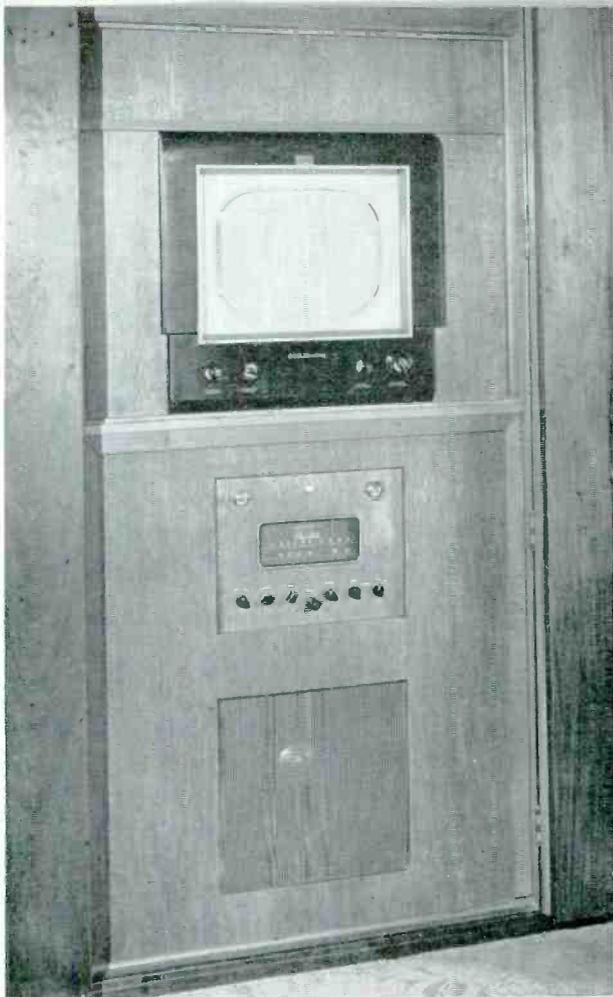
CUSTOM TELEVISION—NEW YORK



Below is a reproduction of an original piece. Equipment includes a Hallicrafter tuner, Webster changer with G-F cartridges, and Jensen 15-in. coaxial speaker.

MARGOL S—HARTFORD





WEINGARTEN—LOS ANGELES

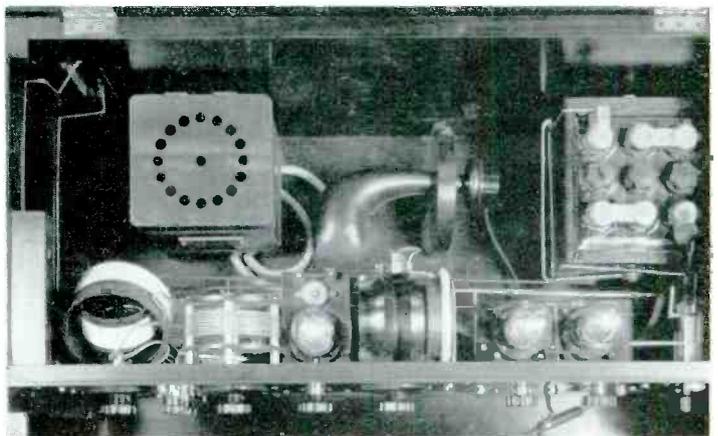


LOWE—BOSTON

The modern  
and ...  
the very,  
very  
old



MARGOLIS—HARTFORD





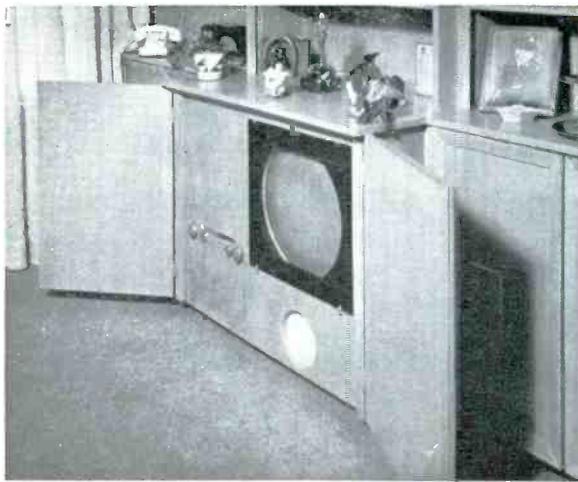
Facing page, upper left: Radio and TV built into a former bar. Upper right: Adding a TV tuner to an existing bookcase required cutting a 3-in. hole in the wall so the neck of the TV tube could be recessed.



MARGOLIS—HARTFORD

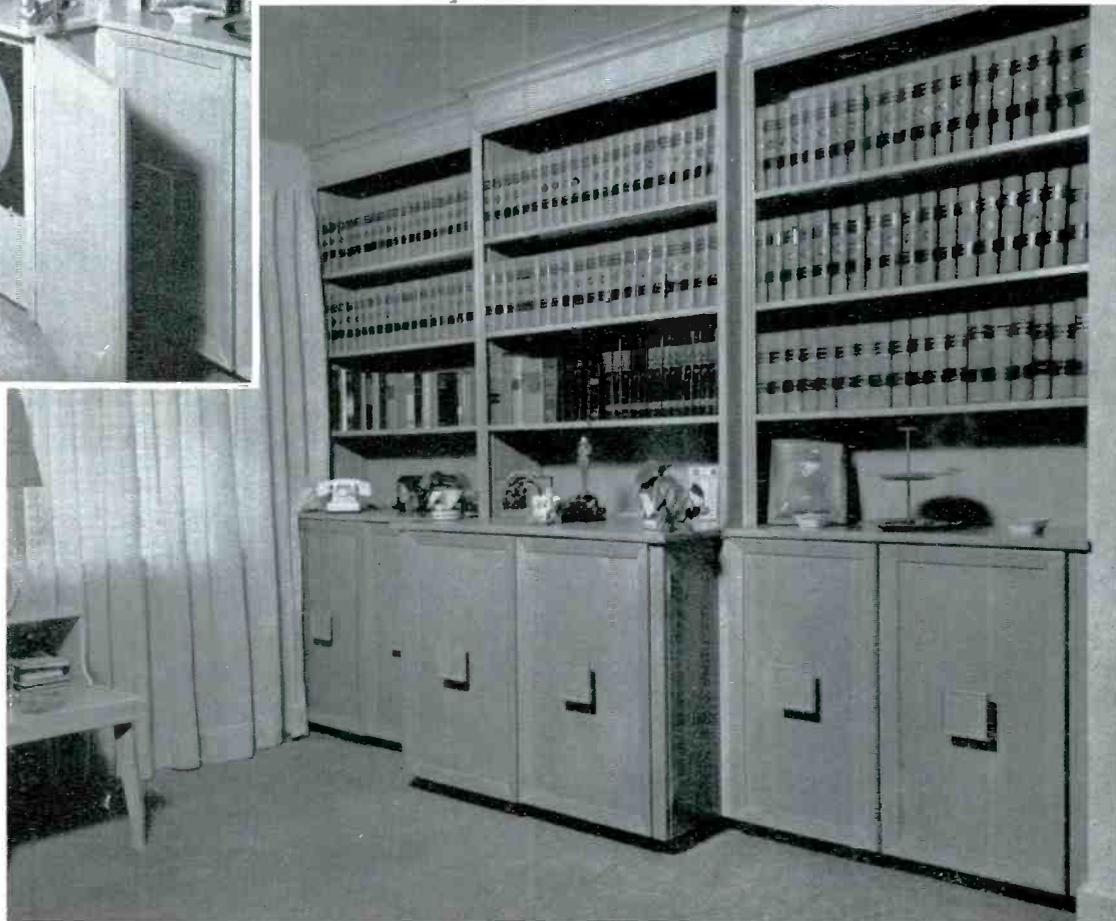
# but always . . . Music

This page, above: An antique pine washstand was converted to hold a Meissner receiver, Webster changer, and 12-in. Jensen speaker. Below: a compact, near design houses TV, FM, and AM — as well as plenty of books!



LOWE—BOSTON

Facing page, bottom: here is a custom installation to delight the antiquarian's heart. It was built in 1924! Note the storage battery . . . the B-eliminator . . . bus bar wiring . . . ah me! The good old days!



# PROGRAMS ARE GETTING BETTER ON FM BROADCASTING

by MILTON B. SLEEPER

*Time has confirmed the statement made by Charles Denny in 1947, when he was Chairman of the FCC, that "FM is the finest aural broadcast system obtainable in the present state of the radio art." In many areas today, such as Washington, D. C., more programs are available on FM than AM, with many of the best carried only by FM stations. Here are facts compiled recently by RTMA and NARTB.*

LETTERS from HIGH-FIDELITY readers indicate that an increasing number of people have practically stopped listening to radio programs, and now depend on records for musical entertainment. Some say their reception on AM is spoiled by fading and interference from distant stations. Others complain that, even on local stations, there is too much static from electrical machinery, oil burners, refrigerators, or defective neon signs.

If you belong to the I-don't-use-my-radio-any-more fraternity, perhaps it's because you haven't become acquainted with the clean, clear reception that one of the new FM sets can give you. Or perhaps you bought one of the early FM models that had neither sensitivity nor noise-limiting, and so decided that FM reception was no better than what you had been getting.

In either case, you may be missing some very fine entertainment. At least, in many areas, FM-only stations, or FM transmitters operated by AM network stations, are providing better program service than many listeners realize.

Early this year, the Radio & Television Manufacturers Association and the National Association of Radio & Television Broadcasters joined forces in a project to acquaint the public with the progress that FM has made in raising the standards of radio program service. In their preliminary investigation, they found a prevailing public opinion that "FM is dead" in areas where FM is actually very much alive, to the point of giving more service, better programs, and far better reception than is obtainable on AM broadcasting. This was disclosed by comparative studies of AM and FM program schedules.

For example, in the Washington, D.C. area, listeners have a choice of 14 FM stations that provide reception, free of noise and fading, within a radius of 50 miles or more. Some transmit on FM only. Others carry the same programs on both FM and AM, although certain of these close down their AM transmitters at sunset, and can be

heard only on FM at night.

An actual analysis of classical music, for example, showed that, of 22 outstanding programs, 16 are broadcast only on FM. These are:

## CLASSICAL MUSIC IN WASHINGTON

National Gallery				
Concerts	FM ONLY	Sundays	8:00 PM	WCFM
Symphony Hall	FM ONLY	Su, T, W, Th	8:05 PM	WGMS
Complete Operas	FM ONLY	M, T, W, Th, F,	8:05 PM	WCFM
Oklahoma City				
Symphony	FM ONLY	Sundays	10:00 PM	WASH
Library of Congress				
Concerts	FM ONLY	Fridays	8:15 PM	WGMS
Symphonies For				
Youth	FM ONLY	Saturdays	1:30 PM	WASH
Music Till				
Midnight	FM ONLY	S, T, W, Th, F,	11:05 PM	WGMS
French Program	FM ONLY	Sundays	6:30 PM	WCFM
High Fidelity				
Concert	FM ONLY	Sundays	12:15 PM	WASH
Twentieth Century				
Music	FM ONLY	Saturdays	10:05 PM	WGMS
In Recital	FM ONLY	W, Th, F	7:05 PM	WGMS
Chicago Theater of				
the Air		Saturdays	10:00 PM	WASH
Organ Recital				
RCA Victor				
Showcase	FM ONLY	M, T, W, Th	5:06 PM	WGMS
Columbia				
Masterworks	FM ONLY	Mondays	11:05 PM	WGMS
Sylvan Levin Opera				
Concert	FM ONLY	Sundays	9:00 PM	WASH
Philharmonic				
Concert	FM ONLY	Saturdays	8:05 PM	WGMS
The Telephone				
Hour		Mondays	9:00 PM	WRC
New York				
Philharmonic		Sundays	2:30 PM	WTOP
Canadian				
Symphony		Sundays	6:30 PM	WMAL
NBC Symphony		Saturdays	6:30 PM	WRC
Metropolitan Opera				
Auditions		Tuesdays	8:30 PM	WMAL

## **FM + AM = complete listening pleasure**

The new FM-AM receivers bring you all, not just a portion, of the many fine radio programs broadcast in Greater Washington. For instance, in the evening you can tune in 12 instead of 7 stations and choose from a wide variety of programs—many available only on FM—with an FM-AM set.

Washington has four independent FM stations whose programs cannot be heard without an FM-AM receiver. It has three additional stations whose programs are broadcast on FM only in the evening. An FM-AM set provides dependable and continual listening—daytime or evening.

*An FM-AM receiver will bring you COMPLETE listening pleasure including the following types of programs:*

### **CLASSICAL MUSIC**

Some of the finest music on the air . . . operas, symphonies, concerts . . . are broadcast only on FM. Others are on both FM and AM stations but are heard best on an FM-AM receiver.

### **POPULAR MUSIC**

Whether you want popular music for background or relaxation, or "hot" numbers for dancing, an FM-AM set gives you a wide range of choice, including many programs only on FM stations.

### **NEWS**

With an FM-AM receiver, you can get all the news all the time or tune in your favorite commentators, whether on FM or AM or both.

### **DRAMA and MYSTERY**

Many of the most thrilling plays are broadcast regularly on FM only. Others are carried on both FM and AM simultaneously. With an FM-AM set you can hear all of them.

### **NETWORK PROGRAMS**

There are six networks with radio outlets in Washington. Most of the programs of the major networks are broadcast simultaneously on FM and AM. Some network programs can be heard only over FM. With an FM-AM set, you can get them all.

### **RELIGIOUS**

Some local church services are broadcast only on FM stations. All religious programs, whether local or on networks, can be tuned in on an FM-AM set.

AM plus FM brings you DOUBLE pleasure . . . many more programs . . . better listening, free of static and interference. See your dealer today and ask him to show you the new FM-AM sets which will convince you that . . .

**FM Means Far More Listening Pleasure**

*The **Radio-Television Manufacturers Association***

*This is FM Month in Washington and RTMA takes this opportunity to pay tribute to all radio stations in the National Capital and particularly to FM for its added service.*

*This advertisement, reduced, in size, was one of a series of full pages in a Washington paper, planned to acquaint radio listeners with the superior quality of FM reception, and the additional program service provided by the FM stations. The campaign is now being extended to other cities.*

There are 21 special interest programs, ranging from story-time music for children to Music from London and the Westminster Record Library, that are carried only on FM. Two stations, WWDC at 101.1 mc. and WBUZ at 96.7 mc., transmit background music continuously. The former starts at 7:30 AM, and the latter at 3:00 PM. As for the network shows, these are broadcast simultaneously on FM and AM.

With such superior service available on FM, it's surprising that anyone listens to AM. Nonetheless, while the percentage of FM set ownership is growing steadily in the Washington area, it is still relatively low. The principal reason is that most people have not heard FM from a good set, properly installed.

The mention of installation refers to the use of an antenna. While a good FM set can generally pick up strong signals without benefit of an antenna, or with just a connection to the AC cord, noise-free reception is seldom possible without a simple dipole, at least. In that respect, FM is like TV, since they both operate in the high-frequency band. People take it for granted that they must have an antenna with a television set, but some expect an FM receiver to give perfect results without one, presumably because AM sets don't require them.

Actually, the circuits in an FM receiver that eliminate static and fading require incoming signals of a certain minimum strength in order to function effectively. The better the antenna, the stronger the signals fed to the FM set. So the answer to improving reception on FM is to use a better antenna or to increase the height of an existing one. The matter of height is particularly important at locations in the shadow of higher ground, as it is in television. In fact, a TV antenna designed for the lower VHF channels is good for FM in locations where the directional effect is advantageous, and particularly good when a rotator is employed.

Under ordinary circumstances a sensitive FM set, used with an efficient antenna, will bring in stations 50 to 100 miles away. Unfortunately, dealers are generally reluctant to suggest the added cost of an antenna, for fear of discouraging the sale of a receiver! The result is that many people who own FM sets are only able to get noise-free reception from nearby stations. Adding an antenna may extend the range to cover a dozen or more FM transmitters.

Reports from HIGH-FIDELITY readers indicate some in-

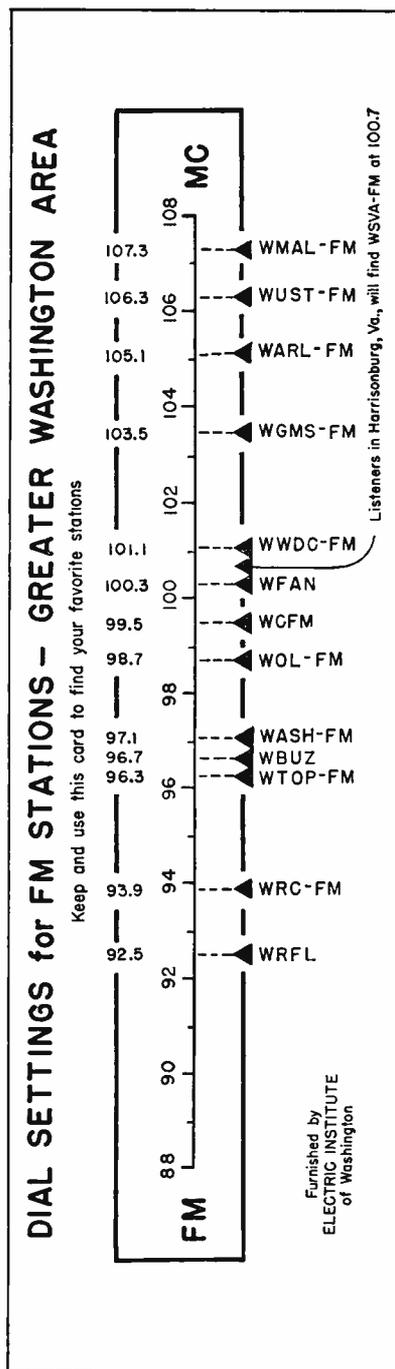
teresting experiences with good FM sets, properly installed. A typical comment: "I didn't realize that there was such strong background noise on my AM reception until I got an FM set. Now that I've become accustomed to the silence behind FM programs, I don't listen to AM any more." Another frequent observation: "I quit listening to AM network programs because they sounded so dull and

lifeless when I turned down the tone control in order to reduce the static. With FM, I don't have to use the tone control, because there isn't any interference. The network programs may be limited to 5,000 cycles, but by comparison with what I had on AM, the FM quality is wonderful." And on the subject of interstation interference and fading: "Since the war, my AM reception from stations 10 miles or more away has become progressively worse at night. On some, there is a steady squeal that varies slightly in pitch. Others come in clear enough for a few minutes, then the program becomes garbled, and finally a different station comes in. If I happen to catch the call, it is usually a station several hundred miles away. Fortunately, the AM stations I want to hear most have FM transmitters, too. Now, with my FM tuner, I can enjoy the programs I had given up on AM. Reception is perfectly steady, and there is no interference from distant stations."

Of course, there are complaints from some areas about FM programs. They range from: "I have checked the transmission from —, and find their signals are consistently distorted. Doesn't the FCC make any attempt to enforce their standards for FM stations?" Another frequent criticism: "Are they trying to be funny at — when they claim to be a high-fidelity station? They play records all the time, and I'm sure that most of them come second-hand from juke boxes. When I phoned the station about it, the manager said they can't do any better because the station is losing money as it is. He also said that when they

shut down the transmitter for five days, they didn't get a single telephone call or letter. When I asked him how he could expect people to listen to a station that runs all the time on worn out records, all he had to say was that they were planning to close down shortly."

As to the program content and quality, listeners must face the fact that all too many station managers and sponsors do not have well-developed critical *Continued on page 112*



# London Newsletter

D. W. ALDOUS

TELEVISION licenses numbered 1,181,200 in Great Britain and Northern Ireland at the end of 1951, and the opening of new TV transmitters by the British Broadcasting Corporation increases these figures every month, but the never-ending search for "perfect" sound reproduction of radio and recordings continues to attract innumerable enthusiasts, both amateur and professional. Yes, it can be said with confidence that the audiophile is very much with us in England.

Among gramophiles, the most widely discussed question for many months has been: When will the E.M.I. (Electric and Musical Industries Ltd.) group release slow-speed, long-playing discs? Let me give you the background to this story.

The Decca Record Company in this Country issued 33 1/3 rpm. long-playing records in June 1950 and, at the time of writing (February), over 350 Decca LP discs have been released. The Decca Record Company Ltd. issues records under the following labels: Decca, Brunswick, Capitol, Vocalion, Telefunken, and Rex, although this last name is no longer used. English Decca records are sold in the U.S.A. under the name London, because English Decca sold out its connection with the American Decca Record, Inc. The larger E.M.I. group produces H.M.V. (His Master's Voice), Columbia, Parlophone, Regal-Zonophone and M.G.M. records but, to date, all these labels are on 78 rpm. discs only. In November 1950, the Chairman of the E.M.I. group announced that his organization would not issue any new type of record for the home market without giving the retail trade at least six months' notice.

No official announcement of E.M.I.'s intentions has yet been made but, from evidence collected from several sources, it would appear that eventually, probably this year, discs at both 33 1/3 and 45 rpm. will be available from this concern. One pointer is that E.M.I. LP pressings are already released on the Continent.

Although no 45 rpm. discs are available in England, three-speed record players are on sale now.

The Decca, Brunswick and Capitol LP's are selling steadily here. Foreign sales are responsible for over half the invoice value of our record business, with particular attention paid to exporting Deccas to the U.S. and Canada.

Every record buyer, whilst appreciating the extension of the recorded repertoire with these new LP's, hopes that a full-scale Battle of the Speeds will not develop along the lines of the American conflict in 1948-9.

IN SPITE of marked improvement in recording techniques, better pressings, and increased cost of raw materials and labor charges, it is interesting to note that record prices have risen only slightly since 1939. For example, in 1939 an H.M.V. 12-in. Red Label disc was 6s. Today it is 6s.9d. But, the 66 2/3% Purchase Tax has to be added to the price, making the cost to the purchaser 9s-9 1/2d.<sup>1</sup> This Purchase Tax, regarded in many quarters as an unfair tax on culture — books and periodicals bear no tax — has varied from 33 1/3% in 1940 through 100% in 1943 to the present-day 66 2/3%. In the year ended March 1950, the tax yield on musical instruments and gramophone records was about 2.9 million pounds sterling. Once again, the heavily-taxed British record buyer awaits with some trepidation the March 11th Budget!

RECENTLY paid a visit to the B.B.C.'s main orchestral studio at Delaware Road, Maida Vale, London, which has been considerably modified to improve its acoustic properties. This studio, originally built in 1934 inside what was once a large skating rink, is now the largest owned by the B.B.C. Until after the war, it remained substantially in its original form, except for the installation of an electronic organ and a raised platform for the orchestra.

The acoustics, however, were inclined to produce a boom in the bass response and be rather dead at the higher frequencies. As a result of an extensive study of the acoustic qualities of a number of concert halls by B.B.C. research engineers, the studio was redesigned.

The modifications introduced included the provision of special roofing, felt membrane absorbers on the side walls to reduce the reverberation time in the extreme bass, composite absorbing units on the wall over the balcony, and flat rectangular plates on the ceiling. The tiers on the orchestra platform were mounted on solid concrete and the woodblock surface in front of the orchestra was extended by 15 ft. A dado of plywood backed by rockwool was fitted along the sides and below the balcony. The reverberation time is now 1.75 seconds.<sup>2</sup>

Following these and other changes, marked improvement in orchestral tone and definition has been observed by conductors, players and listeners. Listening over the mon-

<sup>1</sup>Approximately \$1.37.

itor loudspeaker in the adjacent control room to an orchestral rehearsal conducted by Sir Adrian Boult, with Benno Moiseiwitsch as the solo pianist, I was most impressed with the quality.

**F**ROM a Continental friend, I learn that Philips Phonographic Industry, Baarn, Holland, a subsidiary of the huge Philips electrical organization, has announced a new 7-in. "Minigroove" 78 rpm. *long-playing* disc. These are normal-speed pressings in vinyl co-polymer resins with a micro-groove track requiring a 0.001 in.-radius stylus. A playing time of up to 5 minutes is possible. The recording characteristic is substantially the same as that used for standard 78 rpm. discs. The diameter of the inner groove is only 3¼ ins., but with the reduced stylus radius and the high groove speed, tracing distortion is as good as the best 78 rpm. discs. The recorded level is about 3 to 6 db less than standard commercial records issued in this Country. Although the vinyl raw material used is an expensive item, the small diameter of the record permits the final disc to be sold at a price no greater than the normal 12-in. shellac pressing. Philips have issued a number of Dutch records of this type in France, Austria, Belgium, Germany, Canada, Sweden, Denmark, Switzerland, and Spain, but arrangements for release in Great Britain have not yet been announced.

The news was published a few weeks ago that a reciprocal agreement between American Columbia and Dutch Philips has been signed, which means that from January 1, 1953,

<sup>2</sup>For a discussion of reverberation time, see G. A. Briggs' article on Room Acoustics in this issue.

the two companies will be issuing each other's repertoire. As far as Columbia is concerned, I gather this applies solely to the territories of North and South America. In all other countries, the Columbia catalogue will appear under the aegis of Philips.

**A**NOTHER approach to the extended playing-time problem at standard 78 rpm. is the variable-pitch record, in which the grooves are close together on quiet passages and wider apart on loud, heavy passages. Two Continental series, Archiv and Deutsche Grammophon Gesellschaft, are now being recorded with variable groove-pitch and a playing time of 7½ minutes is obtained with a 36 db. dynamic range on 12-in. discs. Pressings seem to be on shellac (and not always of the best grade), which results in rather high background noise.

**I**N VIEW of the interesting article on Public Library Record Loan service in the first issue (Summer 1951) of HIGH-FIDELITY, I think readers may like to know of the first British book to be published devoted to an examination of the special problems connected with the formation and operation of gramophone record libraries as part of the British public library service.

This is a volume entitled "The Gramophone Record Library", by C. D. Overton, published at 15s. by Grafton and Company, 51 Great Russell Street, London, W.C.1. The author, who was largely responsible for the public record library at Walthamstow, London, divides his book into two sections: the first 69 pages cover the history (1914-39) of the record department and ancillary services. The remaining 54 pages of this work, comprising five appendices, include a suggested basic list of records. The potential reader must be warned that there are a number of errors and omissions in listing records, etc., which make the book less than authoritative, but a revised edition will make it a valuable pioneer effort. Any librarian in America concerned with this field should also consult the July 1949 issue of "The Library Association Record" (The Library Association, Chaucer House, Malet Place, London, W.C.1) which was devoted to recorded music collections.

**I**N THE next London Newsletter, I shall have more news and information about recorded music and audio in England but, if you have a particular topic you would like discussed in this feature, please do write to the Editor as early as possible.

*The British Broadcasting Company's Maida Vale Studio, showing acoustic treatment of walls and ceiling.*



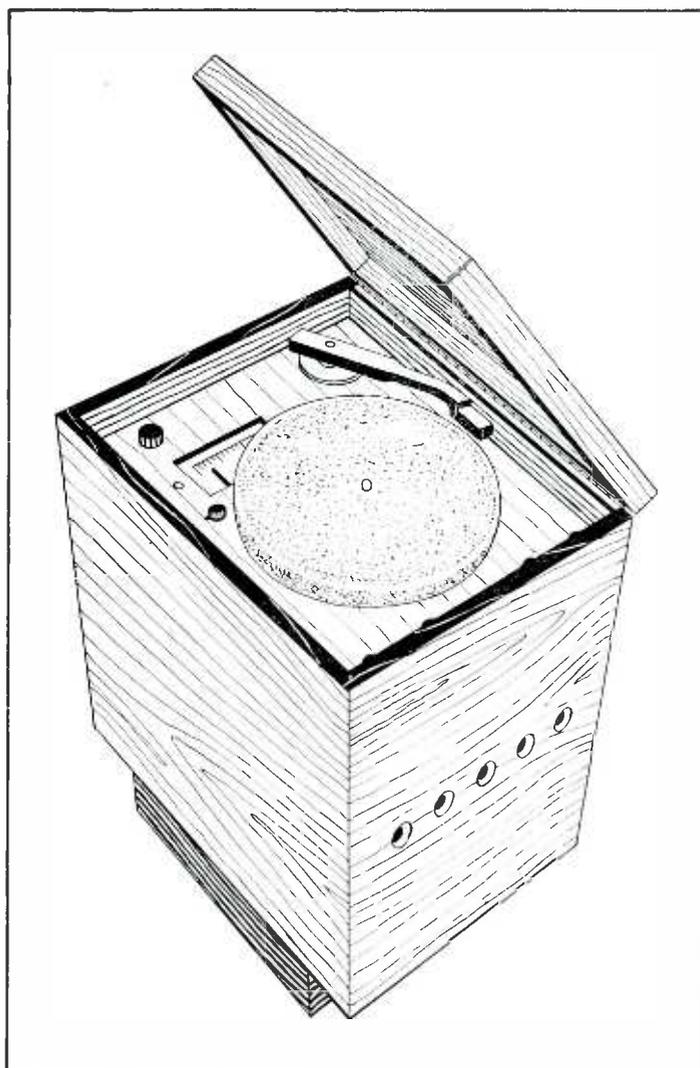
# Let's make it Compact

By GEORGE A. BREWSTER

THE auspicious debut of HIGH-FIDELITY Magazine is now a matter of history, and readers who once stared bug-eyed at Philip Kelsey's deluxe installations have long since had time to come back down to earth, consult their budgets, and look around the living room to see which large piece of furniture would have to be moved out. On the chance that some readers have neither large living rooms nor large budgets, I have put on paper my own experiences with the design of an assembly which, without sacrificing quality, achieves compactness.

About three years ago, I decided to pension off the old family radio-phonograph and acquire some of the high fidelity components which I was beginning to read about. With an assemblage of these units, I was told in the literature, I could have a truly high quality music system that would play rings around the ordinary commercial job as far as authentic reproduction of sound was concerned. After sorting out a variety of recommendations, I bought an FM tuner (size 9 by 13 by 8 ins.), a power amplifier (10 by 12 by 8 ins.), a preamplifier and control unit (7 by 13 by 5 ins.), and a good quality loudspeaker. I put them all together and they spelled, much to my gratification, better radio and record reproduction than I had ever heard before. So good it was (and still is, for that matter) that when I went to the Audio Fair last Fall, I felt not the slightest tinge of envy.

The only trouble was, I had no place to put the components. Not being blessed with an old wash-



*Fig. 1. This cabinet design features compactness.*

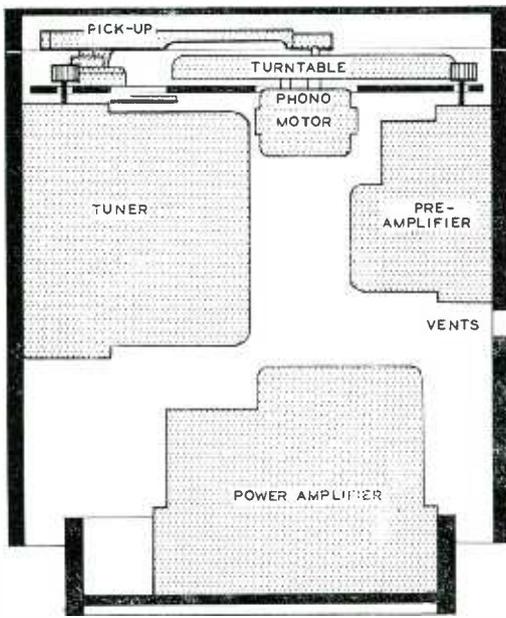
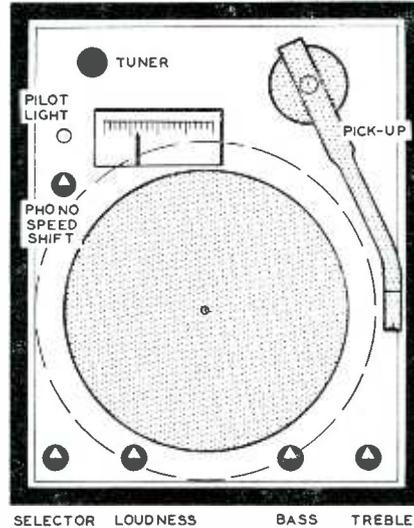


Fig. 2. These two drawings show exact placement and overlapping of components. The left hand view is a cross-section as seen from front.

would have to be mounted quite low, involving the stoop, squat, and squint that Philco was supposed to have eliminated back in the '30's. Also, having been long convinced that a record changer is an invention of the devil, I had no use for most of the space provided for that mechanism. When I dreamed of convenience, I pictured myself seated in a chair with a hand within easy reach of all controls and operations.

Maximum convenience is undoubtedly achieved by concentrating all the components in a chairside cabinet, so that all operating motions are within the smallest possible area. True, certain amplifiers feature chairside controls, but since the important functions of playing records and tuning radio stations are ignored — even placed on the other side of the room — the convenience is largely illusory. The ideal design would combine everything except the speaker in a single cabinet. Then, my problem was to discover how small this cabinet could be made.



stand or sideboard or Murphy bed, I could not indulge in any of those ingenious conversions invented by designers whose feet seldom leave the drawing board, nor could I afford to invest in yards of fancy cabinetry of the Voice and Vision variety. I could use the box vacated by the old family set (indeed, I did, for a short time), but the oddly assorted sizes of the components, as well as the miserable allowance in the old cabinet of 2 cu. ft. for the speaker, made many unfortunate compromises necessary. The first thing I did, therefore, was to house the speaker in its own separate enclosure.

Casting about for a reasonably-priced commercial cabinet for the remaining units, I finally found a shop that had a moderate-cost and attractive line of furniture for audio equipment. One model, 23½ by 35½ by 18 ins., was closest to my needs, but in the matter of size and convenience, there were distinct drawbacks. The tuner

Almost at once, I found that the components could not only be placed next to each other, they could be overlapped. The phonograph motor, which required very little space below the mounting board, could be interlocked like a jigsaw puzzle with the tuner and preamplifier, which used very little space above the mounting board. I even found that, with a little ingenuity, the tuner's dial could be shifted so that it would occupy the

*Continued on page 100*

Fig. 4. below. Phonograph motor board is mounted on soft rubber.

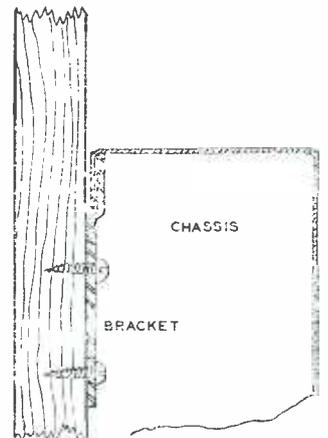
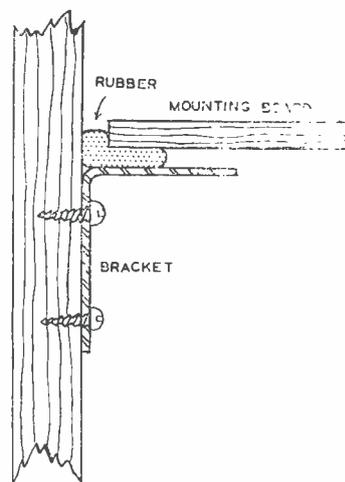


Fig. 5, above. Tuner and preamplifier chassis are hooked over brackets.

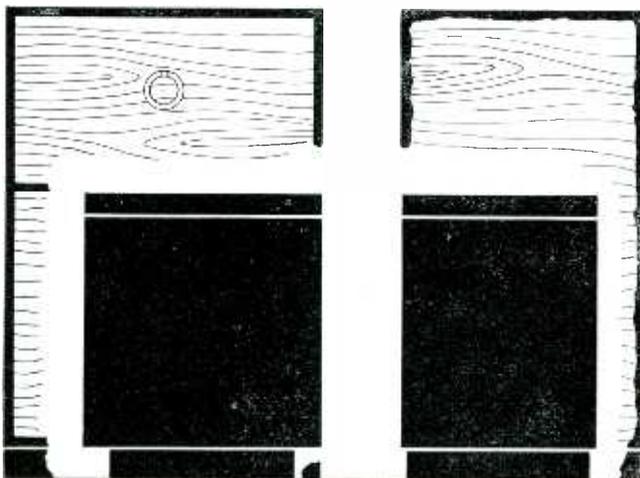


Fig. 3. Commercial cabinet is twice the size of the one described in this article, as shown by the comparisons at left.

# the lp records of

# Giuseppe Verdi

*c g burke*

HE WHOSE music has dominated Italian opera for more than a hundred years was born in Lombardy in 1813. Richard Wagner was born in that year. Two men never had less in common. It is interesting that the man whose career did most resemble Verdi's should have been another German, Franz Josef Haydn, musically alien to Verdi as he was. Both were born poor and both were largely self-educated. Both acquired by very hard work a professional expertise in composition only matched by those few whose genius was apparent almost from birth. Both became affluent through music; both were absolutely preeminent in their day although Verdi's domain was more restricted than Haydn's; both were basically simple men equipped with peasant shrewdness; and if Haydn became a practiced courtier, and Verdi an associate of the great political figures of his country, both remained apparently unspoiled and decently human until the end. Where they differed, besides in their music, was in their acquiescence to the different spirits of their respective eras. Haydn was too old to embrace the most sweeping of revolutions when it came, but Verdi's first sixty years were passed in a period of discontent, unrest, spasmodic insurrection and finally, successful national asseveration. This is of great importance, because the Italian ferment dictated much of Verdi's music, and the success of his insolent innuendos directed at the Austrian hegemony encouraged him to continue the matter which had brought success to him personally and had maintained the turbulence that eventually was to make Italy a united nation. At least twelve of his operas have subject matter which was repugnant to the Austrian authorities, and his difficulties with the censorship, which resulted in changes of locale and personages in certain operas — *Un Ballo in Maschera* and *Rigoletto* — were plaguing in their frequent occurrence, although amusing and informative to a later age. His very name, VERDI, became a significant rallying chant of nationalistic insurgence, for it was an ominous acrostic of *Vittoria Emanuele Re d' Italia*, still an apocryphal monarch whose pretensions were obnoxious to Austria.

We know Verdi as a composer of operas, and indeed almost all his work is in this form. He did write, while a very young man, many vocal and instrumental compositions which have largely disappeared. He loved opera, and wrote according to his bent. He produced many masterpieces, of which too many are tainted with a preposterous and dated theatricalism, which caused Verdi's name to fall into considerable international disrepute for many years after he had attained the summit of his fame. The contrast of Wagner and his reforms was always present to make cultivated people sneer gently at Verdi's acquiescence in fusty conventions of his contemporaneous stage. There has been a good deal of discussion in recent years about the necessity of "revaluating" Verdi, as the great composer he certainly was, and the recently celebrated half-centennial of his death put forward this discussion with considerable force.

Actually, it does not seem that revaluation is necessary. The opinion generally prevalent during the last two-score years — that Verdi wrote a wondrous music to contaminated fables which certainly diminish their acceptance as great entities of art, and which induce us to love the music with indulgence for the amiable composer who troubled so little with problems — this opinion seems quite fair and exact once we have enlarged it by the inclusion of two superb exceptions, the musical dramas *Otello* and *Falstaff*, which belong in the highest category of man's creation, and which generally attract a restricted and superior audience that gags at *Trovatore*, *I Lombardi* and even *Traviata*, wherein the music, for all its simplicity, is so immensely superior to the texts which baffle both sense and a sense of form, that for many it is often impossible to have an unadulterated enjoyment of the music while regarding the action.

It is too bad for us who enjoy the fruits of his genius, and tragic for him whose repute would have been nobler for it, that the association with the great Boito did not begin much earlier. Boito gave him two marvelous librettos; we dare not think what Verdi might have done before *Otello* had that scholar, philosopher, linguist, soldier and

composer supplied him with texts, even if they had been on the same subjects that Verdi did use to someone else's libretto. Boito's tasteful theatrical sense was so complete that we can be confident he could even have contrived a rational and poetic *Trovatore*.

As to the Wagner in the late Verdi, there can be no doubt of it: Boito, Wagner's translator, put it there. Verdi, the composer who probed every text exhaustively, treated *Otello* and *Falstaff* as the texts insistently dictated. The texts were so devised by the librettist that the sensitive composer had no other course than to treat them as music dramas as Wagner would have done, except in Verdi's own musical idiom which, where *Otello* and *Falstaff* are concerned, we may not call an idiom inferior to Wagner's because less elaborate.

## THE VERDI RECORDS

More different recordings have been made bearing Verdi's name than all those of any three other composers. Five hundred 78's must have come from *Rigoletto* alone, with *Donna é mobile*, *Questa o quella* and *Caro Nome* serving as cards of admission to phonographic ranks for hundreds of tenors and sopranos. The stage was coy to *Otello*, but the studios never lost enthusiasm for another *Ave Maria* therefrom; and millions of people who had never heard *Un ballo in maschera* were familiar with *Eri tu*. LP has diminished this flood of episodic offerings although there has been some diversion to 45 rpm's. The natural new tendency is to the complete operas, of which we now have thirteen, with two more announced. There are also a number of scenes, excerpts, collections and miscellanies designed to advance singers to celebrity in occupancy of the long microgrooves of 33's. This kind of hash is deplored and has been ignored here — although some of the isolated scenes have admitted value in their recordings — because their admission would have called for entry of a

### *AIDA: Opera in Four Acts on a Libretto by Antonio Ghislanzoni. 1871*

Caterina Mancini (s), Giulietta Simonato (ms), Mario Filippeschi (t), Rolando Panerai (bne), Giulio Neri (bs), Antonio Massaria (bs). Chorus and Orchestra of Radio Italiana, Vittorio Gui, cond. Cetra-Soria three 12-in. 1228. 2 hr. 18 min. \$17.85.

Maria Caniglia (s), Ebe Stignani (ms), Beniamino Gigli (t), Gino Bechi (bne), Tancredi Pasero (bs), Italo Tajo (bs); Chorus and Orchestra of the Rome Opera, Tullio Serafin, cond. RCA Victor four 12-in. LCT 6400. 2 hr. 30 min. \$22.88.

Commissioned by the Khedive to celebrate the opening of the Suez Canal, *Aida* has jutting prominence as the most pompous *pièce d'occasion* ever written for the theatre; and a certain naive grandeur in the new big style devised by Verdi for the occasion is in constant and often successful battle with

the tawdry expedience of the miserable confection which served as libretto. Elephants are a desirable stage property in this pageant, and the admissibility of these worthy animals on the scene tends to emphasize the mere dimensions of the production and, alas, the spurious nature of the contrivances employed to put the emotions into action. Verdi's music is interesting throughout, combining brazen pomp, willowy lyricism and showy declamation with expert surety which can certainly entertain even if it cannot convince us here. There is no characterization because there are no characters, the participants being gaudy lay-figures. It may be remarked that people who hear opera, but not many operas, speak of *Aida* with great respect.

The resurrected Victor version is not recorded to enough advantage to challenge the new Cetra edition, although the Victor has some very good singing, particularly by Caniglia. The Cetra then is the one to have. It is pretty good and could have been better, had the singers been instructed to have more

He was eighty when he wrote *Falstaff* to attain the pinnacle of his country's musical craft in his last work. He had steadily grown in power through the years. At four-score, from the heights of *Falstaff*, surveying the procession of his work, he could see that all led up to here. An artist can have no deeper satisfaction than the knowledge that his latest work is better than those before; and Verdi, eighty, contentedly let the latest be the last, and laid down his tools.

He lived in serene patriarchal seclusion for eight more years. His life had nearly coincided with the unfolding of the Nineteenth Century, and when the old Century expired the old composer desisted too. Less than a month convinced him that the new Twentieth was unpromising; he died on January 27, 1901.

flood of 78's and 45's for which there is simply not room.

This Verdi survey is concerned only with complete works or works wherefrom excisions have been negligible or conventional, not injurious to the concept. It will be noticed that there are not yet many duplications, and we may expect the future to bring more, especially of the most famous operas, and that where duplications exist the superiority of one version is in each case easily manifest.

Special attention is directed to the following: *Otello* on Urania, a stunning recording, and *Rigoletto* on Victor, gleaming in warm polish, which have received the best engineering; *Un Giorno di Regno*, a highly proficient all-around accomplishment on Cetra; *Falstaff*, the supreme achievement of the Italian musical stage, also on Cetra; *Traviata* on Victor, an invigorating fresh breeze blowing through the battered frame of a lovely edifice; and *Rigoletto* on Remington despite its faults, for this album offers a great deal of entertainment for \$6.57.

All the recorded operas are furnished with albums and the texts in Italian and English except the Columbia *Traviata*, which offers no text.

respect for the microphone. A number of good voices are injured in *fortes* because of the odd ignorance of vocalists of the effect proximity to the microphone can have on overtones. The deleterious results are particularly apparent when Mancini and the tenor Filippeschi crowd the instrument. Otherwise the recording is steadily good. Larger forces are employed than for most of the other Verdi works in the Cetra lists, and they have been registered with fine sonority and good detail on discs engineered to characteristics easily reproduced. Gui's direction seems entirely competent until after half an hour or so the listener realizes the conductor's indifference to dynamics. Nothing seems much softer than *mf*, and although the *fortes* are robust, the lack of real contrast instills some sensation of monotony. In sum, the Cetra edition is a good deal less than ideal, and something less than we should have expected, but it offers an *Aida* of enough substantial value to satisfy until we shall have one insistently excellent.

(Un) **BALLO IN MASCHERA**

An edition of this opera purportedly recorded at Rome by a cast specified in detail, but in fact a cheeky pilferage from the air of a Metropolitan broadcast, was issued by Classic Editions and hastily withdrawn after legal action. It is no longer obtainable except by accident, and is mentioned here to keep the chronicle complete.

(La) **BATTAGLIA DI LEGNANO** (*The Battle of Legnano*). Opera in Four Acts on a Libretto by Salvatore Cammarano. 1848

Caterina Mancini (s), Edmea Limberti (ms), Amedeo Berdini (t), Rolando Panerai (bne), and other vocal soloists. Chorus and Orchestra of Radio Italiana, Fernando Previtali, cond. Cetra-Soria three 12-in. 1220. 1 hr. 49 min. \$17.85.

The taunting provocation to the Austrian dominion of such a subject — the defeat of Frederick Barbarossa by the Lombard League in 1176 — compels respect for Verdi's courage and illustrates the nationalistic ferment in Italy in the year of revolutions, 1848. That ferment, bursting into maddened enthusiasm at the opera's première in Rome early in 1849, produced a temporary illusion of success which calmer succeeding days did not ratify. The historical verdict has been consignment to quiescence, and does not seem unjust. The libretto is a mere military pageant to which is precariously glued a dull love-story of unlikely motivations; and while the music is not tiresome, it is largely undistinguished and routine, as if the composer was more hopeful of the Magenta and Solferino to come than interested in the Legnano of seven centuries ago.

The only recording is an adequate statement of a work whose appeal is principally historical. As usual with Cetra, chorus and orchestra are well handled, with sound both full and clear in characteristics requiring only a conventional setting of the amplifier controls. Mancini, who can sing, disappoints with some disagreeable forcing in which she is joined by the tenor Berdini. Panerai's comfortable baritone cannot redeem the flabby part it has to serve. The other roles are episodic.

ERNANI. Opera in Four Acts on a Libretto by Francesco Maria Piave after Victor Hugo's Play. 1843

Caterina Mancini (s), Gino Penno (t), Giuseppe Taddei (bne), Giacomo Vaghi (bs); Chorus and Orchestra of Radio Italiana, Fernando Previtali, cond. Cetra-Soria three 12-in. 1210. 1 hr. 58 min. \$17.85.

With a libretto that does not violate the tolerant proprieties of romanticism, Verdi composed an entertaining and fiery opera whose characters have some memorable substance. Astonishingly, Piave permitted them to adhere consistently to type, and Verdi was resultantly able to create a score wherein episodic treatment is subordinated to a narration of the drama as a whole.

For Cetra, Mr. Previtali has contrived a spirited performance, and the singers, particularly Mancini, seem in good form, but Cetra has been evil to the singers. The sound has been captured to a double stand-

ard, one part for chorus and orchestra, the other for the soloists. The first is fairly accurate and roomy if not brilliant; the second damns all the soloists without cessation by the competition of a fierce microphonic flutter. This is gravely injurious to musical enjoyment — disqualifying, in this opinion. Discophiles who can stomach such wing-beating will find the other elements of the recording in order.

FALSTAFF. *Commedia Lirica in Three Acts on a Libretto by Arrigo Boito, after Shakespeare's "Merry Wives of Windsor" and "Henry IV"*. 1892

Lina Pagliughi (s), Rosanna Carteri (s), Anna Maria Canali (ms), Amalia Pini (ms), Emilio Renzi (t), Gino del Signore (t), Giuseppe Nessi (t), Giuseppe Taddei (bne), Saturno Meletti (bne), Cristiano dalla Mangas (bs). Chorus and Orchestra of Radio Italiana, Mario Rossi, cond. Cetra-Soria three 12-in. 1207. 1 hr. 54 min. \$17.85.

Verdi was nearly eighty when he composed his masterpiece. There is no parallel to this in music, most of whose greatest creations have been wrought by men at less than half that age. Haydn's sixties produced his greatest work, but the effort silenced him. The effort of *Falstaff* stilled Verdi.

No wonder. He embellished Boito's deft condensation with an elaborate and continuous illustrative musical commentary. Properly there are no arias, no duets, no set pieces of any kind. The composer is concerned with exposure of character, of the clash of characters; he is concerned less with the march of events than with the effects of the events upon his people. The broad and massive music, symbolizing Falstaff's paunch and greed, is nervous with subtleties, with allusions and innuendoes. The orchestra mocks, cajoles, hints, and overwhelms in a parade of rich patterns in which coarse and fine are necessarily interwoven.

Few works of art have had such a *succès d'estime*. Extravagantly admired, *Falstaff* is comparatively seldom played. Verdi's audience is enormous, and has been trained to the tuneful euphony of *Traviata*, to the facile stream of easily-remembered music in *Trovatore* and *Rigoletto*. Fifty thousand hurdy-gurdies were supported in the main by the music of Verdi. *Otello* and *Falstaff* were in effect a deception practiced on the million devotees of the instrument.

Now we may hear them both, thanks to another mechanism. *Falstaff* is to be found in an excellent Cetra edition, one of the bright gems of the company's catalogue, although not one of the most recent. Indeed the heavy orchestral forces and complex vocal ensembles have been registered with a decisive clarity that belies the age of the recording. Strings and woods are particularly incisive, and the violins present none of the difficulty from them which we always dread on records. The voices are so disposed that none ever wrongly dominates, and the adjustment of singers to orchestra is of an exactitude to make us wonder why it is a rarity in records.

A good *Falstaff* means a good conductor, particularly on discs. The singers obtain success rather as actors than as practitioners of vocal display not in the score; beauty of voice is subordinate to direction and flexi-

bility and sense. The conductor cannot create the first, but he can most strongly influence the other three. The stage is crowded with principals in *Falstaff*, and the task of mingling their song with the orchestra's is singularly exacting. Mr. Rossi, in this his best recording achievement, has blended voices and instruments into an objective cohesiveness of compelling force and clarity. It is his triumph; but his singers are able and intelligent, with Messrs. Taddei and Renzi and Miss Pagliughi managing the outstanding roles smoothly.

Several Verdi albums surpass this in the re-creation of sound, and a few are more brilliant in interpretation, but none offers a more consummate musical experience.

(La) **FORZA DEL DESTINO**

(The edition on Cetra 1201 omits about a third of the score. Its inclusion here would have argued for the inclusion of other fragments for which neither time nor space is available.)

(Un) **GIORNO DI REGNO** (*One Day of Reign*). "Melodramma Giocosco" in Two Acts on a Libretto by Felice Romani. 1840

Lina Pagliughi (s), Laura Cozzi (ms), Juan Oncina (t), Renato Capocchi (bne), Sesto Bruscantini (bs), Cristiano dalla Mangas (bs). Chorus and Orchestra of Radio Italiana, Alfredo Simonetto, cond. Cetra-Soria two 12-inch. 1225. 1 hr. 40 min. \$11.90.

Verdi's second opera and first buffa was written at a time of terrible personal bereavement. He did not like the libretto, but characteristically blamed the complete failure of *Giorno di Regno* on his music. The libretto is better than a number he used later, and the music, influenced by Auber through Donizetti but essentially Verdi in its broad swinging tunes, is vivid, lively and infectious, with an apter characterization than we should expect to find in the early operas. The farce is taut and neat: once we understand the involved improbability of the basic situation we see it ripple cheerfully to an ordained nuptial conclusion.

The Cetra recording did not need the stimulation of a competing edition to put all participants on their mettle. No Verdi opera on discs offers consistently better singing than we have here, with Mmes. Pagliughi and Cozzi in rare form and the tenor Oncina revealing a beautiful lyric voice in a delivery cushioned, admirable and rare. The others, particularly Bruscantini, are more than competent, and Simonetto guides the well-trained chorus and orchestra with confident and sparkling reins. The engineered sound is notably free of serious faults, and maintains the voices in nice proportion against the full-blooded orchestra. In sum, a very agreeable light entertainment in a masterly presentation, one of the best realizations in the Cetra catalogue.

(I) **LOMBARDI ALLA PRIMA CROCIATA** (*The Lombards at the First Crusade*). Opera in Four Acts on a Libretto by Temistocle Solera. 1842

Maria Vitale (s), Renata Broilo (s), Miriam Pirazzini (ms), Aldo Bertocci (t), Gustavo Gallo (t), Mario Petri

(bne). Chorus and Orchestra of Radio Italiana, Manno Wolf-Ferrari, cond. Cetra-Soria three 12-in. 1217. 1 hr 59 min. \$17.85.

In *Nabucco*, Solera gave Verdi a libretto not without dramatic merit and some sense of form. Intoxicated by the success of this, the librettist produced in the following year a piece of writing which in Verdi's treatment obtained a success equal to that of *Nabucco*, and considerable distinction in being recognizably one of the most outrageous librettos ever fabricated by anyone at any time. It is best to ignore it, and enjoy the music of *I Lombardi* which, by itself has a fine triumphant swing. Like *Nabucco*, the choruses are distinguished and seductive, and several of the pieces allotted to the soloists are praiseworthy as indicative of moods yanked upon the scene by whims of the librettist. *I Lombardi* is competently sung in the Cetra recording, with Gallo and Petri particularly at home in the music; the conductor manages everyone smoothly, and the recorded sound has a close resemblance to the good sound heard in the Cetra *Nabucco*.

#### MACBETH.

Urania has announced a recording of this opera, but it had not appeared by press-time.

#### MESSA DA REQUIEM (*Requiem Mass*). 1873

Selma Kaye (s), Miriam Pirazzini (ms), Gino Sinimberghi (t), Augusto Beuf (bs). Chorus and Orchestra of the Rome Opera, Luigi Ricci, cond. Urania two 12-in. URLP 213. 1 hr. 20 min. \$11.90.

Maria Caniglia (s), Ebe Stignani (ms), Beniamino Gigli (t), Ezio Pinza (bs). Chorus and Orchestra of the (then) Royal Opera, Rome, Tullio Serafin, cond. RCA Victor two 12-in. LCR 6003. 1 hr. 12 min. \$11.44.

Herewith a problem to the discophile, seemingly insoluble. The two versions above<sup>1</sup> are complementary. What Victor has Urania lacks and what Urania has, came too late for Victor. The latter has a superb performance dynamically led by a conductor whose predilection for the score was matched by his understanding of it; four excellent soloists, amongst whom Messrs. Gigli and Pinza enjoyed a day of wonderful form; and a well-trained chorus and orchestra. Urania equals the chorus and orchestra, and offers intelligent if less forceful leadership from Ricci, but her solo sopranos are tormented by tremolo and her tenor, despite good moments, is no Gigli. Beuf is an impressive bass, but his voice has not the distinctive beauty that Pinza's had then.

The Victor 78's, from which the present discs are transfers, date from about 1938 and were then first-class. The LP's are an improvement, and would excite no discontent if there were no Urania made to a very high standard of modern engineering. Against the full-bodied mass of this sound festooned with brass fanfares of brightest color and

punctuated by the wonderful Urania *pianissimi* the Victor seems pallid and even puny. As usual in this kind of confrontation, the writer finds that the grander recording makes the grander impact, but in face of the obvious superiority of the Victor performance as such, music-lovers may prefer the less exciting sound.

The *Requiem* was written in deep affection for the death of Verdi's great friend Manzoni, whose novels were influential in the period. It is a work of extraordinary dramatic fervor written from the ripeness of the composer's experience and the strength of his grief. The formalized pattern of the service hampered not at all this man accustomed to the easy scope of operatic librettos: he wrote as he always had, illustrating the text with the direct honesty he used to write music descriptive of the embrace of lovers. The result is one of the few truly great universal requiems in music.

#### LUISA MILLER. *Opera in Three Acts on a Libretto by Salvatore Cammarano after Schiller's Play "Intrigue and Love"*. 1849

Lucy Kelston (s), Miti Truccato Pace (ms), Giacomo Lauri-Volpi (t), Scipione Colombo (bne), Giacomo Vaghi (bs), Duilio Baronti (bs). Chorus and Orchestra of Radio Italiana, Mario Rossi, cond. Cetra-Soria three 12-in. 1221. 1 hr. 47 min. \$17.85.

The tragedy of a country girl whose love above her station provokes disaster, believable in the neat libretto once the glossy patness of the initial situation is accepted, provided Verdi with an outlet for his tenderer talents. Much of *Luisa Miller* is a pleasing rustic melodiousness, and in his choral writing the composer reveals a folk-quality not unworthy of comparison with Weber.

The only version on discs is engineered to the best standard we have had from Cetra. There is more high-frequency detail amidst the orchestral mass, and the scope of dynamics — for which the conductor must receive first credit — has been increased by an uncommon sensitivity to the lighter passages. Rossi's management would be commendable indeed if he did not have to accept responsibility for the antics of two of his principal singers, who howl their way right out of the integrity of his concept and frustrate the musical malleability of the other singers doing their duty. The malefactors are Miss Kelston as Luisa and Mr. Lauri-Volpi as her lover. No philippic against the excesses of the breed of tenors has ever been pungent enough to characterize the revolting arrogant screams of this fellow; and when Miss Kelston, as the object of his ear-splitting desire, vies with him in loving concert, their ferocious battle for the microphone effects a sublimation of naked piercing noise which is surely a major curiosity of recorded music. The tragedy of this *Luisa Miller* is that Luisa and her repellent boy-friend cannot be expunged from it.

#### NABUCODONOSOR. (*Nebuchadrezzar*). *Opera in Four Acts on a Libretto by Temistocle Solera*. 1842

Gabriella Gatti (s), Caterina Mancini (s), Mario Binci (t), Paolo Silveri (bne), Antonio Cassinelli (bs). Chorus

and Orchestra of Radio Italiana, Fernando Previtali, cond. Cetra-Soria three 12-in. 1216. 1 hr. 55 min. \$17.85.

*Nabucco*, the young Verdi's third opera, had an initial success which established his fame and prepared the way for greater successes. Although some of its fortune must be attributed to the analogy Italians chose to find between the Hebrews' struggle against oppression and their own subjection to Austria, *Nabucco* is a good and a rousing opera to a quasi-historical libretto of the kind for which Verdi always had a welcome. The attached love-story is melodramatically forceful, and is fresher here than in its repetition after removal from Jerusalem to Memphis for *Aida*. The splendid choruses are the great feature of *Nabucco* — not only the famous Va. pensiero, which served as an unofficial hymn of the Italian insurgents, but others of singularly expressive power for a composer of such limited experience. It is curious that the work is not accorded more contemporary performances, but the excellent Cetra recording goes far to compensate for this.

Singing is above average quality in this album, with Gatti very fine when she is not too near the microphone, Cassinelli consistently agreeable, Binci confident and sure, Silvera very good except when he succumbs to tremolo and Mancini fluctuating between mediocrity and excellence. Previtali's direction is absolutely direct and valiant — decidedly appropriate for an assertive, warlike action wherein subtlety has little place. Engineering is typical of Cetra-Soria at their best — which is to say strong and compact, with everything heard and everything in order, without any sensational features and no faults of importance.

#### OTELLO. *Opera in Four Acts on a Libretto by Arrigo Boito after Shakespeare's Tragedy*. 1886

Anna la Pollo (s), Ada Landi (ms), Gino Sarri (t), Athos Cesarini (t), Mino Russo (t), Antonio Manca Serra (bne), Carlo Platani (bs), Virgilio Stocco (bs), Chorus and Orchestra of the Rome Opera, Alberto Paoletti, cond. Urania three 12-in. URLP 216. 2 hr. 10 min. \$17.85.

Here Boito takes charge, and for the first time in his seventy-three years the great composer saw a great libretto. Boito, an all-around man of genius, taste, cultivation and experience, an excellent composer of lively curiosity who translated Shakespeare and Wagner into Italian, served Verdi without disservice to Shakespeare, in a stunning demonstration of skill and good taste. Within the much smaller frame of the opera, he has retained the Shakespearean essence.

Consciously or not (but hardly the latter) Boito set his venerable colleague the task of making an opera along lines indicated by Wagner's application of Gluck's ideas, of which by far the most important element was that dramatic action be not impeded by musical display. In *Otello* and *Falstaff*, the music illumines and intensifies the dramatic action. No more the comfortable but preposterous practice of allocating to the leading singers of a projected opera so many minutes each of recitative, cavatina and aria before the opera was written. Verdi had to

<sup>1</sup>The Concert Hall edition on CHS 1131, wherein an organ undertakes the work of a hundred instrumentalists, can hardly have more than parochial interest, and was not examined for this survey.

drop all his accustomed weapons, examine his inner resources and invent a kind of music he had never tried before. So profound was his genius that the new work, in such contradiction with the principles of his great successes, is easily and obviously his greatest tragedy and probably the only one still moving after we have left the brief spell of the theatre. He gives us a new subtlety, particularly in the enriched orchestral comment, an entirely new and juster characterization in the declamatory vocal line, a more complex chorus used as dramatic participants rather than mere musical variants devised to hold attention; and he rejects scrupulously any extraneous interpolations. Thanks to Boito, Shakespeare and Verdi have each found his man.

This Urania recording is probably the best of all the recorded Verdi in terms of sound itself. Probably, because the Victor *Rigoletto*, in its serene polish, its lack of obvious imperfections, presents a different kind of sonic value hard to compare. The Urania *Otello* is decidedly the most sensational of Verdi editions, and one of the most sensational of all operatic recordings. We can say that as far as our reproducing apparatus are concerned the range of frequencies in this *Otello* is complete; and the dynamic range, whose extensiveness is vital to dramatic exposition, has seldom if ever been surpassed on discs. The whispered *pianissimi*, a great credit to conductor as well as engineers, are almost incredible in their distinct and entirely audible tininess. Also notable are the bite in the bass, the characteristic ringing overtones of the brass and the pungent trceries of the wood. Little correction is required in the amplifier. The one apparent defect, which is not pronounced, is a projection of the soloists somewhat larger than the rest of life as illustrated by chorus and orchestra.

The performance as a whole is very good, with chief honors to the beautifully phrased, finely detailed and dramatically expressive work of Mr. Paoletti with his huge forces. The *Otello* has some tremolo and some coarseness when loud, but is gracious when lyrical. Miss la Pollo, uncertain at first, acquires warmth as she proceeds. The Iago of Mr. Serra is a concept and realization of high order, implacable and restrained, subtly conveying an impression of rueful irony at his own horror.

#### QUARTET IN E MINOR. 1873

New Italian Quartet. with *Schumann: Quartet in F, Op. 41, No. 2.* London 12-in. LLP 323. 21 min. \$5.95.

Paganini Quartet. RCA Victor 10-in. LM 37. 22 min. \$4.67.

A friendly and unassuming exercise, the single specimen of Verdi's chamber music resembles the quartets of the great German masters in that it was written for four stringed instruments. It is guileless but not naive. It offers to the new Italian Quartet (*Nuovo Quartetto Italiano*) a perfect subject for their exquisite nuance, quivering subtlety and perfect discipline. The way of the Paganini Quartet is more direct, and in this *Quartet* less rewarding. When the *Nuovo Quartetto* can find a work susceptible to the precious details of their infinite scrutiny, they will not be outplayed. (There are not many such works.) The engineering of one

equals that of the other, with Victor somewhat bigger and crisper, London more resonant and coarser — results of room-tone.

#### QUATTRO PEZZI SACRI (Four Sacred Pieces)

(The four short choral works of this production from the period of *Falstaff* do not comprise an inviolable entity. They have violated the completeness of this survey by remaining coy in their recorded versions. All four have been advertised for Concert Hall CHS 1136; but this has not yet appeared. Nos. 1 and 3 are on Allegro ALG 3019 with some Monteverdi, but the copy for this survey was mislaid. No. 2, Stabat Mater, shares a ten-inch Mercury (MG 15011) with four choral songs by Brahms. This is a fairly effective, rather coarse-grained recording of a routine interpretation.)

#### RIGOLETTO. Opera in Three (sometimes Four) Acts on a Libretto by Francesco Maria Piave, after Victor Hugo's "Le Roi s'amuse". 1851

Erna Berger (s), Nan Merriman (ms), Jan Peerce (t), Leonard Warren (bne), Italo Tajo (bs), and other vocal soloists. Robert Shaw Chorus and RCA Victor Orchestra, Renato Cellini, cond. RCA Victor three 12-in. LM 6101. 1 hr. 45 min. \$17.16.

Orlandina Orlandini (s), Lidia Melani (ms), Gino Sarri (t), Ivan Petroff (bne), Mario Frosini (bs), and other vocal soloists. Chorus of the Comunale Theatre and Orchestra of the May Festival, Florence; Erasmo Ghiglia, cond. Remington three 12-in. 199-58-60. 1 hr. 48 min. \$6.57.

Glib though it be, the melodrama has a great horror whose effect is more forceful on records than in the theatre, its action requiring expedients deterrent to credibility and productive of titters invidious to tragedy. This is strong, energetic and inventive Verdi, sharper at characterization than in any previous work, lyrical but grim, and expertly descriptive. The astonishing opening scene, with the corrupted splendor of the Renaissance indicated to perfection by the simplest means while the excitement of an awful foreboding grows, is one of the most vivid quarter-hours in theatrical music; and the last act, whose culminating staged horror is too pat and too contrived, is just the same convincing in the music which describes it.

Malignantly obfuscating the sober exercise of judgement is the small item of \$6.57. This and the quality of the Remington *Rigoletto* himself, Ivan Petroff, argue powerfully in Remington's favor. Everything else is in Victor's favor, despite some good singing by Orlandini and Sarri for Remington. For this was the first of a Victor series of major works whose recorded sound justifies attribution of the rather special word "lambent" — a glowing, caressing brilliance free of roughness. This sound expresses a performance of remarkable competence, wherein everyone is pretty good and only Tajo's Sparafucile is explicitly memorable. The orchestra and Shaw-trained chorus are velvet. On the sum of its values the Victor *Rigoletto* will withstand competition for years.

The subsidiary singers for Remington are

less than impressive; the orchestra is smaller and less expert to a degree that permits pretty culpable vagaries from wind-players. The direction is less symphonic; there are some background noises: there is microphone tumult now and then, particularly on Side 5. And yet the complete impression is of a lively projection of the music. The sound is clear and solid in a wide range of cycles and dynamics, and the even superficial hiss is easily overcome with very little musical loss by use of a noise suppressor. This is certainly more admirable sound than that of the old Columbia *Traviata* described below, and Verdi's tragedy certainly emerges with its horrible vitality fairly intact, since the recorded crudities are only occasional. If the Victor version did not exist we should be grateful for this one; and many people with \$6.57 are going to be grateful anyway.

#### SIMON BOCCANEGRA

The opera has been advertised in a recording by Cetra-Soria, but had not been made available by press-time.

#### (La) TRAVIATA (The Wayward). Opera in Three Acts on a Libretto by Francesco Maria Piave after the Drama by Alexandre Dumas II, "La Dame aux Camélias." 1853

Licia Albanese (s), Maxine Stellman (ms), Jan Peerce (t), John Garris (t), Robert Merrill (bne), George Cehanovsky (bne). Chorus and NBC Orchestra, Arturo Toscanini, cond. RCA Victor two 12-in. LM 6003. 1 hr. 44 min. \$11.44.

Adriana Guerrini (s), Maria Huder (ms), Luigi Infantino (t), Blando Giusto (t), Paolo Silveri (bne), Paolo Rakowsky (bne). Chorus and Orchestra of the Rome Opera, Vincenzo Bellezza, cond. Columbia three 12-in. SL 103. 1 hr. 49 min. \$16.35.

Rosetta Noli (s), Giulia Olini (ms), Guiseppe Campora (t), Carlo Tagliabue (bne), Ottavio Serpo (bne). Chorus and Orchestra, Umberto Berrettoni, cond. Remington three 12-in. 199-77. \$6.57.

Verdi was dictator of the operatic world when *Traviata* was written, but the first performance of the most lyrical and easily enjoyable of his operas was a fiasco. It was a bad performance; but it is hard to understand how any audience could have resisted the superb alternations of gayety and tenderness that make a slick and unconvincing libretto into a convincing and touching drama, barely frayed after ninety-nine years, and stagewise more plausible as its epoch fades into the colored mists of a retrospectively romantic past.

After a nod to Columbia for her pioneering effort on LP, and the observation that the Remington price of \$6.57 is of no significance here, we may dismiss with a few rather unkind words their editions in favor of the one that really counts. The Columbia is a dull recording of a so-so performance, with a heavy, tubby bass and lusterless treble. What seems to be some pretty good singing on the Remington is terribly burlesqued on discs of fantastically maimed sound which compose a curiosity of recording and as such may be gleefully sought by collectors.

Her *Rigoletto* shows that Remington can produce satisfactory engineering, but the *Traviata* hardly seems credible even while it is tin-canning forth its sorry message. It is a pity that the Remington surfaces have been so much improved for these discs; a powerful surface noise would be welcome to cover the sound intentionally recorded.

The victorious Victor is outstanding in only one respect: the imperious control of her conductor who tolerates no ambiguity. The recording, accomplished with remarkable skill in double transfer from broadcast-transcription (1946) to tape to LP's has faults we should not expect today, particularly clashes of concerted voices and severely diminished bass (which a good amplifier or compensator can restore). Still, the high frequencies are clear if not notable, and little exception may be taken to balance or timbre. Merrill is excellent in a part which never fails, but neither Albanese nor Peerce enjoys continuous glory. Their skill is there, but their best sound, only intermittently.

Remains Toscanini, with the chorus and the orchestra. This is enough to justify recommendation of the album as a unique and precious edition. Probably no other Italian opera — certainly no other Italian opera of essentially light texture — has received on discs such transparent, nervous, logical and dynamic leadership as this. The intention is to make the score heard; and here this means that the lightest interjection, the most trivial episode, is proportioned not to

be lost; while the familiar musical rhetoric of certain cadences wherein we expect a tame orchestral response is given the same scrupulous accorded the most original passages, producing a delighted sense of novelty. The dynamic sweep, the abruptness of *sforzati*, the unity of the chords — these are familiar Toscanini qualities present here, but more effective here, in an opera, than in symphonic music where there are other able practitioners.

There is no relaxation of utterance in this *Traviata*. A relaxation of musical or dramatic mood is indicated with the same clarity as a mood of exaltation, but it demands as much concentration and as much exact effort. — No doubt there will be *Traviatas* better-sung and better-recorded. It is unlikely that there will be another as electrifying.

(II) TROVATORE (*The Troubadour*).  
Opera in Four Acts on a Libretto by  
Salvatore Cammarano. 1852

Caterina Mancini (s), Miriam Pirazzini (ms), Giacomo Lauri-Volpi (t), Carlo Tagliabue (bne), Alfredo Collella (bs). Chorus and Orchestra of Radio Italiana, Fernando Previtali, cond. Cetra-Soria three 12-in. 1226. 2 hr. 5 min. \$17.85.

We must dwell a painful moment on the text, occupying an unqualified eminence as the worst in repertory, beyond cavil. This libretto is the one always mentioned as the supreme example of operatic absurdity. Its grilled gypsies, mistaken identities, off-

stage action and alterable motivations, the remarkable denseness of its puppets, the opportune arrivals and the convenient vacillation of the fortunes of war would require the winging words of a Dante and a Shakespeare to make so much preposterousness endurable. Poor Verdi had only pedestrian phrases of extended bombast or ludicrous laconicism to inspire his music. So magnificently did he garnish the tasteless brew that *Trovatore* at its first performance was received with tumultuous acclaim, and it has been a necessary staple of every opera-house since. Verdi had poured out melodies in proportion to the deficiencies of his text, and the procession of lively tunes is nowhere else in his work so nearly continuous.

*Trovatore* requires muscular voices from each of its participants. Unfortunately the singers in the Cetra edition — with exception for Colella in the minor part of Ferrando — are least happy when most voluminous. The hard assertiveness of Mr. Lauri-Volpi is a severe trial for us, and Mancini, bell-like at *mezza voce*, is discomfiting at full lungs. Tagliabue's voice seems tired or eroded. Furthermore, the Previtali direction, while nowhere specifically inefficient is not concerned with much more than the grand external line. Notably good work by the chorus and the robust health of the recorded sound provide contrast for the mediocrity of the rest. The album can only be regarded as a stop-gap for those who cannot await the arrival of a better.

## Hither and Yon: Musically

WE STARTED to call this column "Noted With Interest in the Musical and Recording World" but decided that the title would have to be abbreviated somehow, and N.W.I.I.T.M.A.R.W. was too much initialism even for Washington, D. C., let alone Great Barrington, Mass. Furthermore, readers might confuse the column with our other columnar effort of similar title; and — this was the clincher — our printer could never get all that title into one line of type. So we shall try "Hither and Yon: Musically" until someone has a better idea.

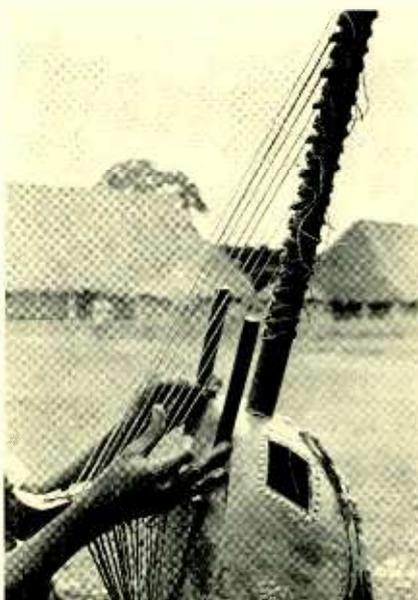
What will appear here is a matter of conjecture. Suffice it to say that the column is needed because we have collected a series of oddments which don't fit into the standard plan for the Records and Music section of HIGH-FIDELITY. Yet they deserve attention. They range from what we thought was record hiss, but turned out to be rain, to the off-key singing (yes, it turned out to be on-key) of some inebriated Fanti villagers.

### Africa

Undoubtedly many HIGH-FIDELITY readers are already familiar with Field Recordings.<sup>1</sup> Mention of them produced a slight, high frequency buzzing in our heads (how nice it

is that, in this Magazine, we can avoid the hackneyed "ringing a bell") but that was about all. However, we explored and finally wound up with an album of twelve 10-in. 78 rpm. discs which have fascinated us ever since. The story behind them is that Arthur

African 21-string harp-guitar



S. Alberts, well-known as a writer and musicologist, spent several war years in West Africa as head of American war information activities in that area. He became keenly interested in the largely unknown and unrecorded music of the people of the Guinea Coast, and went back in 1949 equipped with a jeep, a Magnecorder PT6-P, thousands of feet of tape, and all the other paraphernalia required for a jaunt into the bush. Over a period of six months, he secured the first high fidelity collection of traditional and contemporary music of the Gold Coast, Ivory Coast, Sudan, Liberia, and other very much "hither and yon" places.

Since we have never had an opportunity to hear the original instruments and voices personally, we cannot vouch for the fidelity, but it can be judged to be exceptional. The voices seem unusually real and presence is excellent. The frequency range of recorded sound is very wide; there is an extraordinarily deep-throated war drum recorded on band 2 of record 1-3 which severely taxes the bass response of the best reproducing systems and which is inaudible on standard, packaged phonographs.

The content of the albums<sup>2</sup> ranges from recordings of Gold Coast message drums, through demonstrations of the various types of instruments used for vocal accompaniments, war chants, songs of work and play, to café calypso songs. The albums are accompanied by a 24-page booklet which provides commentaries on West African mu-

<sup>2</sup>The 12 records are packaged in 3 albums, the whole neatly boxed and bound in simulated leather. Cost is \$25.00 plus 88 cents Federal tax — high, but the unusual and rare is always costly.

sic, notes on the construction and rhythm of the music and its relationship to the American popular idiom, and descriptions of the circumstances under which each recording was made. Also included are ten 8 by 10-in. photographs, two of which are reproduced hereabouts.

To the uninitiate, the records will bring a new world of sound — it will not be called music. To the initiate, to the student, and to the musicologist, *Tribal, Folk and Café Music of West Africa* will be a valuable instrument for further learning.

## India

From Africa to India, via phonograph records, is but a flip of the wrist. *Traditional and Classical Music of India*, an LP recording issued by Ethnic Folkways Library,<sup>3</sup> is on a par with the African music discussed above in that it enables us to hear, so easily, the rare and esoteric. If we were in a philosophical mood, we might ponder the unbelievable broadening of our cultural horizons during the past generation.

This disc is but one of a broad catalogue issued by Folkways and covering a wide field, from recordings of Andrew Rowan Summers to *Folk Music of Ethiopia*. Fidelity is good — as far as we can judge; surfaces are quiet; and the music — certainly different and, after the first plunge, quite beguiling.

## Indian (U. S.)

One more item in this musical travelogue, and then we shall go on to other matters. From North America comes a group of Navajo Indian pieces sung and recorded by Edward Lee Natay,<sup>4</sup> life-long student of Indian music. Some of these are very haunting... the Sunrise Song on side 2, particularly. We would like to know how and where these recordings were made. Some have exceptional presence; others — notably the Sunrise Song — have an unusual, cavernous effect, as if the microphone had been placed at one end of a large stone building such as a church, the singer and his instruments at the other.

For a bit more of the unusual, add this record to the special collection.

## Hats Off

To Mercury, for the statement on the liners of its new Olympian series: "For best results, this record should be played at full room volume... Owners of wide-range reproducing equipment are advised to set their bass and treble controls so that playback characteristics will be in accordance with the response curve published by the Audio Engineering Society" — and for warning record purchasers that "sapphire or metal styli should be checked for replacement at least every six months".

## LP's a la Eskimo

Although we presume recordings have been made of whatever music Eskimos produce,

<sup>3</sup>Folkways Records and Service Corp., 117 W. 46 St., New York City.

<sup>4</sup>Arizona Recording Productions, 834 No. 7th Ave., Phoenix, Ariz.



Two veterans of the Kissi army play ceremonial and dance music on blood-ringed flutes

this item is not concerned with that, and we're sorry if we misled you. It is concerned with the Eskimo habit of transporting the tinier members of their families on the backs of the larger members.

The custom is spreading South and East to — believe it or not — manufacturers of LP records. Thus to Circle Records, we award the cute-trick-of-the-year prize, for attaching a 7-in. LP to the back of the liner of its 12-in. LP recording of composer Henry Cowell's music. Cowell plays his own music and, on the 7-in. LP, comments on his music. Neat, sensible, and far more interesting than the printed word.

## Valuable Thumbnail

Someday, some great and omnipotent authority (public opinion, if we wait long enough) will require that all record manufacturers put an identifying number and title in exactly the same spot on every record jacket. As it is now, to find a particular record in an otherwise neat shelfful, records must be pulled out almost all the way before identification can be made.

Columbia has always been one of the most thoughtful in this respect, but an innovation noted on the latest batch of review records deserves a special pat on the back and a quiet prayer that it will be continued. Here it is, reduced exactly half-size for reproduction in HIGH-FIDELITY.

It's located in the upper right and left corners of the jacket, as near the edge as possible.

## Watchmakers Please Note

If a Urania Records habit becomes universal, manufacturers of stop watches will lose a group of valuable customers: HIGH-

FIDELITY's record critics. As readers know, we report the playing time in connection with our record reviews. Thus each record reviewer has had to scurry around and acquire a stop watch. Urania reports the playing time right on the label. Since many readers have commented favorably on our playing time reports, Urania can expect similar approval.

## Full Dimensional Sound

FDS is Capitol's latest contribution to high fidelity recording. On purpose or by chance, they sent us for review two records in the same package: one old style and one new, FDS style. The old was good... the new so much better, in brilliance and fullness, that the comparison was indeed startling. Reviews of Capitol discs appear in the customary place. We just wanted to note publicly that one more record manufacturer has taken a major step in the right direction.

## Raining Hiss or Hissing Rain

We began this column with remarks about record hiss which was rain, and we almost forgot to explain what prompted the remark.

'Twas Emory (Sound-of-our-Times) Cook's *Rail Dynamics*. We have listened to that record many times. Once or twice, we tried the other side, always to be greeted with the worst record hiss we ever heard. Recently, we were called away to the phone before we could get the pickup off... the hiss continued... then came the most fantastic roar and rumble imaginable.

Cook — may his soul rest in a warm climate — had backed up *Rail Dynamics* with a thunderstorm. After we had made certain all speaker cones were still intact, we decided the recording was wonderful. Try it sometime — but take it easy at first. That record hiss (sorry; rain) is deceptively gentle.

—C. F.



Beethoven:  
Symphony No. 3 In  
E-flat Major, Op. 55  
("Eroica")

# THE MUSIC BETWEEN

By EDWARD L. MERRITT, Jr.

SOME time ago, we sent up a trial balloon in the form of a single article on The Music Between. Reader response to that article was far beyond expectations and confirmed the writer's belief that a huge listening audience exists for the music which is neither strictly popular nor strictly classical: music which includes such divergent types as show scores from Broadway and Hollywood, special arrangements of the so-called standards (evergreen tunes from the popular lists of the past), ballet music, and incidental music of practically every sort.

Now that the vote is in, we are beginning a series of regular reports on The Music Between. As we proceed from issue to issue with the latest on music in this particular category, we hope to have the benefit of reader opinions. There are certain facets of reporting on The Music Between which differ from the critical slant directed at other types of music. For one thing, it is extremely hard to evaluate interpretation. With classical music, the intentions of the composer are fairly well determined, and the success or failure of the musical group in the development of those ideas may be analyzed critically. However, when we leave this field and turn to The Music Between, we have to deal

with music which derives the greater part of its interest and attraction from the individual concept of the performer or arranger. Thus it follows that an examination of such music begins under the severe handicap of lacking, as a point of departure, the original concept of the composer.

This states a problem we feel should be solved in concert with all those who enjoy The Music Between. Thus we ask your response to two questions: Shall we analyze the music itself, or shall we limit our examination to a report on physical characteristics, such as the fidelity of the discs, and surface noise, plus a brief statement of our personal reactions to the music, with the reasons therefor?

One further word is in order before turning to a consideration of the records on our list. As time goes on, we will have more and more material to engage our attention but, since the present series of articles is the first comprehensive attempt to review this type of music, it is proving a lengthy process to round up and obtain all of the various discs. Therefore, this report is a sampling — not a study of all available discs in the field. Further, the records reported are the good ones; to conserve time and space, we have omitted the ones to which we reacted unfavorably.

*Conversation Piece* (Complete Music Play)  
Columbia two 12-in. SL-163

*Lily Pons, Noel Coward and others. Children's Chorus and Orch.; Lehman Engel, cond. Words and Music by Mr. Coward. Orchestral arrangements by Carol Huxley.*

On the basis of this item and one immediately following, one is tempted to award the Music Between Palm to Goddard Lieber-son. This charming album is another in the wonderfully exciting series of revivals produced by Mr. Lieber-son which draw into the spotlight of contemporary recording excellence some of the very greatest successes of yesterday. This Noel Coward play, originally written for the beguiling Yvonne Printemps, has been tastefully re-published for presentation as a completely aural production. The little verses, newly conceived, serve to set the scene and make a complete whole out of a play and its music, even though divorced from the theatre. Some may question Miss Pons' accent, but the total result justifies the obvious care and effort put into this production. Particularly impressive is the work of Cathleen Nesbitt. Here is a wonderfully warm and human character beautifully re-created through the spoken word alone! It is a performance to remember. — The recording is in line with Columbia's best.

*Girl Crazy* (Complete Musical Score)  
Columbia 12-in. ML 4475. \$5.45.

*Mary Martin, with Louise Carlyle, Eddie Chappell. Orchestra and chorus conducted by Lehman Engel. Lyrics by Ira Gershwin. Music by George Gershwin. Miss Martin's orchestrations by Ted Royal; other orchestrations by Carol Huxley, with vocal accompaniments by Johnny Lesko.*

Overture, opening choruses, Bidin' My time, Could You Use Me?, Samson and Delilah, I Got Rhythm, But Not For Me, Treat Me Rough, Boy!, What Love Has Done To Me, Cactus Time, Finale.

In picking Mary Martin to recreate the original Ethel Merman role in this Gershwin gem, Goddard Lieber-son has done it again. Here is a fabulous score revealed in a lustrous recording which rates A-1. One or two little items deserve attention: the engaging Ted Royal orchestration of I Got Rhythm, bringing back memories of Cozy Cole in Carmen Jones, and the fine sounding voice and style of young singer Eddie Chappell. Mary Martin's handling of the favorites from this score rates with some of the very best she has ever put on wax. And it certainly sounds wonderful to hear verses from popular songs which actually make sense, as do these by Ira Gershwin.

*A Vienna State Operetta Concert*  
London 10-in. LPS 428. \$4.95.

*Karl Friedrich, (t), Hilde Gueden, (s). The Vienna State Opera Orch.; Wilhelm Lieber, cond.*

Giuditta: Schonste der Frauen (Lehar); Tausend und Eine Nacht: Nun Nacht du Wieder (Strauss); Land Des Lachelens: Wer hat die Liebe mus in Herz gesenkt (Lehar); Ras Telbinder: Wenn Zwie sich lieben (Lehar); Giuditta: Freunde, das Leben ist lebenswert (Lehar); Nacht in Venedig: Treusein, das liegt mir nacht (Strauss); Giuditta: Schon wie die blaue Sommernacht (Lehar); Gottergatte: Was Ich Langst ertraumte (Lehar).

Along among the producers of long playing discs, London continues to supply American markets with some of the most beautiful Music Between in the world: the music of Europe's popular theatre. This record is an impressive showcase for the logical successor to one of the very greatest singers of our time. The tenor, Karl Friedrich, does more than remind one of the great Richard Tauber as he revives this series of Tauber successes, assisted by the Metropolitan Opera's Hilde Gueden. If you are one of those who enjoys music with the Viennese touch, be sure to hear this package. As usual, the

London engineers have come up with another of their wonderful jobs. Unfortunately, our review copy raises the question of disc composition again. Is the London mixture overly abrasive or are American needles of a slightly different size? Regardless of the answer, there seems to be an ever-present hiss, which fortunately seldom prevents the superior sounds produced by the recording engineer from rolling through.

**Two on the Aisle**

Decca 12-in. DL 8040. \$4.85.

*An original cast featuring members of the New York Production. Bert Labr, Dolores Gray, with Kathryn Mylroie, Fred Bryan. Chorus and Orchestra directed by Herbert Greene. Music by Jule Styne. Lyrics by Betty Comden and Adolph Green. Orchestra arrangements by Philip Lang.*

Another visit to Broadway, this time conducted by Decca with pleasing effect. The historic talents of Bert Labr are present, somewhat less than matched by his material. The new talent of Dolores Gray is better displayed in several pieces, particularly the song, There Never Was A Baby Like My Baby. We'd like to go right out on the limb and reserve a star spot for Miss Gray in the world of tomorrow. So far as the recording itself is concerned, there is a good deal less perspective than in this month's European entries, and somewhat less presence than we found in the Columbia discs.

**Pineapple Poll: Ballet Suite**

Decca 10-in. DL 7521. \$3.85.

*Royal Opera House Orch., Covent Garden; John Lanchbery, cond. Music by Sir Arthur Sullivan, arranged by Charles Mackerras. A Sadler's Wells Ballet Presentation recorded in Europe by Parlophone Co. Ltd.*

Opening Dance, Poll's Solo and Pas de Deux, Belaye's Solo, Pas de Trois, Jasper's Adagio, Hornpipe and Reconciliation, Finale.

Gilbert and Sullivan have been so popular for so long it certainly wasn't to be doubted that, once copyright restrictions were removed, their music would get around. This Ballet Suite marked the first stop on this journey and serves to point up the universal attractiveness of Sir Arthur's music. There isn't a really well-known item in the lot, but the score fairly sparkles. The recording, in the European style, with its more obvious room tone or perspective, serves the music well and brings up the same old question again: Which recording style actually serves the music best? Should the attempt be to re-create the perspective of the theatre in the concert hall, or should the recorder's art bring the artists into the home with a closeup not possible in actual performance?

**La Boutique Fantasque: Ballet Suite**

Decca 10-in. DL 7518. \$3.85.

*Royal Opera House Orch., Covent Garden; Hugo Rignold, cond. Music by Gioacchino Rossini, arranged by Ottorino Respighi. A Sadler's Wells Ballet Presentation recorded in Europe by Parlophone Co. Ltd.*

Just about everything said about the Sullivan goes for this recording, too, except that the various excerpts may prove a bit more famil-

iar. Particular attention is due one of the most abandoned performances of La Danza on record. It is impossible to imagine any tenor keeping up with such a tempo. No matter how one feels about ballet, all will probably agree that Respighi's handling of the original Rossini airs makes for fine listening.

**Curtain Time**

Columbia 12-in. ML 4451. \$5.45.

*Morton Gould at the piano and conducting his orchestra.*

Bewitched, What Is There To Say, Poor Pierrrot, Old Devil Moon, Mine, September Song, Bad Timing, So In Love.

This is another revival of yesterday's music. In this instance, it is in the orchestral style of Morton Gould, a long-time producer of The Music Between. Musically, there are a couple of bright spots, particularly Bewitched. But, generally speaking, most of these tunes seem a bit over-arranged to us. Perhaps the very obvious facility of the arranger gets in the way, but it does seem as though Gould sacrifices the melody for the effect more often than not in this recording.

The recording follows Columbia's high standards, and the surfaces continue a joy to hear... or rather, not to hear.

**Ecstasy**

Decca 10-in. DL 5370. \$3.00.

*Tommy Dorsey and Victor Young. Trombone solos with the Singing Strings, Chorus and Orch.*

Ecstasy, Body and Soul, You're The One, The Searching Wind, Flower Of Dawn, My Love, Smoke Gets In Your Eyes, This Nearly Was Mine.

For those who like music in the popular idiom, this looks like a good thing. The combined talents of Tommy Dorsey and Victor Young should add up to something special. In this case, that seems to be something just a little out of order. Well, it's probably the inclusion of the chorus. The slick trombone of Mr. Dorsey, and the strings, are well caught by the engineers, but the constant reappearance of the human voices seems only to add sugar to the already sweet. Of the whole package, we picked This Nearly Was Mine, tromboned by Mr. Dorsey with his own orchestra.

## THE JAZZ CORNER

**Echoes of Harlem**

Decca 10-in. DL 5369. \$3.00.

*Russ David at the piano, with rhythm accompaniment. Music of Duke Ellington.*

Echoes of Harlem, Rockin' In Rhythm, Sophisticated Lady, Don't Get Around Much Any More, Caravan, Prelude To A Kiss, I Got It Bad, It Don't Mean A Thing.

The piano enthusiast will find several things here worth cheering about. Russ David's run-through of these Ellington familiars is marked with a commendable restraint. Personally, the slower numbers get the nod, but here again, the question of melody has a great deal to do with preference. Of course, any trio is on the spot. In an orchestra, the individual instrumentalist can hide in the ensemble, but the shadow of the microphone is pitifully small when a group of three performs. The recording is very good, and the balance of the trio excellent.

**Herman Chittison Trio**

Columbia 10-in. CL 6182. \$3.00.

*Herman Chittison, piano; Abie Baker, bass; Everett Barksdale, guitar.*

Serenade (Drigo), My Blue Heaven, Just A Memory, I've Had My Moments, On The Alamo, The Continental, Ain't Misbehavin', Should I.

For piano fans who like theirs with a little kick, Mr. Chittison may well help fill in a few odd minutes now and then. With so

many contemporary popular musicians getting their harmonies perilously close, it's always a pleasure to hear an inventive mind working over the old favorites without falling back into the bop idiom.

**Jazz Off The Air: Volumes 1 and 2**

Esoteric 10-in. ESJ 2 and 3

*Roy Eldridge, Flip Phillips, Eddie Safran-ski, Al Casey, Specs Powell, Mike Colicchio, Mel Torme (Vol. I); Charlie Ventura, Allen Eager, Bill Davis, Chubby Jackson, Buddy Rich, Fats Navarro, Ralph Burns, Al Varente (Vol. II), both with Art Ford.*

Lover, Honeysuckle Rose, How High The Moon, Flip and Jazz, Buck Still Jumps (Vol. I); Sweet Georgia Brown and High On An Open Mike (Vol. II).

To the jazz enthusiast, these two discs bring back some of the most exciting listening current in the late '40's. A series of radio sessions, presided over by the disc-jockey's favorite disc-jockey, Art Ford, brought New York listeners a roster of the biggest names in jazz. Radio Station WNEW, even back in 1947, led the pack with its pioneering ways, and these re-creations demonstrate some of the excitement one used to enjoy when the Saturday night Swing Session hit the air. By contemporary standards, the recording may show up a bit less than high fidelity, but the contents makes these records worthy of the jazz collection beside such items as the Benny Goodman Carnegie Hall Concert, The Bessie Smith Collection, and a few other specials.

Oscar Peterson at Carnegie  
Mercury 10-in. MG C-107. \$3.00.

Oscar Peterson, piano; Ray Brown, bass.  
Carnegie Blues, I Only Have Eyes For  
You, Fine and Dandy.

Mr. Peterson pulls out all the stops in what is billed as the first single-artist album in Norman Granz's "Jazz at the Philharmonic" series. The full frenzy, which seems to be required of jazz today, is present in this actual performance recording. The Peterson style calls up all of the performer's inventive talent, which is obviously considerable, but from a personal point of view the almost total disappearance of the melodic line is hard to take. Recording-wise, neither hot nor cold.

Reinhold Svensson: Vol. II  
Prestige 10-in. PRLP 129. \$3.35.

Reinhold Svensson, piano, with rhythm accompaniment.

Stars Fell On Alabama, Just A Gigolo  
Beat The Clock, Undecided, The Song Is  
Ended, Flying Home, Jeepers Creepers,  
I Wished On The Moon.

On the basis of the evidence contained in this month's Music Between chapter, a vote of thanks for pioneering goes to Prestige. This is particularly true with regard to a pair of discs cut in Sweden and presenting some of that Country's young jazz musicians. Reinhold Svensson plays in the general style of the fine George Shearing, and is a young man with a notable talent and a set of personal ideas of his own. So far as their recording is concerned, it is average, and unfortunately, the Prestige discs seem affected with undue surface noise.

The New Sounds From Sweden, Vol. II  
Prestige 10-in. PRLP 121. \$3.35.

Lars Gullin Quartet: That's It, Gull In A  
Gulch, All Yours, Deep Purple.

Bengt Hallbert Trio: Lover Man, Indiana,  
These Foolish Things, Cool Kid.

This record of the two Swedish imports brings us two small combinations: The Lars Gullin Quartet, starring the baritone saxophonist of its leader, and the Bengt Hallbert Piano Trio. The latter features the rather melodic talent of young Hallbert who does very nicely with three well-known standards and a slightly boppish item titled, Cool Kid. One would not claim any fabulous rating for this entry but, except for the unfortunate surfaces, this turns out as an interesting bit.

Red Rodney: The New Sounds  
Prestige 10-in. PRLP 122. \$3.35.

Red Rodney, trumpet; Phil Raphael, piano;  
Jim Ford, alto; Phil Leshin, bass; Phil Brown,  
Chorus.

The Baron, This Time The Dream's On  
Me, Mark, If You Are But A Dream, Red  
Wig, Smoke Gets In Your Eyes, Coogan's  
Bluff.

Back in the United States, Prestige here packages up seven by a young trumpet artist highly considered by the enthusiasts. For the first time, Red Rodney plays through an assorted list of standards and specials. If nothing else, the surfaces are uniform, for here again the noise level runs high.

# Music on Tape

The pre-recorded tape industry is moving ahead — slowly, falteringly, and beset by many obstacles, the largest of which is the problem of making duplicates. Five duplicates at one whack is standard practice; rumors have been a-flying that machines capable of delivering 25 to 50 duplicates are being perfected. Compare this with the fact that, nowadays, it is not uncommon for a popular hit tune to run to 1,000,000 copies. We will let you do the arithmetic . . . duplicating remains *the* problem, and until the process can be speeded up, the cost of pre-recorded tape will remain high relative to LP records.

A dozen 1200-ft. reels of raw tape can be purchased from most radio jobbers for less than \$3.50 per reel. At 7½ ins. per sec., recorded single track, half an hour of music can be recorded on a reel of that size. With music on it, the same tape will be priced well over \$6. An LP record — with 40 to 60 minutes on it — costs less than \$6.

To compete with LP records, music on tape must offer something more than records. One advantage is familiar to all: there is no record scratch, hiss, or pop on tape. That advantage may be worth the extra cost, but as LP's improve, it is less and less of a sales argument.

The big advantage might be improved reproduction of the music or sound. It is possible to get better sound from tape than from records. The big catch here is tape speed. As those of our readers who followed the series of articles in HIGH-FIDELITY on tape recording will remember, frequency range and tape speed are closely tied together. A rule of thumb (sometimes bettered, not always accomplished) is that the highest frequency which can be recorded is 1,000 times the tape speed. Thus, at 7½ ips., the frequency range is from about 70 to 7,500 cycles.

European tape masters are recorded generally at 30 ips.; domestic ones at 15 ips. Most of the pre-recorded tape companies concentrate on 7½ ips.

On a high fidelity, wide-range reproducing system with a good tweeter, the difference is noticeable. For instance, if a good LP record is recorded onto tape at 7½ ips., loss of brilliance on the highs is apparent. At 15 ips., it is almost, if not entirely, impossible to distinguish the original record from the tape reproduction of it.

To realize the value of improved reproduction of sound, a high tape speed is necessary. Thus a second possible advantage of tape becomes questionable: Tape could provide far longer periods of uninterrupted music than LP records. For example, the longest LP side which we have come across ran 34 mins. If we could disregard the relationship between frequency range and tape speed and use — or be satisfied with — a tape speed of 3¾ ips., a semi-professional tape recorder, capable of handling 10½-in. reels, would provide 2 hours of uninterrupted music.

These two aspects of tape recording keynote current interest in pre-recorded tape. Two fundamental groups are buying tape: those who want uninterrupted background music, and those who want fidelity superior to what is now available on LP records. The first group is not too hard to satisfy, and tapes available today seem to be filling the bill quite adequately. The second group, the hi-fi fans, are tough customers! And rightly so; LP's are astonishingly good, tapes are expensive and must be markedly better to be worth the investment.

As of today, it would appear that hi-fi fans should buy with caution. We recently spent a long evening listening to a selection of pre-recorded tapes. For moral support and astute critical listening, we invited C. G. Burke to the session. We agreed in our opinions of the recordings, but the opinions are not likely to be helpful. Stated briefly, they were: "Maybe yes, maybe no."

For instance, A-V Tape Libraries<sup>1</sup> has a relatively large group of tapes available. Many of them duplicate Remington Records' classical releases. Thus we were able to make a direct comparison of Mozart's *Jupiter Symphony* on tape and on records. A similar comparison was made on Mozart's *Sinfonia Concertante*. We compared A-V tapes with some from Tape Industries.<sup>2</sup> And both were checked against a standard: a live FM broadcast taken down at 15 ips. All pre-recorded tapes were single track, 7½ ips. releases. Equipment used was Concer-tone, McIntosh, Pickering, Brociner preamp, and a 3-speaker reproducing system.

As far as the *Jupiter Symphony* is concerned, we'll take the tape. Even with the turnover up at 800 and the treble down 20 db, the record showed poor bass and shrill highs. There was more clarity to individual instruments on the record, but this did not compensate for the better lows and highs on tape. Re the tape, Burke noted: "good timbre and crispness . . . violins pure . . . wood slightly dull". Listening to the disc, he jotted down, "Exaggerated highs . . . bass raspy . . . distortion of wind".

However, the *Sinfonia Concertante* was slightly better on record than on tape, although the difference between the two was not nearly as great as with the *Jupiter*. Burke's notes for the tape: "Timbre darkened; soloists not crisp. Violins pleas-

*Continued on page 61*

<sup>1</sup>A-V Tape Libraries, Inc., 730 Fifth Ave., New York 19, N. Y., has over a score of tapes in its catalogue. Six are of classical music; the others are in popular vein and include organ reveries, moments in music, and the like. Tapes are available as single track at 7½ ips., for \$8.95 per ¼-hour reel; and as double track at 7½ ips. for \$9.95 per hour-long reel, or double track at 3¾ ips. for \$7.95 per one-hour reel.

<sup>2</sup>Tape Recording Industries, 3335 E. Lansing Ave., Lansing, Michigan, is operating a Tape-of-the-Month Club. Cost is \$6.95 per 1200-ft. reel at either 7½ or 15 ips. Repertoire is expanding rapidly; at present it consists largely of The Music Between.

# RECORDS

## in REVIEW

C. G. BURKE • JOHN CONLY

ALFRED FRANKENSTEIN • J. F. INDCOX • KURT LIST

### NOTES ABOUT

#### RECORD REVIEWS

To facilitate reference to this section, all classical LP releases are arranged alphabetically by composer. Miscellaneous collections, not normally identified by composer, are collected at the end of the record review section.

Where two or more composers appear on one record, the reviews are cross-referenced but not repeated.

Playing time is reported for each release and, unless otherwise indicated, is the total for both sides of a single disc or, in the case of albums, is the total for all records in the set.

The Editor welcomes suggestions for improving the Records in Review section of HIGH-FIDELITY.

BACH, J. S.: *Cantatas No. 32* (Liebster Jesu, Mein Verlangen) and *140* (Wachet Auf!)

Magda Laszlo (s), Waldemar Kmentt (t), Alfred Poell (bs); Akademie Chorus; Vienna National Opera Orch.; Hermann Scherchen, cond. Westminster 12-in. WL 5122. 24 and 31 mins. \$5.95.

*Cantata No. 80* (Ein' Feste Burg): Maja Weis-Osborn (s), Hilde Rossl-Majdan (a), Kurt Equiluz (t), Walter Berry (bs); Akademie Chorus; Vienna Chamber Orch.; Felix Prohaska, cond. Vanguard (Bach Guild) 12-in. BG 508. 39 mins. \$5.95.

Not many people are familiar with many Bach cantatas because there are too many of them to permit frequent performance of more than a few. The phonograph has been making them available, and the three under consideration here will certainly tempt music-lovers to savor others. There is no guaranty that others will be proclaimed with the mastery of these. The most widely known, *No. 80*, asserts its virile faith through Prof. Prohaska's forthright wielding of the chorus; the others are notable for the beauty and devoted application of the solo voices,

and Dr. Scherchen's loving delineation of a gemlike orchestral curtain. The Bach Guild engineering is bright and big, the Westminster clear and undistorted, subtle in its values and exceptional, if not for this company.—C. G. B.

BACH, J. S.: *Fugue in A Minor* • *Fugue in G Minor (Great)* • *Ricercare in Six Parts* (from *The Musical Offering*)  
See BEETHOVEN

BACH, J. S.: *Goldberg Variations*  
Rosalyn Tureck, piano. Allegro two 12-in. ALG 3033. 90 mins. \$11.90.

Playing the repeats and so nearly doubling its length, the valiant (and conspicuously capable) pianist makes the endlessly inventive *Variations* the longest piano work ever recorded, and to many, perhaps endless. Exhaustive of the keyboard, it can be exhausting to hearers; and eight variations at a time (there are thirty) can suffice even for spellbound music-lovers, fascination itself being fatiguing. — The recorded tone is small, and requires careful manipulation of bass and treble characteristics for good results. — C. G. B.

BACH, J. S.: *Little Notebook of Anna Magdalena Bach, Volume I*  
Kurt Rapf, harpsichord; Maja Weis-Osborn (s). Vanguard 12-in. (Bach Guild) BG 510. 30 mins. \$5.95.

Of the nineteen pieces in the initial record of the impressive potpourri of grand and little music written out by Bach's second wife for the instruction of herself and the survivors of her depthless husband's twenty children, eight are compositions of the great man. The insinuating appeal of these interpretations comes from the performers' acceptance of the informality of the source. There is no hint of tension, from soprano or keyboard. — The latter has thirteen solos and accompanies the soprano in the remaining items, supported by viol. By our current standards, the engineered sound is impeccable. — C. G. B.

BACH, J. S.: *A Survey of his Organ Music, Volume I*  
Carl Weinrich, organ of Princeton University Chapel. MGM 10-in. E 98. 13 and 12 mins. \$3.00.

*The Passacaglia and Fugue in C Minor* and

the *A Minor (Vivaldi) Concerto* occupy the envelope, but a room can hardly contain them. Really extraordinary organ sound, especially for discophiles using several speakers simultaneously, of a distinctive organ played by a man who loves Bach. — C. G. B.

BEETHOVEN: *Grosse Fuge, Op. 133* —  
BACH, J. S.: *Fugue in A Minor* • *Fugue in G Minor (Great)* • *Ricercare in Six Parts* (from *The Musical Offering*)  
Stuttgart Chamber Orch.; Karl Muenchinger, cond. London 12-in. LL 526. 17¼, 3½, 5, and 8½ mins. \$5.95.

Karl Muenchinger's exceptional string group is not quite as successful here as it was in the earlier Brandenburg Concertos. In the Beethoven, the playing is clear but the intonation not always exact. The rewarding feature of this performance is the plasticity of the individual voices.

The *Grosse Fuge* is a highly complex work, and it is questionable whether any performance can represent exactly what Beethoven had in mind; the music appears here more as a vision than as a realized study in sound. Of all the performances I have heard, those by string orchestra have seemed more felicitous than the quartet performances because the duplication of sound in the individual parts helps to clarify the vertical complexity. This was so on 78 rpm., where the Busch Chamber version sounded more convincing than that of the Budapest Quartet (to name the two best performances in the respective categories), and it is so on LP, where the Muenchinger group has it all over the Pascal Quartet.

Both Bach fugues—the one in A Minor, a four-part composition supposedly from the early Weimar days, and the better-known "Great" G Minor fugue from the Koethen period—are rendered in string orchestra transcriptions by Mr. Muenchinger. The transcriptions are straight and do not attempt to simulate any keyboard sonority. The A Minor fugue is performed with a fast, motoric drive; that in G Minor also rapidly, but in a more delicate way. In both there is some fine linear shading which brings out the inner coherence of the individual parts.

The Six-part Ricercare from *The Musical Offering* is rendered in a string orchestra version by Edwin Fischer. To my mind, it is questionable whether a string orchestra

is the best medium for presenting the deep involvement of the six voices. It is helped in this case, however, by a performance which aims for a kind of organ registration and builds its climaxes with great care and a fine sensitivity for large, all-enveloping sound.

The recording does not do full justice to the performance. It has a kind of muddy quality, especially on the Bach side, and the long chord in the opening of the Beethoven suffers from an unpleasant wow. Best equalization is at an 800 turnover point, with a 12 db roll-off on the highs. A 2 db roll-off on the bass is possible but largely a matter of individual taste. — K. L.

**BEETHOVEN: Symphonies No. 1 through 9**

Felix Weingartner conducting Vienna Philharmonic Orch. (Nos. 1, 3, 7, 8 and 9); The London Symphony Orch. (No. 2); The London Philharmonic Orch. (Nos. 4 and 5); The Royal Philharmonic Orch. (No. 6). Columbia nine 12-in. ML 4501-4507, final digit corresponding to the number of the Symphony, with *Symphonies No. 8 and 9* both in Album SL 165. 21, 30, 45, 30, 32, 36, 34, 23, 62 mins. respectively. \$5.45 each record.

This must have been a labor of love for Columbia, whose most musical association Weingartner was. The painstaking re-creations, from 78's fourteen or more years old, must be received with appropriate acknowledgment from discophiles who in a case like this have no right to take exception to inadequacies of sound as compared to the latest feats of sonic engineering. Weingartner is the only conductor to have made the nine *Symphonies* on discs. His self-effacement has created in every case a poetic and even projection of a pure and changeless concept. If some of these concepts are not spectacular, all are indispensable as a guide to music-lovers wishing to know just how accuracy and imagination interact to take these scores from print and put them into music.

These records are over-heavy in the bass and insufficiently defined at the top. The monitoring practiced at their creation has restricted their dynamics. They are not going to be purchased for the splendor of their sound, but the writer is pleased to repeat here what he has said elsewhere: that every record collector should have at least one example of Weingartner's Beethoven, for his own delectation and in proper homage to the conductor who first took the phonograph seriously. The *Eighth* and *Fifth Symphonies* are recorded to best advantage; the *Sixth* is weakest. The *Ninth Fifth*, *Seventh*, *Eighth*, *Fourth* and *First* are beautiful examples of the work Felix Weingartner could do. — C. G. B.

**BERLIOZ: Overtures: *Benvenuto Cellini***  
● *The Corsair* — **RAVEL: *Bolero***  
Paris Conservatory Orch.; Charles Munch, cond. London 12-in. LLP 466. 11, 8 and 17 mins. \$5.95.

This conductor is always pat with Berlioz: the frisky, swashbuckling overtures swirl in gallant orchestral foam. Ravel's fading *tour de force* receives an equally effective, if different, treatment, being properly held to

a changeless slow pace throughout its repetitious course. A little cavernous, the sound is nevertheless of commendable quality. — C. G. B.

**BERLIOZ: *Symphonie Fantastique, Op. 14***  
Concertgebouw Orch. of Amsterdam; Eduard van Beinum, cond. London 12-in. LLP 489. 45¾ mins. \$5.95.

The Philadelphia Orch.; Eugene Ormandy, cond. Columbia 12-in. ML 4467. 47¾ mins. \$5.45.

The music of Berlioz has persistently defied classification. Since even music historians have explained it best only *ex post facto*, by way of Liszt and Strauss, one need not be astonished if less learned interpreters give it the most widely divergent performances. Both Messrs. van Beinum and Ormandy concentrate on one specific aspect of the *Symphonie Fantastique*, though in each case the aspect is different. One might say that van Beinum emphasizes the *Symphonie* and Ormandy the *Fantastique*.

Van Beinum's is the more difficult task, for the numerous rhapsodic passages of the work do not lend themselves too well to a straightforward interpretation in which the tempos are metronomically equal. That he manages to stick to his plan and reveal a certain structural unity, going beyond the programmatic idea, is perhaps to van Beinum's credit but it is not necessarily a service to the work.

Unfortunately, where van Beinum rushes in, Ormandy fears to tread. The latter's interpretation is given over to romantic effusion in which large variances of tempo, practically from passage to passage, are most characteristic. Structurally he makes the work fall apart, but it cannot be denied that his performance evokes a much greater emotional response than van Beinum's. It is interesting to note that although Ormandy's basic beat is somewhat slower, the impression created is that of a more nervous pulse and occasionally of greater hurry. One finds this least disturbing in the fourth movement, but is quite put out by it in the third.

From the engineering point of view, the Columbia version has several advantages over the London product. The extreme ends are reproduced with clarity, and they frame a clean, well-defined middle register which becomes blurred only on rare occasions when orchestral *tutti* passages tend to lose characteristic sound qualities in their mixture.

Columbia's music is also better distributed on the two sides, with Side A featuring the first two movements, Side B the remaining three. There is one disadvantage to this method, however: it leads to a crowding of music on the B side and a slight distortion toward the end of the last movement. More disturbing is a loss of constant pitch throughout the symphony. The work begins almost half a tone below the normal pitch level of A = 440; gradually pitch comes up to normal and is sustained there in the fourth movement; but in the *lento* of the fifth, it drops again almost half a tone, only to be raised again to normal towards the end. Also, in a very commendable desire to maintain a clearly defined orchestral sound, Columbia engineers have had to forfeit some of the dynamic differentiations which Berlioz demands between *pianissimi* and immediately following *fortissimi*.

London's sound suffers mainly from an imbalance between the various registers. There is a strong boost in the bass and a great deal of stridency in the high end, especially in the extreme register of the violins. The strings lack definition in the middle; but strangely enough, the woodwinds seem exceedingly well recorded, especially in the third movement, where they play a preponderant role. Dynamic contrasts are preserved in a truer way than on the Columbia recording.

Attention must be drawn to the fact that London records according to no conventional curve. After extensive experimentation, this writer has found that on the present recording a turnover point of 300 and a closing of the amplifier above 8,000 kcs. leads to the best results. This minimizes the unpleasantness of the highs and does not considerably add to the boom of the bass.

London's pitch is constant, but the music is badly distributed on the two sides, with a break occurring in the middle of the third movement at the end of Side A. (The label copy erroneously states that the third movement begins on Side B.) — K. L.

**BORODIN, LIADOF, RIMSKY-KORSAKOV et. al: *Tati-Tati*** (Symphonic paraphrases on Chopsticks, orchestrated by N. Tcherepnin and Werner Janssen)

Columbia Symphony Orch.; Werner Janssen, cond. Columbia 12-in. ML 4480. 33 mins. \$5.45.

Musical history mentions no other collaboration so august in the perpetration of a joke. If some of the point is lost in transference from the piano, an equivalent pungency is added by the very showy orchestrations, engagingly appropriate. The dozen jocularities, rousing or solemn, are declaimed with blithe skill by an expert band on a disc of complex and vivid sound, here and there startling in percussive ostentation. In fact, the record will probably retain a technical interest after the musical joke has lost its freshness. — C. G. B.

**BRAHMS: *Double Concerto in A Minor, Op. 102***

Jean Fournier, violin; Antonio Janigro, cello; Vienna National Opera Orch.; Hermann Scherchen, cond. Westminster 12-in. WL 5117. 32 mins. \$5.95.

It is too bad that this beautifully poetic performance, with both soloists preeminent in the production of a long even line and the conductor in equivalent support with a fine orchestra, should not have received engineering favors on Westminster's highest level. The orchestra seems unsolid, to retreat in perspective, and an unwanted shimmer afflicts the solo violin and the other violins. — C. G. B.

**BRAHMS: *Piano Quintet in F Minor, Op. 34***

Chigi Quintet. London 12-in. LL 501. 37¾ mins. \$5.95.

The Chigi Quintet tends to over-sentimentalize the romanticism of this music. The dynamic contrasts appear exaggerated; when they are close together, this quality tends to give one the impression of sudden level drops.

The recording is good. It is spacious and multi-dimensional. Some may find the piano sound too mellow, although this is not disturbing to me. The mellowness can be remedied through a bass roll-off; I would not recommend doing so because one can easily arrive at a dull, hammer-like sound in the middle range. The best equalization is at a 300 turnover, with a 12 db roll-off in the highs. — K. L.

**BRAHMS: *Symphony No. 2 in D, Op. 73***  
London Philharmonic Orch.; Wilhelm Furtwängler, cond. London 12-in. LLP 28. 41 mins. \$5.95.

A stately ceremonial whose jubilation is massive and startling in the Furtwängler conception of a symphony we consider light in a more customary presentation. Anything that challenges routine is interesting if not necessarily right, and the Jochum and Monteux editions, on Decca and Victor respectively, have the vitality to resist a strong challenge.

Two years ago the bold, concentrated tiers of sound in the Furtwängler record would have awed us, but we are used to that now, and able to apprehend some obscuration of detail at low volume. — C. G. B.

**BRAHMS: *Symphony No. 3 in F, Op. 90***  
Concertgebouw Orch., Amsterdam; George Szell, cond. London 12-in. LLP 487. 31 mins. \$5.95.

The recorded work of this conductor has been of uniformly high worth, but there has been a tendency to restrict him to Bohemian music. The present record is an acknowledgment that the restriction was warranted by nothing more than Dr. Szell's birthplace: he is brought forth into very severe competition by this symphony, and the disc surpasses its rival in the richness of its orchestral mass and the nicety of its delineation of timbre. The interpretation is one of strong dramatic contrasts within a frame of familiar phrasing, the whole very fine. — C. G. B.

**BRAHMS (?): *Trio in A Major for Piano, Violin, and Cello (Op. Posth.)***  
William Huebner, violin. Richard Harand, cello. Franz Holletschek, piano. Westminster 12-in. WL 5058. 43 mins.

The reason for the question mark after the composer's name, above, is gone into in detail in the liner notes. Suffice it to say here that although the music is decidedly Brahmsian, there is a degree of doubt about the actual composer.

Whoever composed it, it is a rich piece of music, richly interpreted and recorded. The piano in particular is soft, full, and mellow. It makes a very interesting comparison with the Liszt *Sonata in B Minor* recorded by London on LPS 392. In fact, some may feel that the piano on this Westminster is almost too heavy, even with a turnover control setting of 300. It tends to override the other instruments and produce an effect of lack of clarity.

Both the violin and cello are clear and without rasp or edginess, although just a bit remote in comparison with the piano. — D. A.

**CHAUSSON: *Symphony in B flat, Op. 20***  
San Francisco Symphony Orch.; Pierre Monteux, cond. RCA Victor 12-in. LM 1181. 32 mins. \$5.72.

The sunniest conductor eases the constriction of a talented man's only symphony, written under the influence of César Franck. That influence is perhaps limp, but in this case was not sterile: The Chausson *Symphony* is well constructed and scored, and is not a shame-faced apology for living. Neither is it — let's not fool ourselves — a vital proclamation of anything very striking, although this performance and this recording may make us temporarily think so. — C. G. B.

**CHOPIN: *Concerto No. 2 for Piano and Orchestra in F Minor, Op. 21***  
Guiomar Novaes, piano. Vienna Symphony Orch.; Otto Klemperer, cond. Vox 12-in. PL 7100. 31 mins.

We are hard put to it to review this record without bias. We like Chopin; we like this *Concerto*; we particularly like Novaes; and we think that the whole record, musically, is wonderful. Unfortunately, perhaps, we are even more critical of the sound than of the musicianship. No amount of control adjusting could bring the sound into reasonable shape. True, the balance between the orchestra and the piano is very good. We have the feeling that there is a bare possibility that only one microphone was used. At least, the piano is drowned out by the orchestra at the right places!

But — we have no tone controls on our system. All we can do is to adjust for different turnover frequencies and for different degrees of preemphasis. Even with 20 db. droop at the high end, the violins shrieked. Even with the turnover at 800, there wasn't the correct amount of bass. And throughout it all, both piano and orchestra sounded remote . . . as if that single microphone were in the last row of the orchestra.

We shall play the record again from time to time, because we like the music and the musicians, and because the realism provided by the effect of a single microphone is a very real asset. We just wish that the sound had been better, or that we had more controls on our system.

We also hope, fervently, that the bugaboo of every reviewer hasn't befallen us: receipt of a single "lemon" out of a batch of otherwise good pressings. — D. A.

**COWELL, H.: *Piano Music***  
Played by composer. Circle 12-in. 51-101. 18 and 18 mins. \$5.95.

The great days of the 1920's are nostalgically recalled by this recording, which contains 20 of Cowell's short piano pieces. Many of them exploit the famous Cowell tone-clusters — groups of adjacent notes struck with the fist, the flat of the hand, or a ruler placed on the keyboard. In some, the keyboard is dispensed with and the strings are plucked or made to sound by rubbing. Cowell, in other words, treats the piano as an instrument of percussion, as a harp, and as a kind of violin. The prepared-piano boys have since performed more radical operations on Cristofori's long-suffering invention, and consequently

Cowell's pieces now take on a kind of classic quality; besides, they are excellent works of music. Many of them deal with themes of Irish legendary lore; a few reflect incidents of everyday American life; some are without programmatic connotations, but all reflect a bright, inventive, humorous, inquiring and eminently musical spirit. The recording is excellent, and is accompanied by a kind of pilot-record, a little disc, packed in an extra pocket, wherein Cowell discusses his work. — A. F.

**DEBUSSY: *Sonata No. 3 for Violin and Piano* — VILLA-LOBOS: *Sonata No. 3 for Violin and Piano***  
Ricardo Odnoposoff, violin; Leonid Hambro, piano. Allegro 12-in. ALG 3025. 12 and 14 mins. \$5.95.

All the books tell us that Debussy's last sonatas are labored, mannered works without much life or fire. Strangely, however, they keep coming up on concert programs and in the recording lists, and it is now quite easy to perceive that the light texture, fantasticality, reserve and classicism of these sonatas reflect not a decline in Debussy's creative powers but a refusal to stand still and follow the grooves his critics had laid out for him. The *Violin Sonata* is very well played by Odnoposoff and Hambro, but the revelation of the set is not so much the Debussy as the Villa-Lobos on the other side. This work, composed in 1915, in the idiom of Franck and d'Indy; it contains not a trace of the brilliant, brutal, folkloric idiom the Brazilian composer was shortly to make his own. And yet, as an early work of a very distinguished talent, it has a profile — or perhaps one finds it there because one knows it is Villa-Lobos. First-rate recording. — A. F.

**DELLO JOIO: *Psalm of David***  
Crane Chorus and Orch., Crane Department of Music, State University Teacher's College, Potsdam, New York; Helen M. Hosmer, cond. Concert Hall Society 10-in. CHS 1118. 15 mins. \$4.67.

Based on a *cantus firmus* by Josquin des Pres, this work recalls the fervor and serenity of the 15th century composer, to which a thoroughly modern sense of sonority and rhythmic impulse has been added. On the whole, a highly convincing demonstration of the modern fusion of scholarship with creative art. Good recording and performance. — A. F.

**DVORAK: *Symphony No. 4, in G, Op. 88***  
Concertgebouw Orch., Amsterdam; George Szell, cond. London 12-in. LLP 488. 34 mins. \$5.95.

In the recording industry three years is an age. The Walter version of this airy, tender and lively symphony, chronologically the eighth, was excellent when issued in 1949 and is still imposing until the new Szell edition is heard. Thereafter, no contest. All the elements whose careful synthesis must be manipulated to obtain good musical reproduction — clarity, timbre, mass, detail, dynamic and cyclic sweep — are in impressive union supporting the excellent Concertgebouw Orchestra in lusty accord with the variable demands of a conductor

who obviously loves and understands the work. The disc is as completely realized as any of a standard symphony. — C. G. B.

**ENESCO:** *Octet for Strings in C Major, Op. 7*

American Arts (Chamber) Orch.; Karl Krueger, cond. New Records 12-in. NRLP 101. 38 mins. \$5.75.

Anyone who is inspired by a liking for Enesco's best known works, the Roumanian Rhapsodies, into buying this album is in for an awful shock. Enesco's more serious efforts were all directed toward innovation. The flavor of this octet is vaguely akin to that of early Bartok, or perhaps Kodaly, but Enesco's musical ideas are not good enough to support the long and elaborate treatment given them here. The playing is good, the engineering so-so. — J. C.

**FALLA:** *Sombrero de Tres Picos (Three-Cornered Hat)*

Amparito Pérís de Prulière (s). Orch. of the Opéra-Comique, Paris; Jean Martinon, cond. Urania 12-in. URLP 7034. 37 mins. \$5.95.

This is the only complete recording of the rich and rhythmic score. The interpretation is one of weighty alacrity. If the orchestra is not an instrument of the nicest precision, that is of minor importance on a disc whose outstanding feature is its opulent sound. For, save for two or three minutes of disproportionately loud interjections from the soprano, this is a majestic recording. Its washed and incised bass, tingling percussion and enveloping strings make place for this in the loftiest company, that of Columbia's Rachmaninoff *Second Symphony*, Westminster's *Lieutenant Kije*, Victor's *Rachmaninoff Rhapsody* and Mercury's *Pictures at an Exhibition*. Bass reduction is necessary to obtain the sharpest impact of a galvanizing organization of splendid sound. — C. G. B.

**FLOTOW:** *Martha (Complete Opera)*

Erna Berger (s), Else Tegethoff (ms), Peter Anders (t), Josef Greindl (bne), Eugen Fuchs (bs), Franz Sauer (bs); Chorus of Berlin Municipal Opera and Symphony Orch. of Radio Berlin; Arthur Rother, cond. Urania three 12-in. URLP 217. 1 hr. 42 mins. \$17.85.

This stimulating kind of fluff, bright in facile rhythm and fashioned melodiously with the clarity that Auber bequeathed to his contemporaries and rivals to imprint tunes on the listening brain, receives a vivacious and very professional interpretation from all participants, chief of whom are Mr. Rother and Mme. Berger. The superior Anders and Greindl voices are hurt by their ineptitude at the microphone, a persisting Urania fault that has adversely modified the effectiveness of many otherwise excellent recordings. For this piece of engineering is basically of high order, spacious (although a little too reverberant), very clear and crisp, with that bite to the lower strings which is an engaging feature of the best Uranias. Microphone bleat occurs periodically, notably on side 5 where the two leading men frustrate themselves and each other in contesting for the instrument. Some rumble obruades, especially on side 6. There are moments of incipient distortion in the orchestra. Withal, not too

bad an effect. Disappointing, rather, since Urania's own grand demonstration with *Orello* (reviewed elsewhere in this issue) shows the faults to have been obviable — C. G. B.

**GLAZOUNOW:** *Suite from The Seasons*  
French National Symphony Orch.; Roger Désormière, cond. Capitol 12-in. P 8157. 32 mins. \$4.98.

A crisp sound, yet solid and embracive, well-balanced and true-timbred, characterizes one of the best Capitols issued, which would be better without metallic overtones to the violins. These cannot be expunged without harm to the brilliance of the rest. Resourceful orchestration and some intermittent frisky inconsequentiality are the notable aspects of a diversion without real distinction, played with free athleticism by conductor and orchestra of proved and pronounced abilities. — C. G. B.

**GLINKA:** *Suite from Ruslan and Ludmilla*

London Symphony Orch.; Anatole Fistoulari, cond. MGM 10-in. E 105. 26 mins. \$3.00.

A neat, small-scaled recording of exceptional balance and differentiation of timbres, which brings out of obscurity other sprightly parts of this traditional opera than the familiar overture (which is included). Welcome and desirable, in the spirited and pliant performance on this disc. — C. G. B.

**HANDEL:** *Passacaglia*  
See **TURINA**

**HANDEL:** *Utrecht Te Deum • Let Thy Hand Be Strengthened (Anthem)*

Soloists, Chorus and Chamber Orch. of the Danish National Radio; Mogens Wöldike, cond. Haydn Society 12-in. HSL 2046. 29 and 9 mins. \$5.95.

This paean, trumpeting a sturdy devotion and invincible worldliness, established the mighty young Saxon as a successful courtier and the greatest of English composers. It has not the convincing forcefulness of the later *Dettingen Te Deum* but its vigorous triumph is stunningly expressive of a British nationalism which for the first time dominated continental politics. The disc shows those virtues of performance and recording which we are learning to associate with records of Danish origin: a cleanliness of delivery and of reproduction, a careful preparation of all participants and an avoidance of obvious exaggeration. The Wöldike conception is unhampered by the Anglo-American tradition of Handel which tends to discipline the high spirits of his majestic confessions; and chorus (singing in English) and orchestra are completely under the conductor's control. The *Coronation Anthem* (for George II) is a more polished expression of the same kind of pomp wherein British approval of God is brightly panoplied but always stalwart. Interesting, valuable and entertaining, in efficient engineering which allows full exposition of the dramatic music without insisting on spectacular technical prowess. — C. G. B.

**HAYDN:** *Music for Soprano and Orchestra: Aria pro Adventu, Aria di Lin-*

*dora, Aria di Errisena, Scena di Bernice, Le Parole del gran Principe di Russia*

Gertraud Hopf; Vienna Symphony Orch.; Meinhard von Zallinger, cond. Haydn Society 12-in. HSLP 2045. 11, 4, 6, 15 and 8 mins. \$5.95.

A pity this delectable anthology of music, maiden to recording, should have been injured a little by each of its participants. The voice is handsome, dark and unwieldy, the orchestra shallow in this recording, and the conductor casual. Anticipatory echo and interpolated flutter are both audible. The sum of faults would disqualify a record assured of duplication, but since these arias are not likely to be reissued soon in another version, the spell of the music may outweigh the mediocrity of the presentation. — C. G. B.

**HAYDN:** *Nocturnes No. 3, 5 and 6 for Ferdinand IV of Naples • Trio for Horn, Violin and Violoncello in E flat*

Vienna Chamber Orch.; Franz Litschauer, cond. (*Nocturnes*). Koch, Schneiderhan and Huebner (*Trio*). Haydn Society 12-in. HSLP 1044. 16, 10, 7 and 9 mins. \$5.95.

*Nocturnes* 1, 2, 4 and 7 appeared on HSLP 1023 more than a year ago. All are diverting divertimentos exhibiting their grace boldly. Written for the forgotten and unlikely lyra but transcribed by Haydn who knew their worth, they are among the most engaging of his lighter works. Litschauer, who conducts for both discs, is a little offhand in the new one, but the standard he fails to attain was high indeed in the first set. The newer engineering is crisper but not necessarily better than that of the earlier disc which bore the cheerful tenderness of the music and its understanding direction so warmly.

The *Trio* is a hurdle for the horn well cleared by Koch. It is not engrossing but is gently caressing and has been cleanly etched. It will be noted with approval by the discal public that current Haydn Society records announce their duration in minutes, a practice initiated and discontinued by London and resumed by Urania. — C. G. B.

**HAYDN:** *Quartets No. 44, in D Minor, Op. 42 • No. 82, in G, Op. 77, No. 1*  
Schneider Quartet. Haydn Society 12-in. HSQ 37. 15 and 21 mins. \$5.95.

*Quartets No. 83, in F, Op. 77, No. 2 • No. 84 (unfinished), in B flat, Op. 103*  
Schneider Quartet. Haydn Society 12-in. HSQ 38. 22 and 12 mins. \$5.95.

The two discs are available separately or in album HSQ-M as a unit not so arbitrary as it may appear, since the higher opus numbers are the last works in the form from the master's hand, and *Op. 42* shares with *Op. 103* the distinction of including one work only, instead of the customary six, three or two. It is hard to offer a confident opinion on the records because a cruel edge to the violins disappears in emission from a high fidelity apparatus only after painstaking effort and not with all apparatus. This difficulty is in the recording, not in the strings of Messrs. Schneider and Cohen. Music-lovers would be wise to assay the reproduction obtained from their own instruments before committing themselves to

the purchase of what are admirably-played and satisfactorily recorded discs only with the sharpness softened. But it would be a pity to forego No. 83 — a grand work in astonishing anticipation of Beethoven, and the only recording — because of an incompatibility of record and reproducer which may not be apparent. — C. G. B.

**HAYDN: *Symphony No. 94, in G (Surprise)* • *Symphony No. 103, in E flat (Drum Roll)***

Royal Philharmonic Orch.; Sir Thomas Beecham, cond. Columbia 12-in. ML 4453. 23 and 25 mins. \$5.45.

*Symphony No. 99, in E flat* • *Symphony No. 101, in D (Clock)*: Vienna National Opera Orch.; Hermann Scherchen, cond. Westminster 12-in. WL 5102. 27 and 28 mins. \$5.95.

Never has a conductor in direct recording competition been favored with such consistently superior engineering as Dr. Scherchen in his series of ten Haydn symphonies, a notable memoir to his fame and an imposing earnest of phonographic art. Every one of these symphonies has better sound than the best of its rivals and that is true of No. 103, wherein he is challenged for the first time by Sir Thomas Beecham, once Haydn's most valorous champion on records. A distinctive orchestral bloom — a mellow expansion of rotund sound — procured either by engineering perception or contributed by hall acoustics, is Scherchen's and not Beecham's. We must call the Columbia disc a good recording, and the Westminster consequently exceptional. Interpretively, Sir Thomas seems to have it, with a franker approach and faster tempos more appropriate than the careful subtleties of Dr. Scherchen. The Englishman's *Surprise*, unrecorded by Scherchen, with a delicate exactitude of line obtained by what must have been very painstaking orchestral preparation, is the writer's favorite of all the interpretations of this that he has heard.

No. 99, on the new Scherchen disc, particularly its immaculate, regretful adagio in lingering emanation, takes precedence over the two other versions, and the *Clock*, in a gracious projection supported by noble recording values, is the preference among seven. — C. G. B.

**HINDEMITH: *Kammermusik No. 4, Op. 36, No. 3***

Peter Rybar, violin; Winterthur Symphony Orch.; Henry Swoboda, cond.

*The Four Temperaments*: Franz Holletschek, piano; Vienna Symphony Orch.; Henry Swoboda, cond. Both on Westminster 12-in. WL 5074. 20 and 22 mins. \$5.95.

*Kammermusik No. 4* is an absolutely colossal piece, a concerto for violin and chamber orchestra composed in 1925, at a time when Hindemith's youthful enthusiasm was spurting its highest, his polyphonic textures were at their most rugged, and his rhythmic vitality expressed itself on the grandest scale. Even though this work is not too well recorded by Peter Rybar and the Winterthur Symphony Orchestra, it is authoritatively performed, and the value of

the music itself quite overrides what reservations one might have about its registration.

*The Four Temperaments*, on the other side, was composed in 1944. It is a kind of concerto for piano and strings in the form of a theme and four variations, each variation corresponding to one of the "temperaments" of medieval physiology — the Melancholic, the Sanguine, the Phlegmatic and the Choleric. Since the theme is quite complex, involving three contrasted ideas, its distortion in the mirrors of the four temperaments leads to widespread involvements brilliantly and ingeniously solved, although the score lacks some of the fire and urgency of the earlier concerto for violin. *The Four Temperaments* is well played. — A.F.

**HINDEMITH: *Trauermusik***  
See TURINA

**HONEGGER: *King David***

Janine Micheau (s), Janine Collard (a), Pierre Mullet (bne), Jean Hervé (speaker), Maurice Duruflé; (organ) Brasseur Chorus and French National Radio Orch.; the Composer, cond. Westminster two 12-in. WAL 204. 1 hr. 19 mins. \$11.90.

The union of musical and electronic talents here permits the ascription of the imperial word "definitive" to the edition. The conductor-composer is one able to master his own work, the intoning of the text (French) by the chosen soloists is acrid and telling; the enunciation of the Narrator is precise, and chorus and orchestra have been trained to a unified galvanic vigor. The billows of sound re-created by the engineers are oceanic but do not suffocate the boatswain's pipe in a stunning demonstration of Westminster prowess in the analysis and conquest of aural difficulties. The hall is again used as a creative factor in the registration of sound both massive and chiseled. Low-frequency background noise is an occasional fault and, at the very end, silence is too-abruptly imposed before the last chord has completed its proper reverberation.

Called by the composer a Symphonic Psalm in Three Parts, the music is as conveniently a cantata in its phonograph version as anything. The barbaric excitation of its alternate salutes to Stravinsky and obeisances to Bach is intensified for sound-enthusiasts by the quality of the sound they hear, which compels an increment of conscious admiration for its own sake.

The album is supplied with an introduction by the composer, annotations, text and English translation. — C. G. B.

**KODALY: *Quartet No. 2, Op. 10* —  
SZYMANOWSKI: *Quartet in C, Op. 37***

Walden Quartet. Lyrichord 12-in. 22. 15 and 13 mins. \$5.95.

Two modern quartets of great melodiousness, charm, refinement and ingenious color, splendidly played, reasonably well recorded. — A. F.

**MOZART and SHUBERT: *Songs***  
Erna Berger (s). RCA Victor 10-in. LM 133. 16 mins. \$4.67.

The five most familiar Mozart songs (Das

Veilchen, Abendempfindung, etc.) and Schubert's Heidenröslein, wafted in Miss Berger's ever-young voice with a facile address a little tainted by a persisting aura of complacency, largely redeemed by extreme clarity of enunciation. The bass of the piano needs generous fortification. — C. G. B.

**MOZART, W. A.: *Concerto for Flute and Harp, in C (K 299)* • *Concerto for Horn No. 1, in D (K 412)***

Karl Mess, flute; Dora Wagner, harp; Gerhard Görmer, horn; Stuttgart Ton-Studio Orch.; Gustav Lund, cond. Period 12-in. SPLP 544. 28 and 9 mins. \$5.95.

The aerial beguilement of K 299, here played with easygoing jubilation not comparable to the finished stylization of the LeRoy-Laskine-Beecham version on Victor 78's, has nevertheless the better exposition on the newer disc. This is the magic of good LP's, that unremarkable performances can outshine remarkable ones in obsolescent recordings, through the living pulsations of almost touchable reproduction. The fragmentary *Horn Concerto* completes the 33 rpm. recording of the four wonderful essays in that form (Nos. 2 and 4 on Columbia, No. 3 on WCFM). It is the smallest of the four wonders, well played and incisively engraved, with the "touchability" mentioned, after treble has been subdued. — C. G. B.

**MOZART, W. A.: *Concerto for Piano No. 16, in D (K 451)***

Jeanette Haien; National Gallery Orch.; Richard Bales, cond. WCFM 10-in. LP 101. 26 mins. \$4.75.

In a concerto glistening with aggressive grace, Mr. Bales shows again his instinct for unearthing and projecting first-class, but usually snubbed, decorative works by Mozart, and Miss Haien is pleasantly in accord with the bold *esprit* implicit in the score. Orchestral values are well presented in an objective recording which offers good piano bass but some bell at the top, the latter possibly a characteristic of the instrument used. — C. G. B.

**MOZART, W. A.: *Divertimentos for Oboes, Bassoons and Horns in Pairs: No. 8 in F (K 213), No. 12 in E flat (K 252), No. 13, in F (K 253), No. 14 in B flat (K 270)***

Karl Mayerhofer et al. Westminster 12-in. WL 5103. 10, 9, 12 and 14 mins. \$5.95.

Inventive and occasionally enticing, but essentially froth and so intended, the diversions are stated with a cool elegance at piquant variance with their popular nature. The trouble engineers may expect from horns is audible, but not excessively. — C. G. B.

**MOZART, W. A.: *Missa Brevis in F (K 192)* • *Dixit et Magnificat (K 193)***

Mozarteum Chorus and Orch., Salzburg; Schmeidel, cond. Lyrichord 12-in. LL 18. \$5.95.

Both of these are early works, composed in 1774 for the services in the private chapel of Mozart's inveterate enemy, Hieronymus Colloredo, Archbishop-Elector of Salzburg.

The *Mass* is in a relatively light, rococo style; even though it employs in its Credo the famous four-note plainsong melody which Mozart was later to make famous in the finale of the *Jupiter*, it belongs in spirit with the joyous, smallboned violin concertos rather than with such big religious works as the *Requiem* or the *Jupiter* itself. The *Dixit* and *Magnificat* are considerably bigger in outline and conception; they are works for a festival occasion and involve the pomp of trumpets and drums. Performance on this recording is good, recording fair. — A. F.

**MOZART: Quartet No. 18 in A (KV 464)**  
 ● **Quartet No. 25 in F (KV 590)**  
 Amadeus Quartet. Westminster 12-in. WL 5092. 33 (!) and 24 min.

These have the same spatially pervasive reproduction as the Viola Quintet mentioned elsewhere. They have also some arant violin bite which must be reduced if the essentially warm quality of these studied performances is to be appreciated. *Number 18*, running 33 minutes, is the longest side this writer has ever encountered. We have had several LP's of about eight minutes, and discophiles may well be puzzled as to what constitutes "Long Playing".—C. G. B.

**MOZART: Quintet (Viola) No. 5 in G Minor (K. 516)**  
 Amadeus String Quartet. Cecil Aronowitz, 2nd viola. Westminster. 12-in. WL 5086. 35 min.

The most personal utterance from the most objective composer, four facets of a tormented grief, the most performed, the most admired of the composer's chamber works. It is hard to see how the interpretation could be bettered, the Amadeus group bowing out the emotional intensity in tones of perfect euphony, even when some roughness would be tolerable. They are abetted by a curiously satisfactory room-tone which, without undue resonance, seems to expand the sound gently upward and around, making it pervasive and not penetrating, and in a large living room swelling to all its corners. — C. G. B.

**MOZART, W. A.: Serenade No. 9 in D Major (Posthorn) (K 320)**  
 L'Orchestre de la Suisse Romande; Peter Maag, cond. London 12-in. LLP 502. 39 mins. \$5.95.

Here is an outstanding performance. It is precise, clear, rhythmically very exact, emphasizing the dance beat, and highly dignified in its presentation. The work is quite properly conceived as an orchestral composition, yet it manages to maintain a chamber music transparency which allows an unusual and fortuitous glimpse into the inner architecture.

The recording is exceptionally good. There is a fine, mellow bass, but a slight exaggeration on the high end. This can be compensated by a roll-off on the high of 16 db or, whenever available, as much as 20 db. — K. L.

**MOZART, W. A.: Sinfonia Concertante for Violin, Viola and Orchestra, in E flat (K 364)**  
 Walter Barylli, violin; Paul Doktor,

viola. Vienna National Opera Orch.; Felix Prohaska, cond. Westminster 12-in. WL 5107. 31 mins. \$5.95.

The gorgeous perfection of exacerbated elegance in this summit of double concertos has been hitherto ignored in the lavish torrent of LP editions. Future issues will not proclaim its angry subtleties more eloquently than the interpreters here. Engineers, however, will be able to improve on a recording good but not for Westminster — a little shallow, a little shrill, short in orchestral definition and lacking the solid finality the performance has earned. — C. G. B.

**MOZART, W. A.: Sonatas for Piano Four Hands, in F (K 497) and in C (K 521)**  
 Joerg Demus, Paul Badura-Skoda. Westminster 12-in. WL 5082. 24 and 24 mins. \$5.95.

**SHUBERT: Grand Duo for Piano Four Hands in C, Op. 140**  
 Joerg Demus, Paul Badura-Skoda. Westminster 12-in. WL 5093. 33 mins. \$5.95.

These two records by an exceptionally unified team of musical intelligences are juxtaposed to vivify their extraordinary difference in style and texture. The good-tempered Mozart *Sonatas* are essentially and patently piano-music which would gain little by transcription. Schubert's *Grand Duo* almost certainly was not originally in this form: it insists throughout on its own nakedness without an orchestral garb already written or planned for it. There is a pleasant controversy about the work. Some musicologists claim that this is the lost "Gastein" Symphony (provided only that Schubert wrote a symphony at Gastein); and indeed it has been recorded in an orchestration under that perhaps apocryphal title by Vanguard and Colosseum. Westminster's issuance of the music as published is a valid service for students and music-lovers interested in making scholarly comparisons.

Both the Schubert and the Mozart project an agreeably mellow piano sound. — C. G. B.

**MOZART, W. A.: Symphony No. 24, in B flat (K 182) ● Divertimento No. 10, in F (K 247)**  
 Stuttgart Ton-Studio Orch. Hans Michael, cond for *Symphony*; Gustav Lund, cond for *Divertimento*. Period 12-in. SPLP 545. 9 and 34 mins. \$5.95.

At seventeen, Mozart was already instinctive with the sophistication which embellishes the slight frame of this little symphony with inimitably facile grace. The *Divertimento* is bigger, its interest less concentrated. The first is pleasantly played, the second rather prosaically, both in a satisfactory, unstriking, recording. — C. G. B.

**OFFENBACH: Orphée aux Enfers**  
 Vocal soloists, chorus and Paris Philharmonic Orch.; René Leibowitz, cond. Renaissance two 12-in. SX 204. 1 hr. 31 mins. \$11.90.

In perverting his own genius, in destroying gods for an endangered people who could not afford to dispense with them, Offenbach cheerfully contributed to the downfall

of a nation. The musical vaudeville of *Orpheus in Hell* depends on the vulgar device of anachronism for its humor, and the startling vigor of the music — lyrical and rowdy in alternation — with which he adorned the cheap cynicism of his subject, gave it an influence it is too bad it had, and maintains a vehement interest even now, decidedly stimulated by the participants in this recording, done with traditional bump-tiousness and energy. Everyone is thoroughly trained, and M. Leibowitz's break-neck drive is exhilarating. The clarity of the dialogue is notable and makes it very easy for those understanding French to follow it without the libretto furnished. In general, the recorded sound is impressive, both expansive and vibrant, with unforced high frequencies very pleasant to hear, but in places the chorus is weak or too far in the background and some of the solo voices are too near the microphone. C. G. B.

**POULENC: Trio for Trumpet, Trombone and Horn**  
 See SAINT-SAENS

**PROKOFIEV: Symphony No. 6 in E flat, Op. 111**  
 L'Orchestre de la Suisse Romande; Ernest Ansermet, cond. London 12-in. LLP 527. 40 mins. \$5.95.

Ernest Ansermet gives this work, which represents the first notable departure from Prokofiev's usual symphonic style, an unconventional and, in many respects, quite extraordinary reading. His approach is essentially a study in sound rather than in structure. Thus he achieves astonishing tonal effects; perhaps a somewhat mannered and stilted total impression; but because of the surprise element, a very stunning end result.

The recording is well realized. Both ends are slightly tipped up, with the result that the middle range sounds less forceful but still quite clean. A turnover of 500 and a roll-off of 16 db in the high and 2 db in the bass will restore excellent equilibrium. K. L.

**PURCELL: Dido and Aeneas**  
 Eleanor Houston (s), Adele Leigh (s), Henry Cummings (bne), and other solo voices; Stuart Chamber Orch. and Chorus; Jackson Gregory, cond. Period 12-in. SPLP 546. 54 mins. \$5.95.

The absurdities of a wretched dramatic confection, jeweled with a compelling music, are not so detractive from musical enjoyment when the work issues from a phonograph and becomes a cantata. The record is seductive. The young voices, little known here, are intelligently projected and generally warm in texture, and Miss Houston is decidedly excellent as Dido. The sound is clean and seems close. An unusual sensation of intimate participation is possible for the hearer who reproduces this at less than usual volume: the singers become personal and animate. — C. G. B.

**RACHMANINOFF: Concerto No. 3 in D Minor, Op. 30**  
 Vladimir Horowitz, piano; RCA Victor Orch.; Fritz Reiner, cond. RCA

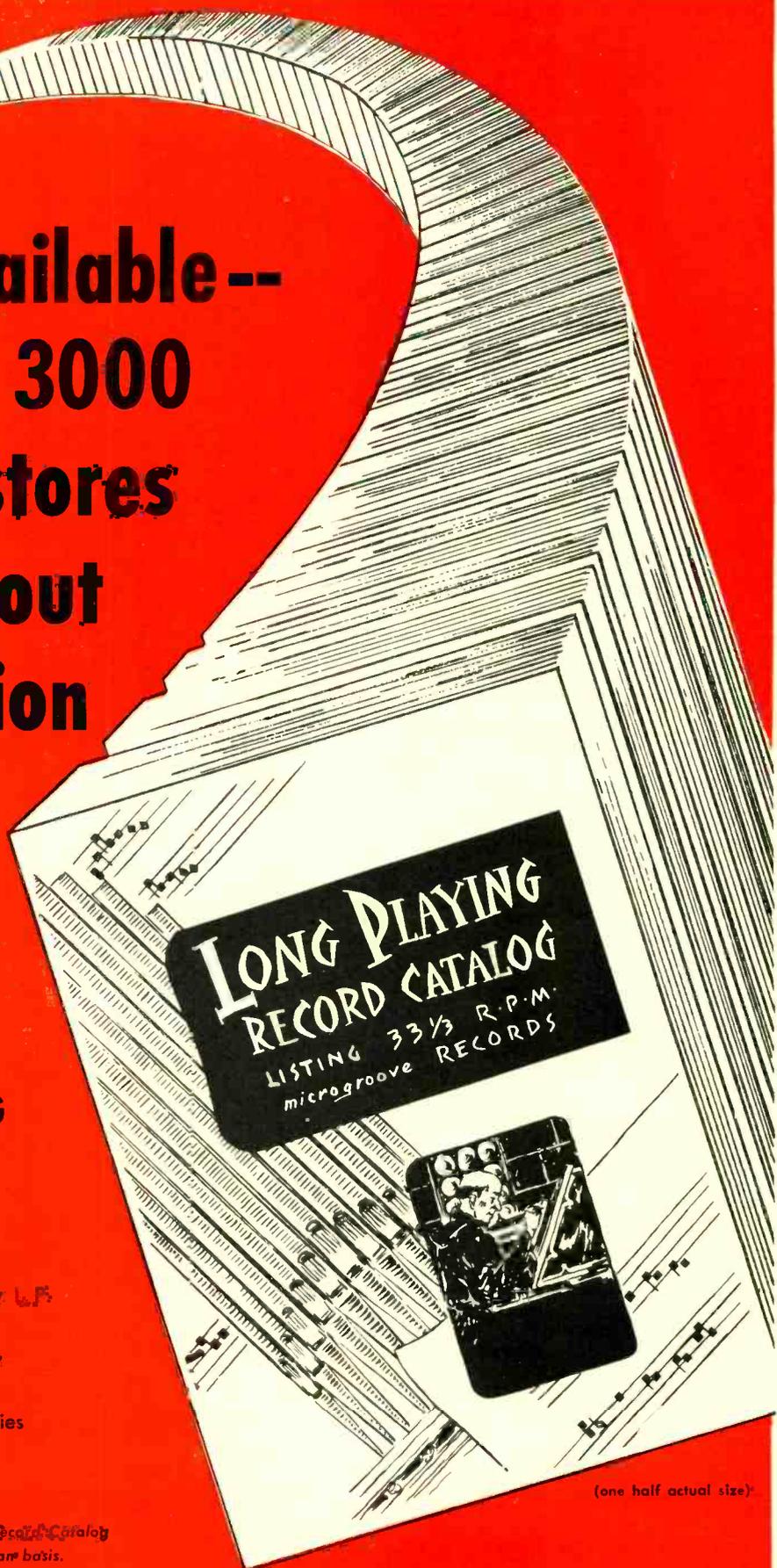
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Victor 12-in. LM 1178. 38 mins.  
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The logic of the collaboration is heartening. The basis of choice is not mere availability, but appropriateness. It is very hard to believe that any other pianist and conductor living can eclipse the appeal of the complementary coalescence of the recreative musical craft promulgated here with such smooth bounty in a slick, unshowy recording, masterly in proportion, and unadulterated in tonal essence save for some damping of piano resonance. — C. G. B.

**RAVEL: Bolero**  
See BERLIOZ

**RAVEL: Daphnis et Chloé, Suite No. 2** ●  
*La Valse, poème chorégraphique*  
INR Symphony Orch., Brussels; Franz André, cond. Capitol 10-in. L 8145. 22 mins. total.

Both sides of this Capitol-Telefunken record will be classed by the hi-fi enthusiast as demonstration and test pieces. The recording is exceptionally good: a tremendous dynamic range, highs are sharp and clear on the *La Valse* side — they tend to shriek in *Daphnis et Chloé* — and there are some tremendous tympani thumps in *La Valse*. The bass is almost too strong; there is a slight feeling that it has been achieved not by microphone placement but by boosting the low frequency tone control somewhere in the recording or transcribing process. Except for this low frequency dominance, the balance throughout the orchestra is good and there is a realistic sense of sound perspective, particularly in *Daphnis et Chloé*.

The music itself is interesting and pictorial; *La Valse* brings to mind almost a parody on all Viennese waltzes, played at times by a doubled Sousa band! Which gives us also the feeling that André may have been straining his orchestra . . . it is almost too terrific. — D. A.

**RAVEL: Quartet in F** ● *Sonata for Violin and Cello*  
Pascal Quartet, and members thereof.  
Concert Hall Society 12-in. CHS 1123. 22 and 12 mins. \$5.95.

The Quartet, composed in 1906, was Ravel's first work of chamber music, and the Sonata, which dates from 1927, was his last. This recording therefore provides an important contrast: the suave, polished, Fauré-like classicism of the early piece versus the caprice, the tough, open polyphony and the almost Bartokian rhythms of the late one. The duo-sonata is very little known, but it is nevertheless a masterpiece, and it is magnificently played here by Oscar Shumsky and Bernard Greenhouse. The Quartet is also beautifully done by the Pascal Quartet. Excellent recording. — A. F.

**RAWSTHORNE: Concerto No. 2 for Piano and Orchestra**  
Clifford Curzon, piano. London Symphony Orch.; Sir Malcolm Sargent, cond. London 10-in. LS 513. 26¾ mins. \$4.95.

Because Alan Rawsthorne got his start as a composer at a comparatively late age, one is prone to think of him as belonging to

the young generation of British contemporary composers. Actually he belongs to the generation of Constant Lambert. As one who has lived through the major changes of style which twentieth-century music has undergone in its evolution, he has absorbed a great deal from the masters of this century.

Rawsthorne's *Second Piano Concerto*, written in 1951 upon commission by the Arts Council of Great Britain for the national Festival, demonstrates well what he has absorbed. It shows him as at once an introspective composer and an outgoing personality. The musical thinking is clearly symphonic, with each new thematic idea developed in a sort of variation from previously introduced material. This work is a concerto only in the same sense as a Brahms piano concerto; perhaps it would be better described as a symphony with a piano solo obbligato.

Of the four movements, the short, slow third one is perhaps the key to the work. At any rate, it is the most interesting part — far more original and authentic than the partly Busoniesque first movement or the jazzy last one, which only too often reminds one of second-rate Gershwin.

As far as one can judge without thorough knowledge of the score, the performance seems to take into account the two basic strains of the music, which are lyrical and rhythmical. Mr. Curzon delivers himself of an apparently difficult task with brilliance and assurance; the orchestra defines the thematic material with great plasticity.

The recording has an excellent and well-defined middle, with a clear and true piano sound, but it suffers from a rumble in the bass and stridency in the high violins. — K.I.

**SAINT-SAENS: Septet for Strings, Trumpet and Piano** — **POULENC: Trio for Trumpet, Trombone and Horn**  
Harry Glanz, trumpet; Brooks Smith, piano; Philip Sklar, bass; Gordon Pullis, trombone; Arthur Berv, horn; Stradivari Records String Quartet. Stradivari 12-in. STR 605. 18 and 15 mins. \$5.95.

These two pieces of jolly French trivia mate well across nearly a half-century, but are of interest mostly for their unusual instrumentation. Recording is rather distant, subdued. — J.C.

**SCARLATTI, D.: Sonatas for Harpsichord, Vols. I and II**  
Fernando Valenti. Westminster 12-in. WL 5106. 46 mins. \$5.95.  
Westminster 12-in. WL 5116. 52 mins. \$5.95.

Nowhere may stunning keyboard virtuosity be more pertinently applied than to the infuriated sportiveness of Domenico Scarlatti's miniature Sonatas. Mr. Valenti has the virtuosity required, and gusto in quantity, and the twenty-four he has chosen to record advance principally a tumultuous and tricky exuberance. Tonally, the discs are dazzlers, in accordance with the present fashion of re-creating the harpsichord larger than life. No harm in that, if the reproductive volume is lowered to unorchestral proportion. The harpsichord used has an individuality of timbre very knowingly exploited. — C. G. B.

**SCHUBERT: Grand Duo for Piano Four Hands, in C, Op. 140**  
See MOZART

**SCHUBERT: Quartet No. 13, in A Minor, Op. 29**  
Vienna Konzerthaus Quartet. Westminster 12-in. WL 5115. 37 mins. \$5.95.

**Quartets No. 8, in B flat, Op. 168** ●  
**No 6 in D: Vienna Konzerthaus Quartet.** Westminster 12-in. WL 5110. 27 and 20 mins. \$5.95.

We know that the Schneider Quartet has been engaged by the Haydn Society for the huge project of a complete edition of Haydn's quartets. The Vienna Konzerthaus Quartet in an unobtrusive way seems to be aiming at the realization of a less daring program of smaller scope: the recording of that much of Schubert's chamber music susceptible to a quartet's participation. Already the Vienna players have taken part in the two *Quintets* and the *Octet*, and the three *Quartets* noticed here bring their total of Schubert in this form to five. The three compose an illuminating presentation of a stunning surge of genius. No. 6 has a frail and rather conventional appeal suggesting a gifted student or genteel minor master. No. 8, written a year later in the maturity of seventeen, sparkles with the bold inventions of an individual thinker. The famous *A Minor Quartet*, composed after ten more years (a third of this pathetic life) has ascended by its dark pinions to companionship with the greatest of Beethoven, Haydn and Mozart. The most familiar distinction of style of the Vienna Konzerthaus Quartet is the long pressure to extract the most and the most romantic juice. It is decidedly effective in Schubert where it seems particularly appropriate, but some music-lovers reject it. Indeed, there are two directly opposite camps: those who cannot stomach the group and those who prefer its Schubert to any other's. The writer is with the latter.

Recording characteristics are not quite the same for the two discs, but they are both generally well realized, with a good bloom to viola and cello, and teeth in the violins for the amplifier to unsharpen. — C. G. B.

**SCHUBERT: Die Winterreise**  
Victor Carne, tenor; Gerald Moore, piano. Westminster two 12-in. WL 5087-8. 1 hr. 9 mins. \$11.90

Mr. Carne is an intelligent tenor of ingratiating high baritone appeal. Mr. Moore is an accompanist of exceptional ability and probity. Westminster bows to no one in the technical aspects of recording. Plainly, the prospects of producing the definitive version of the most heart-rendingly beautiful cantata in music are favored in advance by the quality of these participants. Tenor and pianist have obviously studied, discussed and analyzed their complex and subtle interrelationship, and it is arrogant to believe that they are necessarily wrong on the occasions when one disagrees with their method. In truth, they have done a *Winterreise* of beauty and understanding, but the records are not successful to the degree

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**Music of Victor Herbert.** Andre Kostelanetz and his Orchestra. ML 4430.

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**Bowles: Concerto for Two Pianos, Winds and Percussion.** Arthur Gold and Robert Fizdale. Duo-pianos, with Daniel Saidenberg conducting. ML 2128.

**Hanson: Concerto in G Major for Piano and Orchestra, Op. 36.** Rudolf Firkusny, Piano, with the Eastman-Rochester Symphony Orchestra. Howard Hanson, Conductor · **Grieg: Holberg Suite, Op. 40.** Eastman-Rochester Symphony Orchestra, Howard Hanson, Conductor. ML 4403.

**Bizet: Carmen.** Complete Opera with Solange Michel, Raoul Jobin and others with Chorus and Orchestra of the Théâtre National de l'Opéra-Comique conducted by André Cluytens. Set SL-109.

**Rachmaninoff: Suites Nos. 1 and 2 for Two Pianos, Op. 5 and Op. 17.** Vitya Vronsky and Victor Babin, Duo-pianists. ML 4379.

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they should be. They have been victimized by the hall which, in enriching — warming and softening — voice and instrument, has blunted the emotional and dramatic core. It is impossible, hearing this overripe lushness of mere sound, not to be conscious of it; and this is a pity, during *Die Winterreise*. — C. G. B.

SCHUBERT: *Quartets No. 15, in G, Op. 161; No. 12 (Quartetsatz), in C Minor*  
Fine Arts Quartet. Mercury 12-in.  
MG 10104. 40 and 6 mins. \$4.85.

This is a technically good performance, in many details admirable, but entirely unexpressive of the profound inner emotion and beautiful horror of the supreme *G Major Quartet*. The fault seems to be mainly in the passive intonation, which ought to be aggressive and febrile. — C. G. B.

SCHUBERT: *Quintet in C, Op. 163*  
Benar Heifetz, 2nd violoncello, with  
Budapest Quartet. Columbia 12-in.  
ML 4437. 45 mins. \$5.45.

This is the fourth version, the third outstanding, of the longest and most ravishing music for a small ensemble. The technical values here are first-class and very similar in their bold proximity to those achieved by the engineers in the Vienna Konzerthaus recording for Westminster, without the soft bloom imposed on the latter by the room acoustics. The performance here is orthodox which the Vienna Konzerthaus certainly was not; the Budapesters bow a very rich sound directly, without the reluctance to dwell on a phrase that characterizes the Konzerthaus effort. These two versions are not compatible, but it is likely that more people will prefer the less startling Budapest narration, which is not unlike the clean and gracious work by the Hollywood Quartet for Capitol which, however, had less compelling acoustics. — C. G. B.

SCHUBERT: *Eight Transcriptions by Liszt and Tausig*  
Egon Petri, piano. Columbia 12-in.  
ML 4436. 37 mins. \$5.45.

These things were once very familiar, and the generous Liszt did much to acquire posthumous recognition for Schubert through the showy vehicle he used to carry their musical magic. Most of them — the Trout, Der Lindenbaum, Der Erlkönig, Liebesbotschaft, Gretchen am Spinnrade — have been recorded elsewhere as the songs they properly are; but for those who wish them pianistically bedizened, here they are in an average recording of a pianism surprisingly unenthusiastic. — C. G. B.

SCHUBERT: *Songs*  
See MOZART

SCHUMANN, R.: *Carnaval, Op. 9*  
Gyorgy Sandor, piano. Columbia  
12-in. ML 4452. 24 mins. \$5.45.

There is little I find to recommend in this perfunctory performance by Sandor. His hard-driven tone and unromantic approach make this the least satisfying of the five versions now available on LP.

The recorded sound of the piano is atrocious, clanging unmercifully in the treble,

and sounding soggy and wooden in the bass. My copy was also afflicted with some wavering.

With the memorable Rachmaninoff version scheduled for re-issue, it would seem advisable for lovers of this charming work to await its appearance. — J. F. I.

SHOSTAKOVICH: *Song of the Forests, Op. 81*

Petrov (t), Kilichevsky (bs); Combined orchestras and choruses of the USSR State Philharmonic and the Bolshoi Theatre; Eugene Mravinsky, cond. Vanguard 12-in. VRS 422. \$5.95.

Colosseum 12-in. CRLP 118. \$5.45. 33 mins. for both.

These apparently are recordings of the same performance of the work. Colosseum has several times managed to acquire and process Iron Curtain tapes. Vanguard is new in this territory, yet has produced by far the better record. Its engineers claim to have repitched thirteen different portions of the erratic Russian tape. Such technical virtuosity is to be commended, but it seems wasted on music like this. *Song of the Forests* is an oratorio on the subject of conservation and is on an artistic par with the average recruiting billboard. There is no trace here of the Shostakovich who wrote the *Fifth Symphony* or *Lady Macbeth of Mzensk* — not a single bourgeois-intellectual overtone, nor spark of originality. It's a little tragic. — J. C.

SHOSTAKOVICH: *Symphony No. 7 (Leningrad) Op. 60*

Buffalo Philharmonic Orch.; William Steinberg, cond. Allegro two 12-in.  
ALG 3041. 69 mins. \$11.90.

Shostakovich's *Seventh Symphony* was written during the German siege of Leningrad, of which it is purportedly a musical depiction. It is a large, unwieldy work incorporating most of the composer's bad features, such as bombast, lack of ability to handle large symphonic structures logically, and rough orchestration. Mr. Steinberg does as well with it as can possibly be expected, by giving it pace and emphasizing dramatic climaxes.

The recording was originally made late in 1945 and released on 78 rpm. Naturally, it lacks the latest advances in recording techniques — especially since it was made, in part at least, from an actual performance with audience present. Beyond this, the LP transfer cannot be called wholly successful. There are notable pitch changes, particularly in the last movement, which drops at times half a tone. There is also no diameter compensation. Consequently, the outside of the record is bright and clear, although the tone is hard and brittle but, towards the middle, unpleasant distortion of the highs and lows sets in, and the picture becomes blurred.

This record is best played with an 800 turnover and a 12 db roll-off on the highs. But it might well be worth the trouble to change equalization during the playing. When the tone arm moves towards the middle, less roll-off on the highs would somewhat alleviate the lack of clarity near the center. — K. L.

Continued on page 62

## MUSIC ON TAPE

*Continued from page 50*

ant. Overall — soothing but not defined." For the disc: "Highs much cleaner, truer timbre. Violins shimmer more. Bass about the same. Disc better, but neither good."

We listened to Tchaikovsky's 1812 Overture on A-V Tape and, at the beginning, were not at all pleased. Everything seemed weak and lost; a thumping bass obscured too much of the rest of the music. This is a dynamic piece, but the control engineer seemed to be afraid to let it out. We had more or less crossed off the tape when we noticed that the sound had improved considerably. It was a slow change, but the last half was better than the first, and on a par with the *Sinfonia Concertante*.

Dale Perry of Tape Industries sent us a reel which included excerpts from several in his regular catalogue. Therefore, we have to judge the average for his product against the average for A-V. The joint C.G.B.—C.F. verdict was: sound a bit better, music not as good. The orchestra under Kurt Woss, recorded by A-V and Remington, was much larger than the one used by Perry for his releases, which made a fair comparison difficult. But the sound was a little cleaner, better balanced, and more consistent in overall quality.

Tapes have not yet become so numerous that they can be judged and compared in a manner similar to LP record releases. That is one reason why, at the beginning of this piece, we said our opinion of the tapes was, in essence, "Maybe yes, maybe no". Furthermore, the product is not yet stabilized — nor is the market. The hi-fi fan's verdict is likely to be "Maybe no", whereas the seeker of background music will vote a strong yes.

Yet there is a market for hi-fi tapes. Interest in tapes is growing rapidly; more and more people have tape recorders capable of reproducing the best. As proof of interest, here are highly abbreviated extracts from a few of the many letters received as a result of our request in a previous issue of HIGH-FIDELITY for such comments. "One-hour reels at 7½ ips." P. K. — "I'm interested in pre-recorded tape selections mostly in the classical field." J. Y. — "7½ should be standard for home use. Would like pops and musicals as well as classical." W. H. B. — "I now have 7½ equipment but as soon as possible financially, it will be 15." A. E. W. — "Symphonic and classic jazz at 7½ ips. preferred." H. L. B. — "I'd prefer 10¼-in. reels at 15 ips. for best fidelity." W. P. B. — "Tape-of-the-month deal would be excellent provided the price of each recording comes out at least 20% cheaper than the cost of the same recording in a good LP record. I have the 7½ speed in mind." J. G. A. — "I am interested in either 7½ or 3¾ ips. double track tapes." A. F. L. — "I would be definitely interested if I could get quality at 7½ speed. I doubt that I could afford a 15 ips. subject too often." R. C. T. — "I would welcome a tape-of-the-month arrangement. A sufficient number of pre-recorded tapes should be planned in advance to encourage the purchaser to feel that a repertoire can actually be compiled of unusually good orchestrations, novelty features and choral numbers." F.J.L.

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advantage over LP's." H. H. L. — "I have read in your magazine of someone who is placing on the market, high fidelity tape recordings for home use. I have been hoping for just such development. I want to encourage this as much as I am able and I hope the venture will be a financial as well as technical success." F. J. F.

In conclusion: our feeling is that a good beginning has been made. There is still far to go. Companies now serving the market for pre-recorded tapes need and want suggestions from prospective and present users of their product. We at HIGH-FIDELITY will do all we can to keep readers posted, and we are anxious to be of whatever help we can to both users and manufacturers of tapes. As worthwhile tapes become available, we shall review them.

## RECORDS IN REVIEW

Continued from page 60

STRAUSS: *Don Juan*

See WAGNER

STRAUSS, JOHANN: Music of (*The Bat* and *The Gypsy Baron* overtures; *Artists' Life* and *Voices of Spring* waltzes)

Vienna Philharmonic Orch.; Clemens Krauss, cond. London 12-in. LLP 454. 8, 8, 8 and 6 mins. \$5.95.

STRAUSS, JOHANN and JOSEF: "New Year" Concert (Nine polkas and waltzes)

Vienna Philharmonic Orch.; Clemens Krauss, cond. London 12-in. LLP 484. 43 mins. \$5.95.

Krauss in Strauss is a sure and devoted hand, perhaps the ablest now recording. His easy but studied grace may be taken for granted: all we need to know is the quality of the engineering. In these two discs, the sound is of London's familiar Vienna excellence — muscular, percussive and impressive, with a high-frequency metal that needs stern correction. Good records; and illustrative of the editorial eccentricity so puzzling to discophiles, not least in the case of London, which determines how many minutes of music shall occupy how many feet of groove. Here we have identical genre and two miscellanies, but one disc sounds throughout 43 mins. and the other for 30 mins. Is the one excessive? Or is the other deficient? — C. G. B.

STRAUSS, JOHANN: *One Night in Venice (Eine Nacht in Venedig)*

Vocal soloists from the Vienna National Opera; Chorus of the Bregenz Festivals; Vienna Symphony Orch.; Anton Paulik, cond. Columbia two 12-in. SL 119. 1 hr. 16 mins. \$10.90.

Made-in-Vienna Strauss has hitherto been a responsibility of London, whose *Zigeunerbaron* and *Fledermaus* are not likely to be challenged. *One Night in Venice* is not musically equal to those works, nor does this Columbia album offer such imposing names for the principals. Nevertheless, this is a projection of experienced skills, wherein a tenor, Karl Friedrich, sounds like Tauber redivivus. The painstaking delineations of Clemens Krauss, who conducts Strauss for London, are not in Mr. Paulik's competence, but still his musicians bubble along in easy and agreeable fashion. A year ago, we should have thought the sound remarkable. Today it seems praiseworthy, but unremarkable, without apparent faults and without salient brilliance. — C. G. B.

STRAUSS, J.: *Der Zigeunerbaron* (Complete)

Alfred Poell (bne), Karl Dönch (b), Julius Patzak (t), Kurt Preger (t), Emmy Loose (s), Steffi Leverenz (a), August Jaresch (t), Rosette Anday (a),

Hilde Zadek (s), Franz Bierbach (bne). Chorus of the Vienna National Opera; Vienna Philharmonic Orch.; Clemens Krauss, cond. London two 12-in. LLP 418-9. 1 hr. 35 mins. \$11.90.

Last year the *Bat* and this year the *Gypsy Baron*; both are from Vienna via London Records which, in view of the superlative results, is obviously the route to follow for the best recorded demonstrations of the exalted tuneful absurdities of the great light Master. Strauss in Vienna is a vital element in the life of a now-emaciated city; he is a spiritual force whose frivolity dilutes the city's havoc. The entire cast of the present production exudes a carefree ease which is in reality the result of decades of polished stylizing. Dr. Krauss is a considerable man, not least imposing when guiding his people with sure and knowing finesse through the captivating intricacies of these operettas. The engineering of the *Gypsy Baron* excels the excellent work in the *Bat*, particularly in the choral *fortissimos*, handled without distortion, and in the unbroken masses of smooth, tapestried sound in the *finales*. Everything is luminous, and the balance of voices to the instruments is so nice that it is not even noticed. A definitive edition. — C. G. B.

STRAUSS, R.: *Symphonia Domestica*, Op. 53

Vienna Philharmonic Orch.; Clemens Krauss, cond. London 12-in. LLP 483. 42 mins. \$5.95.

As a seasoned and expert interpreter of the music of Richard Strauss, Clemens Krauss consolidates this rather unwieldy work into a convincing whole — partly because of careful attention to thematic phrasing, partly because Krauss understands how to combine symphonic clarity with true sentiment.

The engineering side of the record is good. There is fine balance all the way up from a sound and formidable bass to the gratifying highs. The combination of expert conducting and engineering has made the rather thick orchestration as transparent as possible, with the strings covering the rest of the orchestral material only upon rare occasions. — K. L.

STRAUSS, R.: *Till Eulenspiegel's Merry Pranks*, Op. 28 ● *Death and Transfiguration*, Op. 24

RCA Victor Orch.; Fritz Reiner, cond. RCA Victor 12-in. LM 1180. 14 and 23 mins. \$5.72.

From the beginning of LP this conductor has been favored with engineering of the best current quality. The early Columbians were excellent when new and are not to be despised now; Reiner's recent crop of Victors emits a singular elegance of pure sound hard to define or to illustrate, except by negatives. We receive an impression that this sound contains nothing extraneous to the orchestra, that it is uncontaminated. We hear nothing we identify as distortion; we find nothing requiring sharp discipline from a compensator. Everything seems rounded, and no matter what Dr. Reiner plays, the sound has a soft glossy finish, bespeaking his own skill, the suavity of the

orchestra and the mastery of the engineers. — The two tone-poems, bathed in this luster, have a new and persuasive allure. — C. G. B.

TCHAIKOVSKY: *Symphony No. 3 in D (Polish) Op. 29*

Homburg Symphony Orch.; Paul Schubert, cond. Regent 12-in. MG 5012. 45 mins. \$5.45.

Seeds of the later Tchaikovsky symphonies are strewn on every page of the diffuse but by no means dull score. The performance here is above all careful: there is an obvious dynamic potential not evoked by the conductor. Instrumental differentiation has been neatly realized in a recording generally well contrived, albeit tonally dry from the acoustics of the hall or studio. — C.G.B.

TCHAIKOVSKY: *The Tempest, Symphonic Fantasia, Op. 18 ● Hamlet, Overture-Fantasia, Op. 67a*

Stockholm Radio Orch.; Jacques Rachmilovich, cond. Mercury 12-in. MG 10112. 22 and 19 mins. \$4.85.

*Hamlet*, the stronger work, has its first LP while *The Tempest* has previously received the deference of several recording companies. Tchaikovsky's Shakespeare is unique in music. The translations he used must have excised everything but blood and lust from the English text. In these works he is, as Tolstoi was in his Shakespearean reflections, a thorough-going Slav. Caliban, Prospero and Miranda are in rather dull musical motion, but there is brassy Kremlin pomp illustrative of Hamlet's trials and a Caucasian melancholy, descriptive of Ophelia, more interesting perhaps because of the incongruity. The recordings are splendid, particularly of *Hamlet* wherein the drums and brass rock the loudspeaker. Mr. Rachmilovich's direction seems vigorous and appropriate to this reviewer who had never heard the music before. — C. G. B.

TURINA: *Scène Andalouse* — HINDEMITH: *Trauermusik* — HANDEL: *Passacaglia* — VILLA-LOBOS: *Duet for Violin and Viola*

Louis Persinger, violin and piano; Rolf Persinger, viola. Stradivari Records String Quartet and Chamber Orch. Stradivari 12-in. STR 608. 39 mins. \$5.95.

None of this music is of much consequence, but the Persinger father-son team give it all considerable life. The print received was off-center and bubbly. Recording, so-so. — J. C.

VILLA-LOBOS: *Duet for Violin and Viola*  
See TURINA

VILLA-LOBOS: *Sonata No. 3 for Violin and Piano*  
See DEBUSSY

VITTORIA: *The Masses: O Magnum Mysterium* and *O Quam Gloriosum Welch Chorale*; James B. Welch, dir. Allegro 12-in. ALG 3034. 16½ and 21½ mins. \$5.95.

The two *a cappella* masses are similar in

construction, but not necessarily in musical content. In the two corner movements, for example, *O Magnum Mysterium* has a Kyrie that is clear and joyous, and an *Angus Dei* that is touchingly mysterious; in the *O Quam Gloriosum* the procedure is reversed.

Performance is by and large clear, with occasional unsteadiness in the intonation, but not more than is usual with *acappella* groups. The best feature of the performance is that it tries to offer the music in exact focus and as a living piece rather than a scholarly academic exercise.

The recording is somewhat fuzzy but quite acceptable when equalized according to the NAB curve. Close to the center several wavers may be detected, especially in *O Magnum Mysterium*. — K. L.

**WAGNER: *Die Meistersinger von Nürnberg* (Complete Opera)**

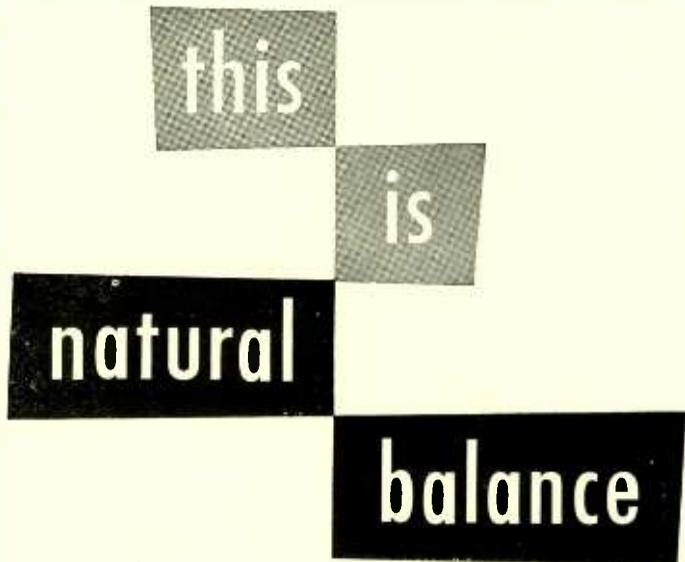
Hilde Gueden (s), Elsie Schurhoff (ms), Gunther Treptow (t), Anton Dermota (t), Paul Schoeffler (bs), Otto Edelmann (bs), Karl Dönch (bs), Alfred Poell (bne), and other vocal soloists; Vienna National Opera Chorus and Vienna Philharmonic Orch.; Hans Knappertsbusch, cond. London six 12-in. LLPA 9. 4 hrs. 23 mins. \$35.70.

The third complete *Meistersinger* to be recorded is the best. All three have virtues, but the Urania edition was ill-balanced and the Columbia lacked orchestral detail while proffering an off-form Walther in a recording of a public performance which, like all public performances on records, produced special difficulties. The singing in the London edition is consistently good, with the David of Dermota particularly superior. Gueden has not the pure beauty of voice demonstrated by Schwarzkopf for Columbia, but her characterization of Eva is gracious and subtle. As Sachs, Schoeffler is what we expect of him, and Dönch makes Beckmesser nearly credible. Knappertsbusch's direction is less eloquently lyrical than Karajan's for Columbia, but its measured statement is effective and earnest. The outstanding superiority, however, is in the sound as such, which is good average London here, with no striking deficiencies, agreeable balance and fine orchestral delineation.

The second act was issued a year ago: the first and third acts, utilizing the same talents and very nearly the same recording characteristics, may be purchased separately as LLP 478-9 (Act I) and LLP 480-2 (Act III). The original second act was stretched in the editing to cover four sides, which means that the compounded complete work occupies fourteen sides instead of the twelve utilized for the new entirety, thus penalizing those music-lovers who originally had faith in London, to the extent of two extra sides and nearly six extra dollars. — C. G. B.

**WAGNER: *Parsifal* (Complete Opera)**  
Martha Modle (ms), Wolfgang Windgassen (t), George London (bs), Ludwig Weber (bne), Hermann Uhde (bs), Chorus and Orch. of the Bayreuth Festival, 1951; Hans Knappertsbusch, cond. London six 12-in. LLPA 10. 4 hrs. 29 mins. \$35.70.

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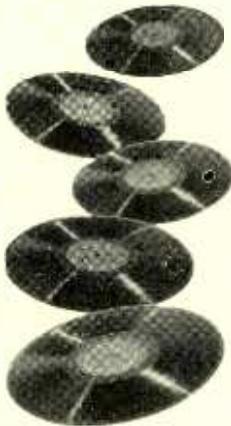


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concentration of all its seductive apparatus to a distressing, pompous melodrama, acquires a lurid, fascinating, unhealthy and rather obscene glow in its mock marriage to a devotion the composer never betrayed except under the spell of his own wondrous and repugnant music. The Bayreuth realization makes the long-winded and pungent sacrilege an apprehensive but marvelous musico-dramatic experience. In no other performance that the writer can recall have the presumptuous garrulities of Gurnemanz, Amfortas and Klingsor seemed so significant (temporarily) as in the beautiful expression given to them by Messrs. Weber, London and Uhde. The choruses are exalted, and the Knappertsbusch leadership extorts a deeply-glowing interweft of alluringly insinuating, sensual and sensuous sounds. The Windgassen Parsifal is adequate and, if our Kundry experiences vocal difficulty in more than one place, she sounds fearsomely possessed in an unwholesomely convincing way. We are justified in saying that this is a rarely formidable performance, and the unhappy pageantry is easily the most successful engineering of a Bayreuth effort that we have. The discs were made in public performance, and show some of the usual disadvantages of the method — coughs, falling objects and miscellaneous unwanted sounds — but these are less obtrusive here than often, while the other hazards confronting a difficult kind of recording have been rather remarkably circumvented. Balance is very good, both of the interrelationship of orchestra, chorus and soloists, and in the proportions of the orchestra itself. In the aromatic tumbling surf of sound, detail is well if not surpassingly preserved, difficult muted strings are registered with smoothness, and timbre of the brass is more than satisfactory. Furthermore, the curve used by the London engineers is propitious for reproduction with a minimum of difficulty at the amplifier's controls. — C. G. B.

**WAGNER: *Götterdämmerung; Siegfried's Rhine Journey***

**STRAUSS: *Don Juan***  
NBC Orch.; Arturo Toscanini, cond.  
Both on RCA Victor 12-in. LM 1157.  
11 and 18 min.

The greatest Wagnerian conductor living verifies the distinction in a *Rhine Journey* in which the dark intensity of mood is borne by all the orchestral choirs with astounding and distinct precision. Toscanini seems to be the only man who can achieve both without reciprocal injury or injury to the whole. The Strauss, too, is excellent in a vividly symmetrical but unchastened outpouring of rich sound which needs more bass reinforcement and less treble diminution than most records. — C. G. B.

**WAGNER: *Lohengrin: Love Duet • Tannhäuser: Introduction to Act II and Dich Teure Halle • Wesendonck Poems***

Tiana Lemnitz, soprano, (and Franz Völker in the *Lohengrin*). Orch. of Radio Berlin; Arthur Rother cond., (except in the *Poems* where Michael Raucheisen is at the piano.) Urania 12-in. 7019. 39 min. (all)

Here is evidence that the Lemnitz voice is recovering some of its glory. It shows a little strain at the top, but compelling beauty elsewhere. The ageless Völker is still just about as good a German tenor as we know and the Lohengrin Duet here is superior to the Traubel-Baum-Rodzinsky version on Columbia ML 4055 which is pretty good. The *Wesendonck Poems* in the rich Lemnitz delivery are not helped by the tired accompaniments provided by Raucheisen; but *Dich teure Halle*, despite a little vocal unsteadiness, is electrifying. The engineering skill which produced this disc is of the first order. — C. G. B.

## MISCELLANY

***Songs of the Auvergne • Songs at School***  
Madeleine Grey, soprano. **Orchestral accompaniment in the first; flute and piano in the second.** Columbia 12-in. ML 4459. 24 and 15 mins. \$5.45.

The *Songs of the Auvergne*, in Madeleine Grey's vital, ecstatic, unchallengeable illustration, were a Columbia 78 rpm. classic. In transfer to LP, improvement is to be noticed in every direction — better bass, brighter treble, warmer tonality. The charming folk songs assembled as *Songs at School* have not the same magisterial pre-eminence in interpretation, but are extremely affecting. — Owners of Miss Susan Reed's earnest struggle with the *Songs of the Auvergne*, also on Columbia, may now melt it. — C. G. B.

## FRENCH ORGAN MUSIC

**Catharine Crozier, Organ. Kendall**  
12-in. LP 2553. 19½ and 17 mins.

An interesting group of modern organ compositions excellently played by the Eastman School of Music's Catharine Crozier. Particularly notable is the variety of tonal effects required by the music and accomplished by the musician.

Recording is outstanding; dynamic range exceptional. Surfaces unusually quiet. Compensation control settings of 300 and -12 db should give good results.

Selections include: Jean Langlais, *Hymne d'actions de grâces "Te Deum"*; Marcel Dupré, *Variations sur un Noël*; Paul de Maleingreau, *Le Tumulte au Prétoire*; Olivier Messiaen, *Les Bergers* and *Le Banquet Céleste*; Jehan Alain, *Litanies*. — C. F.

**FUNT, ALLEN: *The Candid Microphone***, Vols. 2 and 3. Columbia two 12-in. ML 4449 and 4450. \$5.45 each.

Allen Funt's famous radio program has brought many a laugh into millions of homes. Having some of the best of The Candid Microphone series on records has the advantage of enabling us to repeat those which we think are the funniest. We doubt that anyone will find all of these situations humorous. That, as a matter of fact, is part of the fun: play one or more sides to a group of people; watch and see which situations are funny to which people. — Recording is good . . . considerably better than many of the original AM broadcasts! — There are a total of 22 selections on the two discs. — C. F.

**DON COSSACKS ON PARADE**  
Serge Jaroff, cond. Columbia 12-in. ML 4473. 14½ and 17 mins. \$5.45.

An excellent recording of the likeable Don Cossacks — a group so widely traveled that almost everyone will have heard one or more of the selections on this record presented in his local movie theater or high school auditorium. Columbia has done a commendable job in catching the spirit and the sound of the singers; as we listened to the record, we seemed to be right back in our Mahaiwe Theater, echo and all.

The record includes: Green Grass, Kalinka, In the Don Valley, Dark Eyes, Two Guitars, Along the St. Petersburg Road, Old Waltz, Selection from Gretchaninov Songs, Scenes from "Life of the Czar". — C. F.

## CORRECTIONS TO LIST OF RECORD COS.

In HIGH-FIDELITY No. 3, we published a list of manufacturers of LP records. Since then we have received a number of corrections and comments . . .

*American Music Records*, 1637 N. Ashland Ave., Chicago 22, Ill.—Traditional jazz.

*Arizona Recording Productions*, 834 North Seventh Avenue, Phoenix, Ariz. — Producers of *Natay, Navajo Singer*, mentioned in this issue in the column "Hither and Yon: Musically". The company advises us: "These same eight chants are available at 78 rpm., all eight in one album. The records are available in some music stores. Cost of the LP is about \$4.20; of the 78 rpm. album, about \$5.75. As our distribution is not complete, records may be purchased direct from us where dealers do not have them in stock. We have to add postage charges."

*Circle Records* writes: "We note that Circle is listed for jazz and Dixieland; perhaps you would add 'and composers workshop' — classical music with the accent on modern." A recent Circle release, by Henry Cowell, is reviewed in this issue.

*Dana Music Co.* has a new address: 344 North Ave., New Rochelle, N. Y.

*Good Time Jazz Record Co., Inc.* has a new address: 8481 Melrose Place, Los Angeles 46, Calif. They write: "We specialize in New Orleans jazz, ragtime, Dixieland and blues. The Firehouse Five Plus Two are our leading artists. We are not in the reissue field."

*Paramount*, 1637 N. Ashland Ave., Chicago 22, Ill. — Jazz classics, original and reissued performance by principal jazzmen.

*SPA Records, Inc.*, 422 Broadway, Saratoga Springs, N. Y. is a new company in the LP field. A few releases have been advertised but none has been received for review so far. Further information in the next issue of HIGH-FIDELITY.

*Session at Squirrel's*, 1637 N. Ashland Ave., Chicago 22, Ill. — Selected performances from the annual Bix festival.

*The Turntable*, P. O. Box 622, Hollywood 28, Calif., writes: "In the interest of accuracy — we would like to point out that we do not reissue swing records. Rather, we record our own material and release it for the benefit, mostly, of jazz collectors. We feature Dixieland style but have recorded certain other things. For example, four guitar solos by George Van Eps, one of the great guitarists extant. If we ever put this out on LP we would like to have your opinion."

# Designs for a Corner Enclosure

By HOWARD SOUTHER

A MAN once said about art "Away with your easels and chisels, your oils and chips, for these are hypocritical rubbish! Show me only the finished picture or the completed form."

True enough, perhaps — for indeed it is the finished picture which is important. Nevertheless, without chisels and chips, there could be no completed form . . . no art.

So it is with the art of reproducing sound through loudspeaker systems. The genesis of the art product is as important as the product itself. For it is only by understanding and using the processes of the art as tools that we can engage properly in synthesizing the miracle of high fidelity sound.

We choose the word "synthesizing" purposely; it is not hard to achieve fidelity over part of the audible spectrum, but the synthesis of all frequencies into *high* fidelity is another matter altogether. Particularly, it is difficult to balance the low frequencies, the bass notes of an orchestra, with easy-to-reproduce middle and high frequencies. Since the purpose of this article is to delve into this problem and to offer practical solutions thereto, we are forced to concern ourselves in what follows with intricate and, at times, seemingly trivial techniques to achieve a basis of appreciation.

It would seem first that we should justify the importance of bass tones themselves. By bass tones, we mean those frequencies comprising the first three octaves, from 16 to 130 cycles. To bring out their importance, we must expand our field somewhat and consider the entire phenomenon of musical listening.

## The Phenomenon of Musical Listening

We shall brook no argument with the artist who disclaims the following dissection of musical composition, nor will we agree wholly with the engineer who may support us

in this objective and over-simplified analysis. After all, we are dealing with that which is purely creative and subjective. But it follows that we cannot exclude a relationship, and therefore we may be permitted the premises below:

RANGE: The mind, through the ear, delights in the stimulus generated by frequencies which are mathematically

*Without a loudspeaker, we would have no sound. Given a good speaker, the difference between good and poor sound depends very largely on the cabinet or enclosure in which the speaker is mounted. One of the most widely used enclosures in high fidelity systems is the "folded corner horn" design which is discussed in this article.*

related, *i.e.*, music as opposed to noise. Noise is, in part, sound of random frequencies containing many odd-order harmonics. As the range of musical sounds increases, or covers a greater number of octaves, the sensations excited by the multiple combinations cause added pleasure. It follows that the ultimate in range causes the largest measure of auditory satisfaction.

The upper octaves are attained today in both commercial and custom built systems with relative ease. The first three octaves up to and including 130 cycles are not so easily attained. These octaves have only recently become partially available in commercial sets; the very smoothest reproduction in these important octaves can be attained actually only by a custom built enclosure. It may be inferred from the foregoing that the conventional commercial speaker in the usual enclosure with which most of us are familiar, completely and totally misses all but the fringe of the lower octaves in the spectrum.

VOLUME: The wide range musical sensations to which we

have just referred gain in intensity and also in value as an emotional stimulus as the loudness is increased. Because these paragraphs deal with the importance of bass, it is proper that we should emphasize at this time that over 40% of the energy content in comprehensive orchestral passages lies in the first three octaves. This fact may serve to explain why it is that the staccato impact of bass tones from drums and tom-toms serve to excite even savages into a state of emotion. This example points up the importance of the power and stimulus to be derived from the bass energy in the lower portion of the musical spectrum.

**DYNAMICS:** Now let us consider the further effect of wide-range musical sounds, particularly the bass, whose loudness is increased through a succession of pre-climaxes, until a strong emotional impact is derived from crescendo with full bass complement followed by a sudden cessation to noiseless silence. This type of musical performance may be said to have a "breathtaking" character, and is frequently found in music. In cases such as these, the arrangement of the music has been carefully calculated by the composer to follow a pattern: The gradual increase in physiological tension in the brain through the ear, the extreme frequency range which then permits the required variety, followed by the dynamic range which allows the buildup to crescendo, finally the sudden contrasting relaxation and transition into absolute quiet . . . it is not hard to appreciate that music reproduction without adequate range — including bass response — can be a totally unsatisfying thing and of very small value.

**CONCLUSION:** In achieving our goal of the complete illusion of reality, *range* is of the utmost importance; it is required that we attempt to reproduce *all* the frequencies below 130 cycles. A further requirement of paramount importance is to reproduce this bass range with the original *volume*. A final necessity is to have the loudspeaker handle, in conjunction with the complementary equipment in the system, not only the soft passages with complete fidelity and clarity, but also the *fortissimo* passages. This virtue we might term the dynamic "rangeability" of the speaker.

Until recently, sufficient attention has not been paid to these requirements of good listening; it is our purpose in the balance of this writing to disclose what can be done, and perhaps to point the way to the complete accomplishment of adequate bass.

### The Accomplishment of Better Bass

If we were simply to suspend a loudspeaker in the air and apply a series of low frequency tones to the diaphragm, we would find that a 15-in. unit would begin to lose in volume level down from about 800 cycles (or the sixth octave) at a constantly accelerating rate. Therefore, the operation of a speaker cannot be discussed without consideration of the enclosure in which it is to be placed. This enclosure, whatever form it may take, acts as an acoustic transformer; it couples the region of intense air pressure in the area of the cone to the very low "impedance" of the surrounding air in the room in which the music

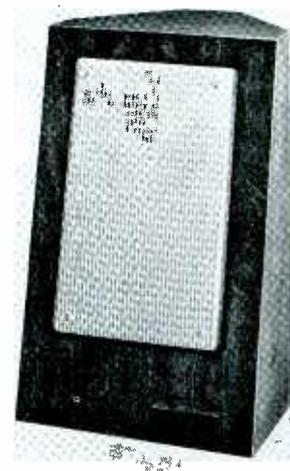
is being reproduced. The effectiveness with which this coupling is accomplished determines just how extended and how efficient the bass range of the speaker will be.

For instance, an 8 cu. ft. box with a 15-in. speaker reproduces fairly evenly down to 120 cycles, where it falls off in its response to about 80 cycles, or just a little bit above the second octave. From then on, radiation practically ceases.<sup>1</sup> The ear, however, is an unusually sensitive device and will disclose some signal below this second octave region, but of such low level, or attenuated to such a degree, as to be practically unusable. Another phenomenon which we observe is that, as the frequency continues to go down, instead of hearing a true low frequency fundamental tone, we hear only the second harmonic of the tone. This is a form of distortion which is to be avoided if at all possible.

Now, a tone in the middle of the second octave has a wavelength of about 320 ins. In order to reproduce this tone properly, the low frequency speaker should be coupled to the air in the room through a horn whose mouth is one-quarter the size of this wavelength, or 80 inches!

Obviously, such dimensions preclude use of a straight horn in the living room; certainly a device of this size would have difficulty in finding a suitable spot in even the most sumptuous living quarters. But there are ways of circumventing this basic requirement of good bass reproduction. The corner of the room may be utilized

*This is a midget-size corner horn which utilizes an 8-in. speaker. It stands only 24 ins. high, has a sloping front panel, and requires about 1½ sq. ft. of floor space. The walls of the room are used as an extension of the speaker horn.*



as an extension of a horn whose mouth can be concealed in a small furniture cabinet of pleasing proportions. Four such cabinets are described in this article. The ability to reproduce the extreme bass is approximately the same for each insofar as concerns range. A virtue of the larger units is the refinement possible in design to effect fewer discontinuities in the flare of the horn. A concomitant advantage lies in the ability of the larger enclosure to house a larger low frequency speaker, thus permitting a more efficient, as well as a smoother, system. This efficiency improves reproduction of the dynamic range which

<sup>1</sup>For further material on this subject, see the article in this issue by G. A. Briggs.

we treated earlier, and the larger magnets used in bigger speakers make possible the increased volume which is required for the more complete illusion.

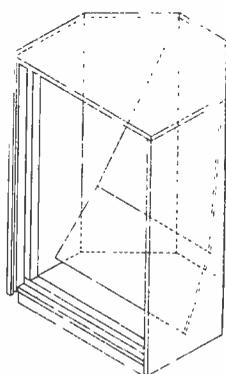
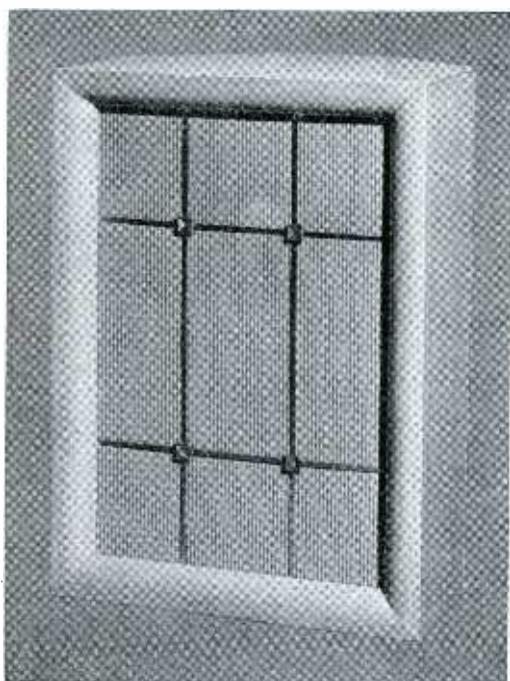
For those music-lovers and high fidelity enthusiasts who find it possible to engage in some construction and building in, an alternative method of designing the necessary horn for better reproduction is suggested in several illustrations. With the larger horn, it is possible to increase the bass range over the smaller corner horn enclosures. Through this means, an extension of range well into the first octave, down to 16 cycles, is possible. These larger horns are patterned after the folded horns found behind theater screens and form an almost ideal enclosure. So far, the theater horns deliver the smoothest, most distortion-free response that the art has been able to produce.<sup>2</sup>

## Considerations in Reproducing Complete Bass

We have previously stated that the complete illusion of reality requires that the original level of the music be reproduced. For an 80-piece orchestra, this offers some complication in the smaller living room, and in particular for those living rooms which are in apartment houses.<sup>3</sup> The necessity for reducing the maximum level becomes apparent. This dictates, then, that we consider a biological requirement of the human ear. As the intensity of a wide range source of sound is decreased, we find that the sensitivity of the ear at the extremes of the spectrum begins to fall off quite rapidly. Consequently, if the intensity

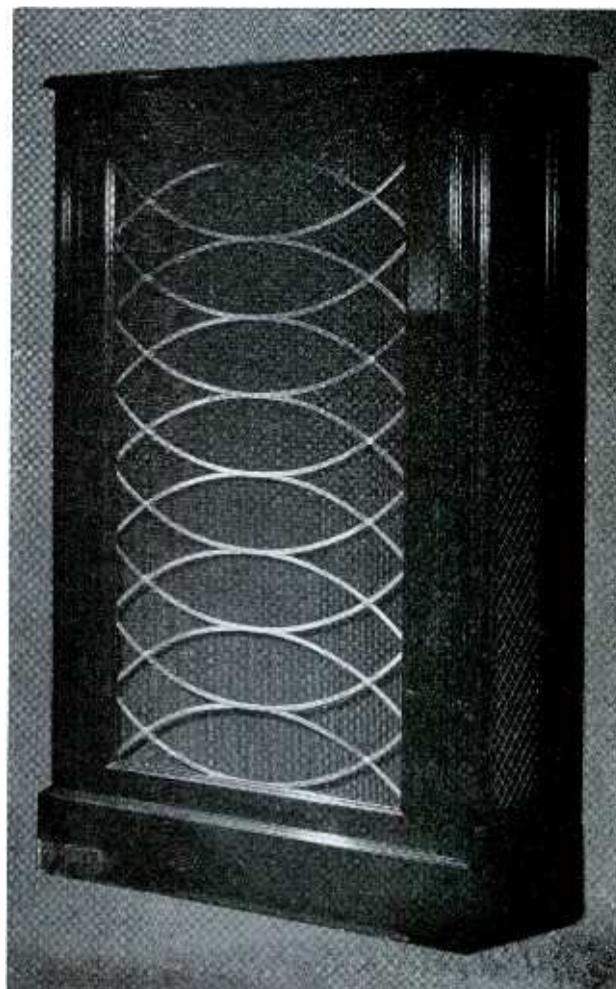
<sup>2</sup>However, the sound fed into most theaters seldom approaches the frequency range or fidelity characteristics even of average LP records. — Editor.

<sup>3</sup>The author's tendency to understatement is apparent here! — Editor.

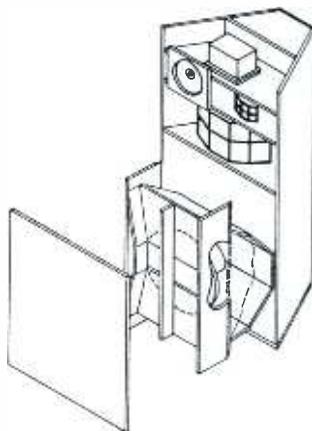


*At the left is pictured a typical, medium size corner enclosure. It is intended for use either with a single speaker, preferably of the coaxial type, or with two speakers, one of which is a tweeter. The sketch gives an idea of internal construction.*

*The cabinet above is available commercially for use with 12-in. speakers and stands 30 ins. high. An identical design stands 37 ins. high and is for use with 15-in. speakers.*



*This is one of the largest corner designs. It stands 5 ft. high and utilizes 5 speakers. Note that, unlike the other corner designs illustrated, the low frequencies do not radiate directly into the room. Sound from it is forced through a long, "horn" path.*



level of a large orchestra is reduced to the point where it may be heard comfortably in a living room, we find that the music sounds rather thin and attains a pinched or squeezed effect. This is occasioned by the apparent loss of the high end, and extreme attenuation of the bass register. To restore the semblance of reality lost by decreasing the volume, the bass must be reinforced. This may be done to a degree in the amplifier which forms part of the reproducing system. The amplifier, however, can do only part of the job. It is necessary that the speaker be able to translate the additional electrical energy supplied by the amplifier into audible bass response.

In recognition of this characteristic of the ear, Paul Klipsch, the noted acoustics engineer, introduced a special cavity behind the driver cone. In conjunction with the compliance of the cone material itself, this permits a decided reinforcement of the entire bass range, thus helping to restore the feeling of reality lost by the insensitivity of the ear at the lower levels of operation. This same principle of enclosing the back of the driver cone is applicable to folded horn systems of the non-corner type, provided that special drivers, or speakers, are employed. These drivers are designated as "Klipsch" type units, and two manufacturers produce such drivers.<sup>4</sup>

Through these means, a very practical horn-loaded bass reproducing system for the home can be designed.

### Application

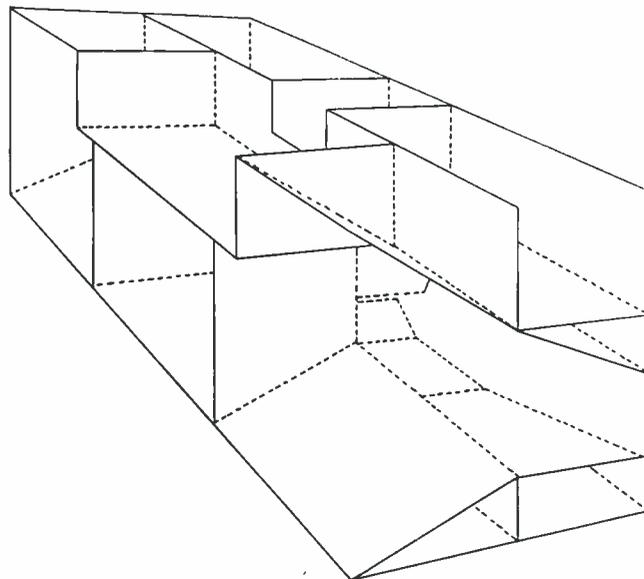
The vast majority of individuals are not able, for one reason or another, to alter the architectural design of their living room to accommodate a wide range, high fidel-

ity loudspeaker system. In this case, their choice for the ultimate in bass reproduction is limited to corner designs. The critical listener will observe the superiority in range and cleanliness over the conventional and rather boomy bass-reflex type of enclosure. The complete absence of artificiality is apparent at the first listening.

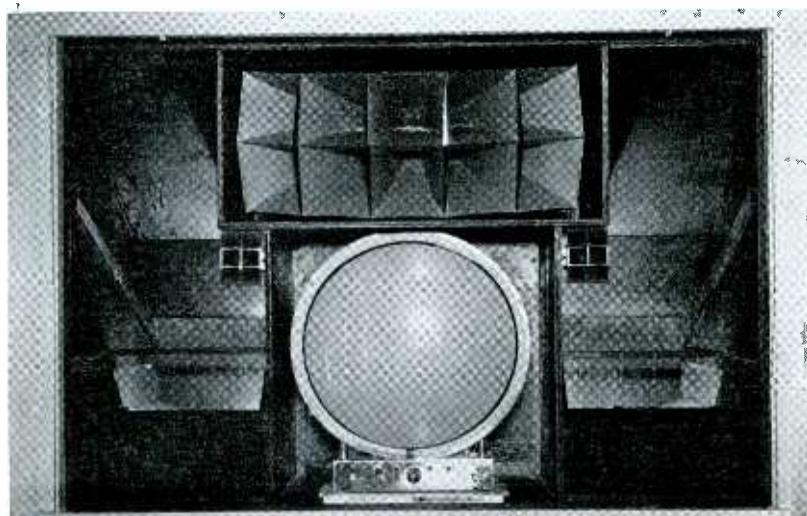
For the discriminating listener who has the means to alter his listening room, drawings are available which show the design and construction of the ideal theater-type horn system mentioned here and elaborated upon in a previous issue of HIGH-FIDELITY.

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EDITOR'S NOTE: Complete working drawings for the designs shown on these pages may be obtained by writing the author at Electro-Voice, Inc., Buchanan, Mich.



*At the right is a sketch of the internal construction of the theater-type horn illustrated below.*



*This loudspeaker system was described in detail in HIGH-FIDELITY No. 4. It is shown again in this article because it represents close to if not the ultimate in sound reproduction, and because it utilizes the Klipsch principles normally applied to corner horns of the type illustrated on the preceding pages.*

# ROOM ACOUSTICS

By G. A. BRIGGS

EDITOR'S PROLOGUE: In this article of his series, Mr. Briggs undertakes to discuss one of the most complex problems of sound reproduction: room acoustics. In the pages allotted to him, it is impossible to do more than to cover a few basic principles and to make a few general suggestions.

Readers should remember that, in the home, once the sound leaves the loudspeaker, it is diffused throughout the room. It is then reflected by some surfaces, such as plaster and wood, and absorbed by others, such as rugs and drapes. To make matters complicated, everything is different all at once! The degree of absorption, for instance, depends not only on the material but also on the frequency or pitch of the sound. Thus, an Axminster rug absorbs six times as much of the loudness of the highest note on the piano as it does of middle C. Similarly, low frequency sounds spread out from the loudspeaker in all directions, whereas the high frequencies travel almost in a straight line. This is the reason, by the way, for the flared horns on tweeters (to spread out the sound as much as possible), and for the requirement that tweeters be aimed at the listening area.

We might be able to paint a word picture of the relative path of sound which arrives at our ears after it has been emitted by the loudspeaker, then bounced back and forth from wall to ceiling to floor and back to wall, meanwhile being absorbed in varying amounts by drapes, chairs, and the like — but Mr. Briggs does it more clearly with a few well-chosen oscillograms. Suffice it to say here that the sound eventually gets tired of bouncing around and is attenuated until it has but 1/1,000th of its original loudness. We mention this specific reduction to 1/1,000th — or a drop of 60 decibels — because acousticians have decided that the length of time it takes for a given sound to die away to that extent in a room is the reverberation time of the room for a specified frequency. Reverberation time varies (of course!) with frequency, as shown in some of Mr. Briggs' charts. Incidentally — if frequency is not specified in connection with reverberation time, the frequency is assumed to be 512 cycles per second (C above middle C).

Ideal reverberation time depends on several factors, including type of sound and, most important, the size of the room. Knudsen and Harris<sup>1</sup> show that optimum reverberation time, in a room of 10,000 cu. ft. (for example, 30 by 42 ft., with an 8-ft. ceiling), ranges from 0.7 sec. for speech to 1.35 secs. for organ music. For average music, the range is from 1.2 secs. in a room of 10,000 cu. ft. to 1.7 secs. for an auditorium with a size of 1,000,000 cu. ft. Too long a reverberation time causes sound blur, if we may express it that way, because a second sound will reach the listener before the first has had a chance to die away. Too short a time results in a dead sounding room. Generally speaking, a reverberation time of 1.0 sec. or slightly less is a good figure for the average living room.

We have discussed reverberation time at some length, because it is a prime concept in acoustics and is referred to repeatedly by Mr. Briggs. If readers would like to delve deeper into the subject, we can recommend the Knudsen and Harris book mentioned above. Although it is concerned fundamentally with non-domestic architecture, the principles apply equally to the home listening room. Further, it keeps the technicalities to a minimum. A standard, technical textbook is: Lawrence E. Kinsler and Austin R. Frey, "Fundamentals of Acoustics" (John Wiley, 1950).

MANY of us have only recently begun to realise the importance of the part played by room, studio and concert hall acoustic conditions in providing us with enjoyable sound. It is true that we are mainly concerned here with the reproduction of music in the home, but a general survey of the whole field should help in the understanding of any particular problem.

## Conditions at Source

The Royal Festival Hall, London, completed in 1951, provides us with the latest and largest experiment in acoustics. The work done here seems to prove that once echo and reverberation characteristics have been controlled, and good diffusion achieved, a large enclosed space can give satisfactory production of speech, song, solo instrument, chorus and orchestra not only for the audience in the hall but for radio listeners as well. The response characteristics of the hall are shown in Fig. 1.

Listening to music in the Festival Hall is a refreshing experience. It will be noted that the reverberation time averages close on 2 secs. and only falls off by about 0.5 sec. at 10,000 cycles. This, coupled with good diffusion, accounts for the remarkable brilliance and clarity achieved.

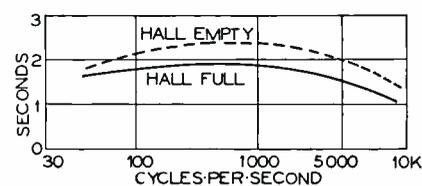


Fig. 1. Reverberation time curves for the Royal Festival Hall in London.<sup>2</sup>

It would be interesting to listen to a play in the Hall; the brilliance of the "response" would surely add life to the performance.

The average theatre is heavily damped, with poor high frequency response and a short reverberation period. The result is that all voices sound rather dull. I think that the improved acoustics associated with studio performances of broadcast plays have contributed largely to their popularity.

It is interesting to compare Fig. 1 with the graph, Fig. 2, which shows reverberation time against volume for the preferred studios at the B.B.C.

Two large concert halls with good acoustics are included,

<sup>1</sup>Vern O. Knudsen and Cyril M. Harris: "Acoustical Designing in Architecture". Wiley 1950.

<sup>2</sup>Reproduced from Nature, 18 Aug. 1951: Acoustics of the Royal Festival Hall, by P. H. Parkin.

to indicate that large orchestral studios are equivalent to concert halls with audience.

In a paper to the Building Research Congress 1951, it was pointed out by Mr. T. Somerville of the B.B.C. that a concert hall which has good acoustics for the audience is

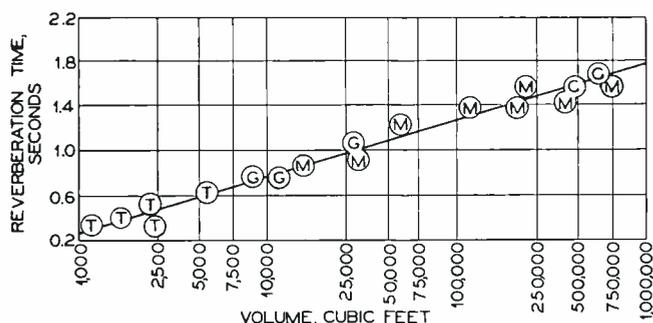


Fig. 2. Reverberation time plotted against volume, B.B.C. studios.<sup>3</sup>  
M—Music studios T—Talks studios  
G—General purpose studios C—Concert halls

always good for broadcasting, as the conditions necessary for broadcasting are exactly those required for good listening conditions in the hall.

The effect of studio treatment — described in the same paper — is clearly shown in Fig. 3. The original construction consisted of building board on walls and ceiling, the floor being concrete and carpet. The reverberation curve was as shown at A.

The treatment was on the following lines. A woodblock floor was laid. Reverberation time at low frequencies was reduced by fitting membrane absorbers. These are shallow

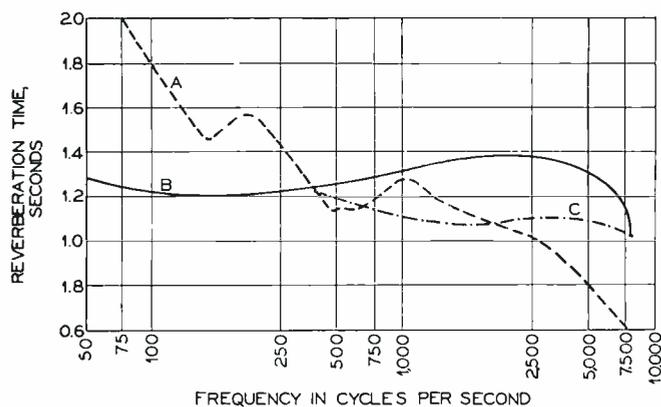


Fig. 3. Effect of acoustic treatment on reverberation time. Curve A: before treatment. B: after treatment, no carpet. C: carpet added.

box structures covered with linoleum or bituminous paper roofing material which resonate at frequencies up to 500 cycles and so absorb the sound waves. (Thin plywood panels may be similarly used.) High frequency response was improved by painting the walls and ceiling, and scattering of sound was achieved by fitting rectangular diffusers, which are preferred by the B.B.C. to the cylindrical or spherical forms of irregularity widely adopted in American studios.

<sup>3</sup>Figs. 2 and 3 from Report of Building Research Congress, 1951. Paper by T. Somerville. All papers given at this Congress are available in book form at 22s.6d. from the Secretary, Building Research Station, Watford, Herts., Eng.

## Listening Conditions

I suspect that the reader will already have begun to wonder why this article is headed Room Acoustics instead of Studio Design. It seems to me that it is necessary to learn something about acoustic treatment in general before we can begin to understand the domestic problem. Furthermore, there is always the possibility of taking a leaf out of the professional's book and applying modifications in the home, although it will not be easy to pass off three or four rectangular diffusers as beauty treatment, and membrane absorbers would be even worse!

For domestic listening, a reverberation period of just below one second is usually considered right. I asked Dr. L. E. C. Hughes of London to calculate the period for the conditions of my own music room. He found it came out on the dead side and suggested we should increase the height. (By comparison, fitting rectangular diffusers would be chicken feed.)

It should be remembered that ideal reverberation time without good diffusion<sup>4</sup> is unsatisfactory, but the calculations by Dr. Hughes are given here, as they may form a guide to readers who would like to assess and/or improve their own listening conditions.

### CALCULATION OF REVERBERATION PERIOD

Room 15 by 14 by 10 ft.

Formula:  $T = V/20aS$

where: T is reverberation time in seconds

V = volume of room in cubic feet

a = absorption coefficient of each area

s = square feet of each area

Material	Absorption Coefficient	Sabins <sup>5</sup>
Carpet	0.1	20
Panelling	0.05	18
Ceiling & Walls	0.075	35
Curtains	0.2	16
Settee, estimated		30
2 Easy Chairs, estimated		16
3 Cushions, estimated		6
Bookcase, estimated		2
Piano, estimated		2
4 Humans		16
		161

$$T = v/20as$$

$$= 2240/20 \times 161$$

$$= 0.70 \text{ seconds}$$

Removing the carpet would increase T to 0.80 sec. Dispensing with the settee and the easy chairs would bring the reverberation time up to about 1 sec. This would be ideal for piano playing in the room, but its advantages for reproduced music are less certain. In an effort to compensate for average home listening conditions, a dis-

<sup>4</sup>Diffusion is the scattering of the sound throughout the room.

<sup>5</sup>A sabin is 1 sq. ft. of surface which is 100% sound absorptive. Practically all materials of construction and furnishing have been tested to determine their absorption coefficients at various frequencies; any standard reference work, such as Knudsen and Harris, gives them. For example, the rug in Mr. Briggs' music room has an area of about 200 sq. ft. Its absorption coefficient is 0.10, which means that it absorbs 10% of the sound. 10% of 200 is 20—which brings us to the figure of 20 sabins. "20 sabins" is a quick way of saying that 200 sq. ft. of Mr. Briggs' 10% efficient rug absorbs the same amount of sound as 20 sq. ft. of a 100% efficient sound absorber. The usefulness of the concept of sabins is demonstrated in the table, where masses (instead of areas) such as chairs, humans, and bookcases, which cannot be easily rated in terms of absorption coefficients, must be converted to the equivalent of areas so the total sound absorptivity of room and contents can be computed.

tant microphone technique is now usually adopted as giving a realistic reproduction of the acoustics of the studio. This perspective, as it were, is brought into the listening room, and calls for comparatively dead conditions for best results.

## Ambience or Room Tone

Recordings made under large hall or open air conditions reproduce very well in small rooms. On the other hand, recorded ambience<sup>6</sup> of small rooms gives most unsatisfactory results when reproduced in larger rooms or halls. This fact is forcibly demonstrated by a few special recordings made by C. E. Watts in his lounge at Sunbury on Thames. Recordings of his piano reproduced along side the actual instrument are quite indistinguishable from the original, yet the same recordings played in a larger hall produce effects of wow. On the other hand, a recording of tug-boat noises made on the Thames — obviously free from room effects — reproduces with startling reality in a lecture hall seating 300 people or in the music room (mine) condemned by Dr. Hughes because the ceiling is too near the floor.

## Eigentones

There is, in the simplest case, resonance between parallel walls when the distance between the walls is an integral number of half wavelengths. Thus, in the room under discussion, there will be resonances or eigentones<sup>7</sup> as follows:

Distance between walls	Wave-length	Resonant Frequencies		
		L/2	2L/2	3L/2
16 ft.	32 ft.	34.5	69	94
14 ft.	28 ft.	39.5	79	128
10 ft.	20 ft.	55	110	164

The main resonances therefore extend from about 34 cycles to 164 cycles.

The effect of such eigentones is clearly heard in any recording of speech made in a small, untreated room.

## Diffusion

Scattering is the use of irregular surfaces in the distribution of sound to produce diffusion. Adequate diffusion results in uniform distribution of sound energy in the enclosed space. Theatres and concert halls used to be built with ornate interiors which greatly improved the acoustics by dispersing sound. It is pointed out by Mr. Somerville that rectangular diffusers are effective down to frequencies where the dimensions are only 1/7 of a wavelength.<sup>8</sup> Thus a raised surface 3 ft. long would be effective down to about 50 cycles.

<sup>6</sup>Ambience is the general tonal characteristic of a room. A recording made in the open air includes no recorded ambience. Microphone placement in a room, distance from sound source, and type of microphone (cardioid, etc.) all determine the extent, nature, and modification of the reproduced ambience. A small room can produce most objectionable results.

<sup>7</sup>Eigentones are the resonances produced by parallel walls in a room. The worst condition would be a cube, as the resonance frequencies would be the same in all directions. The lowest resonance occurs at half a wavelength. For instance, at 40 cycles, the wavelength is about 28 ft. Thus a room 14 by 14 by 14 ft. would have a pronounced resonance or eigentone at 40 cycles, and others at the harmonics of 80 and 120 cycles, plus diagonal resonances at 57.70 cycles, etc. As the size of an enclosed space is increased, the resonant frequencies are lowered and take longer to build up; they are, therefore, less objectionable.

Room resonances and standing waves are intensified by a rectangularly shaped room. As nearly all rooms are square or oblong, it is good to learn that acoustic treatment as already outlined overcomes these defects.

## Oscillograms

It is one thing to read about eigentones, standing waves, diffusion, etc., but it is quite another problem to understand exactly what they mean and how they affect our own conditions of listening. Without some such interpretation, the questions are only of academic interest to the average listener.

In my last article in this journal, I demonstrated how the performance of a loudspeaker can be recorded by passing a slowly moving film in front of an oscilloscope and photographing the result. I think the system is even more effective in recording the effects of room conditions, to give a picture of the behaviour of sound waves in a given room, and also to observe how the performance of a loudspeaker is affected by such conditions.

Before going any further, I should like to make it quite clear that I am not suggesting that listening rooms should be converted into studios; we are accustomed to listening in ordinary rooms and excessive acoustic treatment might produce "unnatural" results. (We must preserve some of our illusions!)

## Standing Waves

The following tests were made in a room approximately 16 by 15 by 9½ ft. high. Walls and ceiling were covered in beaver board and painted; the wooden floor was covered by linoleum. Contents were mainly office furniture and test equipment. The room is very much "livelier" than the normal living room, with very good high frequency response.

The sound source was an audio frequency oscillator with flat output from 20 to 16,000 cycles. For the first set of tests a corner speaker system was used: a 15-in. bass unit in a 9 cu. ft. brick-built reflex enclosure with an 8-in. treble unit and crossover at 1,000 cycles. (Flat response over 8 or 10 octaves is not claimed here.) Power input was 8 volts at 15 ohms, equal to about 4 watts.

The microphone was moved across the room in three directions A, B and C as indicated in Fig. 4 at a height of 3 ft., and the sound level was photographed on the moving film.

Various frequencies were used. A selection of the most significant results is reproduced in Figs. 5, 6, 7, and 8. The frequency is marked on each oscillogram. The distance covered was 10 ft. across the room in two directions, and 14 ft. diagonally.

The following observations can be made:

1. There is a position near the centre of the room where 50-cycle sound<sup>9</sup> is almost inaudible, in spite of the fact that human beings have two ears and only one microphone

<sup>8</sup>Wavelength in feet equals 1,129 divided by the frequency.

<sup>9</sup>Over here, we shall have to find the 60-cycle dead spot. Ed.

was used. Hum nuisance can often be reduced by suitable choice of listening position.

2. The difference in sound level at 50 cycles between maximum and minimum is 25 db. At 40 cycles, there is a peak of 35 db in one location, which suggests the formation of an eigentone.

3. Dead spots occur at other frequencies in different positions. The distance between these nodes is halved, in theory, as frequency is raised an octave. The condition here is, of course, affected by reflections from different surfaces.

4. The nodes of minimum sound are caused by out-of-phase effects from reflected waves of sound.

5. As a rule, the maximum amplitudes at low frequency are near a wall.

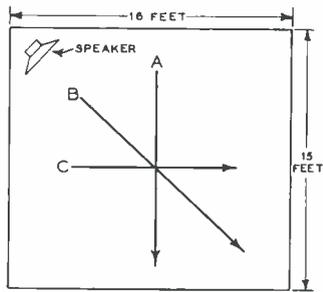


Fig. 4. Plan of test room, with direction of microphone travel.

It will be appreciated by the reader that the effects pictured are produced by the specified location of the loudspeakers. Moving the sound source will result in different phenomena. So far as maximum amplitude at low frequencies is concerned, say from 30 to 50 cycles, tests seem to indicate that the corner position is the best, but as our brick reflex is a fixture, we cannot be dogmatic here. Mr. C. E. Watts (I do not mind bringing him in because he has nothing to sell!) certainly attains realistic reproduction of piano, harpsichord, cello, and music box by standing his loudspeaker in the position originally occupied by

the instrument, but this is a counsel of perfection which is beyond the reach of most of us. Incidentally, the speaker system in question has become known as the "Watts Folly" and consists of two 15-in. cloth-surround units mounted in back-to-back reflex cabinets with sand-filled panels, crossover at 1,000 cycles with 8 and 5 in. units connected in parallel on small baffles facing downwards at a distance of about 8 ins. above the reflex enclosure. The whole structure is mounted on runners and can be placed in any position for exciting eigentones at unusual points, often with startling results.

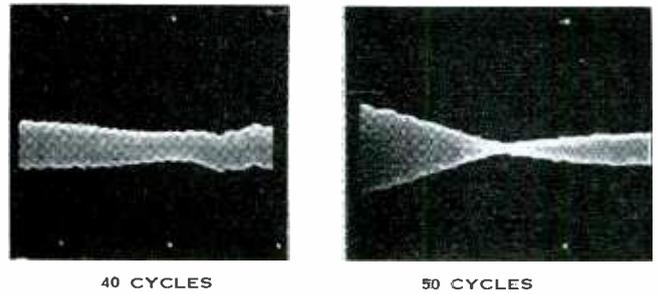


Fig. 5. Sound level as microphone traveled in Direction A.

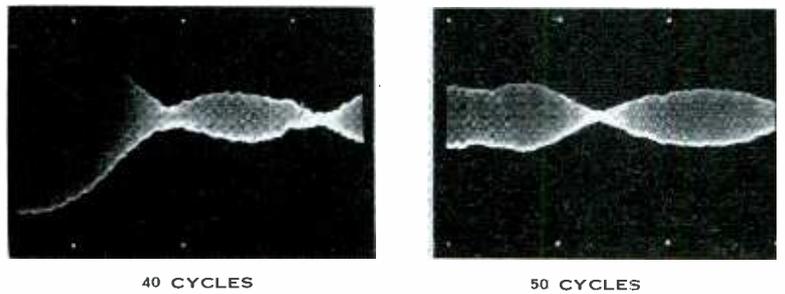


Fig. 6. Sound level as microphone traveled diagonally, Direction B.

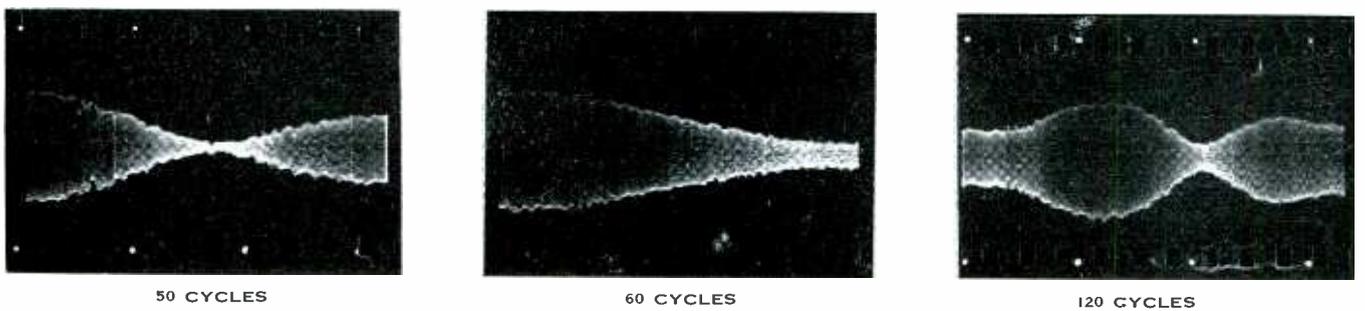


Fig. 7. Sound level, at three low frequencies, as microphone was moved across room in Direction C, Fig. 4. Distance of travel: about 10 ft.

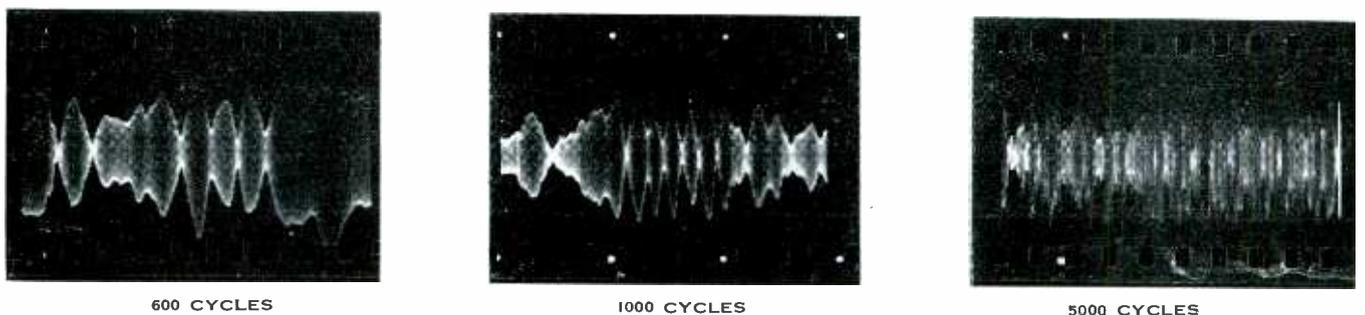


Fig. 8. For these oscillograms, the microphone was moved as in Fig. 7, but the sound level was analyzed for much higher frequencies.

## Room Effects on Loudspeaker Performance

The next batch of oscillograms, Figs. 9 through 15, is related to one 8-in. speaker. This unit was mounted in different ways and placed in different positions in the test room already described. Oscillograms of response up to 500 cycles were taken. If any reader still doubts the far-reaching effects of mounting and of location on the low frequency performance of any loudspeaker, these pictures should help to dispel the illusion once and for all. It is quite impossible in the space of an article to interpret or explain all the effects produced. We must content ourselves with brief comments, leaving the reader to draw his own conclusions. One high frequency response curve is included as a matter of general interest.

The oscillograms show the behaviour of a typical 8-in. speaker. Corrugated cone suspension; main resonance 75 cycles. Microphone was kept 12 ins. on axis in all cases. Input was 3.5 volts at 12 ohms, equal to about 1 watt. Impedance source 8 ohms (triodes in push-pull); flux density 13,000 lines.

The main points of interest are embraced in the comments under the oscillograms.

At high frequencies, room reflections are rapid and frequent. It would be necessary to take a large number of curves to establish a criterion of performance and assessment. In this case, reflection at high frequency had been intensified by painting the walls and ceiling. Small holes  $3/32$  in. diameter drilled in the beaver board at distances of 1 or  $1\frac{1}{2}$  ins. would absorb sound at frequencies above 500 cycles and would reduce reflection. It is, of course, well known that carpets and soft furnishings have a similar effect.

The behaviour of sound in an enclosed space is a vast subject. These investigations do no more than touch the fringe of it. If they also touch the imagination of the reader and help him to understand some of the problems associated with his own sound reproducing conditions, they serve their purpose.

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EDITOR'S EPILOGUE: We have Mr. Briggs at a definite disadvantage. Because he has been doing a very considerable amount of research in preparation for each manuscript, he is forced to mail off his articles too close to editorial deadline for us to submit our comments for his approval. Hence, we are able to write prologues and epilogues to our heart's content.

Thus we come to the end of this article with the feeling of "Where now, little man?" We have been presented with a comprehensive outline of major acoustic considerations. We have been shown the effect of moving our armchair from one position to another (Figs. 5 through 8) and of moving the speaker cabinet (Figs. 9 through 15.) It is all too obvious that such operations will drastically alter the sound we hear, although we must remember that Mr. Briggs' oscillograms make variations in sound far more apparent than they would be to any except the most critical ear.

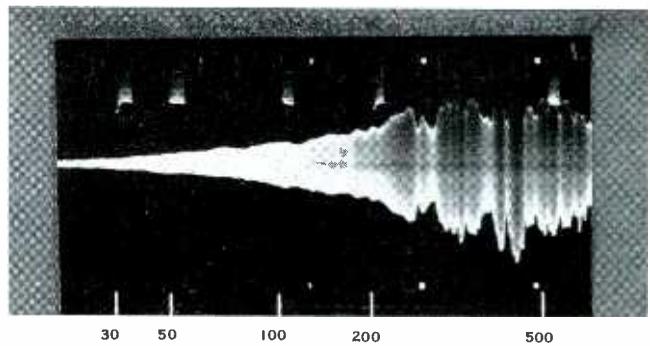


Fig. 9. Speakers mounted on 2 ft. baffle, placed in centre of room. Note the severe loss of bass which starts around 200 cycles as a result of small baffle area, incidentally cancelling cone resonance and removing frequency doubling. Suitable mounting for clean reproduction of speech.

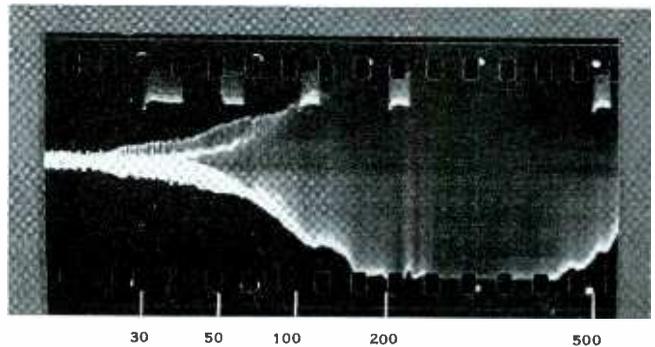


Fig. 10. Speaker mounted in window, facing outside for free-field conditions. There are traces of frequency doubling and trebling up to 75 cycles. The bass resonance is almost damped out by the high flux density of the magnet—13,000 lines.

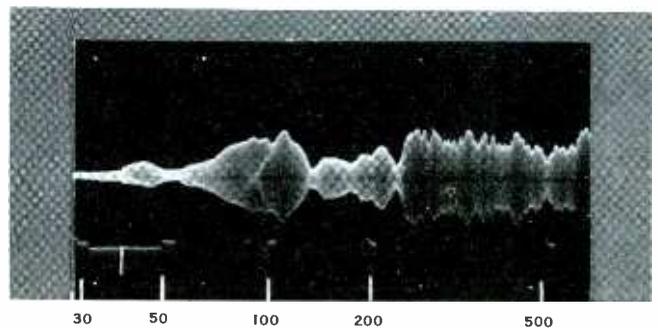


Fig. 11. Speaker mounted in matched reflex cabinet, placed in corner of room. The corner position helps to produce a rise in reflex output below 50 cycles. The severe dips at about 130 and 260 cycles are probably phase cancellation effects. Note start of room reflections at 220 cycles.

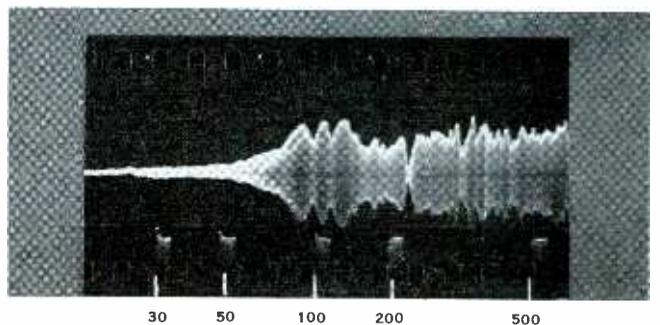


Fig. 12. Same as Fig. 11, but cabinet placed 4 ft. from corner. The more central position shows room reflections at about 100 cycles. The 40-cycle hump of Fig. 11 has disappeared.

So where do we go from here? First, let's stand around in various spots with our heads cocked learnedly to one side and *listen*. Pick a phonograph record which has as many separate sounds as possible. Ideally, the record should be a frequency test record such as Cook Laboratories 10-LP.<sup>10</sup> (Warning: repeated use of this record is guaranteed to drive all members of the family out to the movies!) If something more musical is deemed necessary, try Britten's *Young Person's Guide to the Orchestra* on Columbia LP ML 4197. Careful listening tests of this sort may indicate a better spot for that favorite armchair.

Second, if the sound seems to be really bad, try moving

<sup>10</sup>Cook Laboratories, R-2, Stamford, Conn.

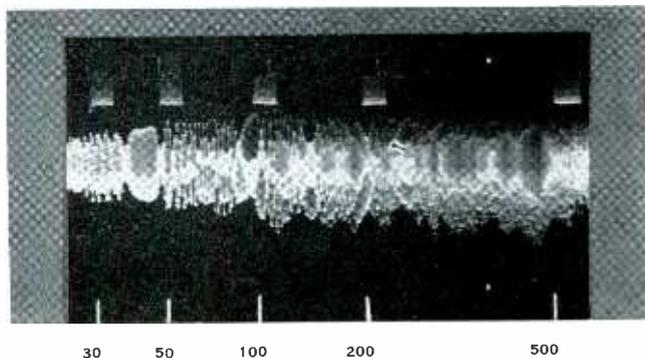


Fig. 13. Same as Fig. 11, but cabinet placed in centre of room. Room effects swamp the picture here. Probably a fairly true representation of what we normally hear.

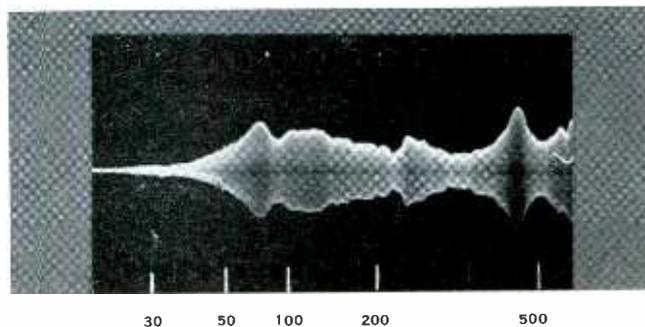


Fig. 14. Speaker mounted as for Fig. 11 but taken outside for free field response. There is obviously a complete absence of room effects. The main cone-cabinet resonance occurs at 75 cycles. Some frequency doubling, but less than shown in Fig. 10.

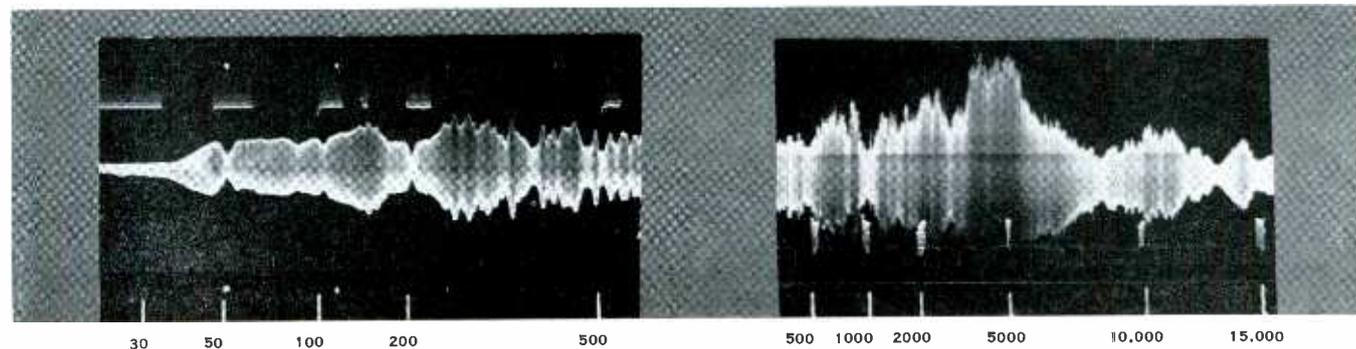


Fig. 15. Speaker mounted in 9 cu. ft. brick corner reflex. The benefits are clearly shown, and can indeed be heard in a normal listening test.

the speaker cabinet — into a corner if it's not already there. (Cooperation of the distaff side can be secured by suggesting that the sofa would look better if moved 6 ins. nearer the fireplace. Such a shift will require complete rearrangement of all other furniture in the room including, incidentally, the speaker cabinet.)

Third, get out paper and pencil and figure reverberation time. If it's long, how's about some new drapes? Or some bookshelves along that blank wall? Or a new and larger rug, *with* a pad under it? So you will know what to buy (or to take out, if the reverberation time is short), here is a list of absorption coefficients, copied from Knudsen and Harris:

Material	Absorption Coefficient
Carpets, lined	.25
Carpets, unlined	.15
Carpet, rubber, on concrete	.08
Cotton fabric, 14 oz. per sq. yd., draped to half its area	.49
Cotton fabric, as above, draped to 7/8 its area	.15
Draperies, velours, 18 oz. per sq. yd.	.35
Draperies, as above, draped to half their area	.55
Linoleum, on concrete floor	.03
Oregon Pine Flooring	.08
Ozite 0.39 lb. per sq. ft.	.20
Brick wall, unpainted	.03
Glass	.03
Interior stucco, smooth finish, on tile	.04
Plaster, lime, sand finish, on metal lath	.06
Poured concrete, unpainted	.02
Wood sheathing, pine	.10
Wood veneer, on 2 x 3 wood studs, 16 ins. o.c.	.12
Description	Total Sound Absorption in sabins
Chair, American loge, fully upholstered in mohair	4.5
Chair, plywood seat, plywood back; seats up	0.24
Person, adult	4.2
Person, child, high school	3.8
Person, child, grammar school	2.8

# Air-Couplers . . . and such

CORRESPONDENCE about Air Couplers continues to be heavy. Two questions predominate: what to do with the Coupler, when floor or wall mounting is impossible, and, since when were rulers marked in thirds of an inch?

The last question refers to the drawing in HIGH-FIDELITY No 3. Design of the Air Coupler called for dividing 13 inches into three equal spaces. According to our calculations, that resulted in a figure of  $4 \frac{1}{3}$  ins. Unfortunately, we calculated, and published, without first consulting with the manufacturers of rulers, measuring sticks, and tapes. They are uncooperative in the matter of thirds.

To answer the last group of questions first, Fig. 1 gives dimensions, in orthodox measures, of all parts of the Air Coupler. Note that the dimensions are based on use of

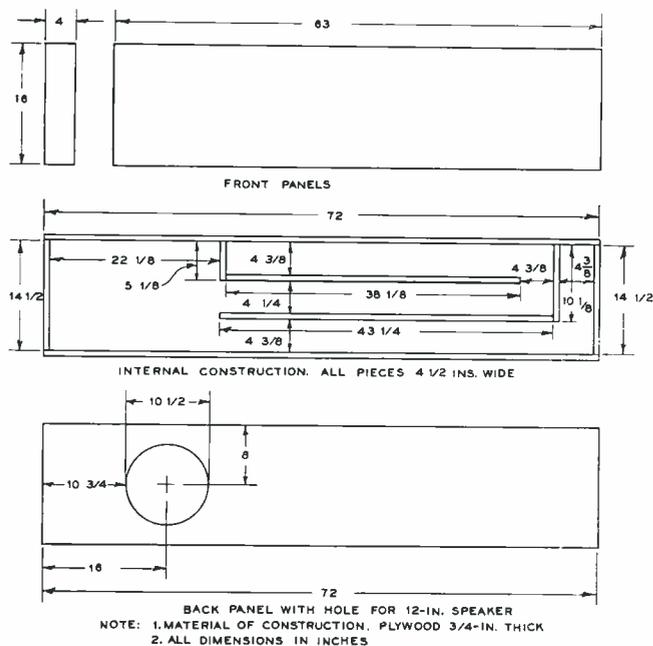


Fig. 1. Revised drawing of dual Air Coupler shows all dimensions.

$\frac{3}{4}$ -in. plywood throughout. If wood of a different thickness is used, the dimensions will change; similarly, if the Air Coupler is installed in the floor or in any other location which requires changing the overall width of 16 ins., the internal sizes will also change.

ONE OF the big advantages of the Air Coupler is that it can be mounted in the floor, wall, or ceiling. In this way, the large speaker cabinets required for correct reproduction of low frequencies can be eliminated and valuable

floor space saved. But what can be done with the Air Coupler when such "structural" mounting is impossible? Bookcases seem to be a popular answer, judging from what readers tell us. For instance, John Gaylor of South Bend sent us a photograph of his solution to the problem, Fig. 2. He writes, "My equipment consists of an RC-10 AM-FM tuner, a Webster-Chicago record player using Pickering pickups, and a Williamson amplifier which I built. The amplifier and separate power unit are mounted

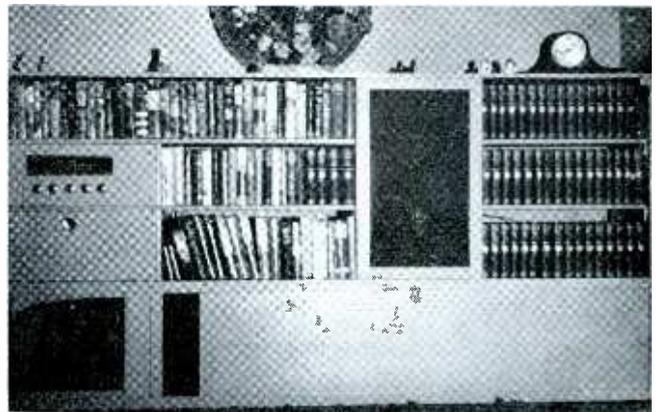


Fig. 2. Attractive and practical bookcase houses an Air Coupler.

behind the lower bookshelf on the opposite end from the tuner. All components are mounted on  $\frac{1}{2}$ -in. thick sponge rubber. The speaker in the Air Coupler is a GE S1201 and the other speaker is an Electro-Voice 12-in. radax. The knick-knacks and the clock on top are on felt pads. It is seldom that I notice any rattle from them."

Edward Johnston, of Rochester, Minn., sent us photographs of an unusually interesting installation which employs two Air Couplers. Figs. 3 and 4 should make the arrangement of the units clear. Dr. Johnston writes, "Many an eager hi-fi enthusiast has run headlong into the battle of the sexes on attempting to smuggle an adequate speaker cabinet into the living room. My wife is a lovely lady who admits to 27 years of determined living: determined *not* to have a speaker cabinet in *her* living room. There was no change in her determination when I added a tweeter to my dual-speaker, 18 watt Magnavox. A magnetic pickup seemed a complete waste of money to her more-than-slightly tone-deaf ears. But oh! What a change when I purchased two Western Electric 12-in. speakers and installed them in a separate 7 cu. ft. bass reflex cabinet!

"Soon after receiving the ultimatum that either the speaker cabinet or my own, comfortable, easy chair had to go, I received the Winter issue of HIGH-FIDELITY. With feverish excitement (over 98.6 F. to you) I scanned the



Fig. 3. Front of double Air Coupler bookcase before covering the mid-range speaker and tweeter compartment with grille cloth.

article and plans for the duplex Air Coupler. As I glanced about the room from where I was sitting on the floor, I noted with new interest the large homemade bookcase left by the previous owners of the house. After a thorough discussion of the project between the two of us (to which I listened attentively), I undertook the construction of two Air Couplers.

"Breaking several established rules of basic sound reproduction as prescribed in the Air Coupler article, I placed the openings of the two cabinets, one at either end of the



Fig. 4. View of the rear of double Air Coupler. Note the partitions edged with felt which fit tightly against the wall, leading the back radiations out around the middle range horn type speaker.

bookcase. I also arranged one cabinet behind the other, staggering them only enough to leave room for the speaker on the rear of the front cabinet. The two cabinets were exactly the same with the exception of the internal partitions. These were modified in one cabinet to produce air columns of six and nine feet, thereby flattening frequency response even further. The two Air Couplers were then fastened together securely with straight irons, and a liberal dose of furniture glue applied to the opposing surfaces. A University Cobra-12 speaker was placed in the center of the first shelf for a middle-range speaker. The small tweeter was mounted directly above this, Fig. 3.

"Arrival of the bookcase in the living room was an event I shall never forget. First, I had to dismantle the top shelf to get it up the basement stairs. The look of horror on my loving wife's face as she saw its size was somewhat softened when I carried the old speaker cabinet to the basement. Her only comment was, 'Don't you think it looks better in here with that chair in the corner where the speaker cabinet used to be?' She also told me that if the marked vibration of the walls, set up by the organ pedal tones on the record I was using to test the bass response, were to knock one of her scenic Wedgewood plates from the wall, there would be no reason to keep an incomplete set. The remaining plates would be broken over a convenient block of solid ivory.

"The placement of the speakers has worked out very well. Without any noticeable separation of the various ranges carried by the different speakers, there still remains a quality of naturalness and breadth that is lacking in single-source or tightly clustered multiple-speaker arrangements.

"The ending of this story is a happy one. Marital bliss is again established and high fidelity reigns, if not supreme, at least in a position of importance (still in the living room, too!). A loudness control has reduced the volume to a sensible level with continued full range reproduction and aural balance. Local hi-fi enthusiasts (a rapidly enlarging group) marvel at the quality of reproduction and take a second look at their expensive amplifiers and speakers, the latter in compromised and inadequate cabinets for the most part."

**F**INALLY, here is a sketch of the folded Air Coupler arrangement used by O. C. Hoggren in Chicago, Fig. 4. He reports that it works very well, and it certainly saves space.

We hope readers will continue to send us their solutions to the problems of equipment (as well as Air Coupler) mounting.—C.F.

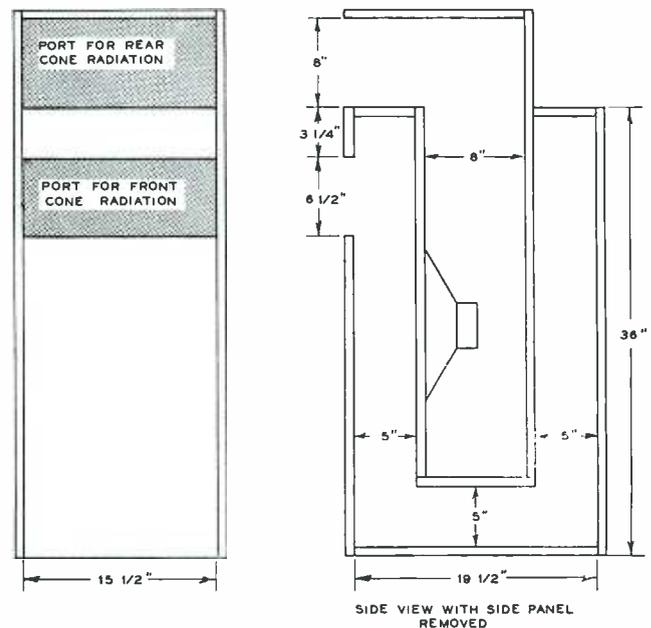


Fig. 5. Folded Air Coupler designed by O. C. Hoggren.

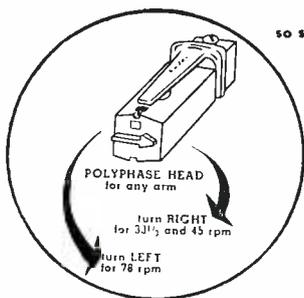
"... A month ago I was fortunate enough to receive an AUDAX CHROMATIC as a birthday gift. The total absence of needle-talk and the superbly smooth musical quality are a constant delight. Now my new records stay new. As a photographer, I know that the lens makes or mars the picture. Just so, the reproducer makes or mars the music..." (from a letter)



The lens makes or mars the picture, the reproducer makes or mars the music.

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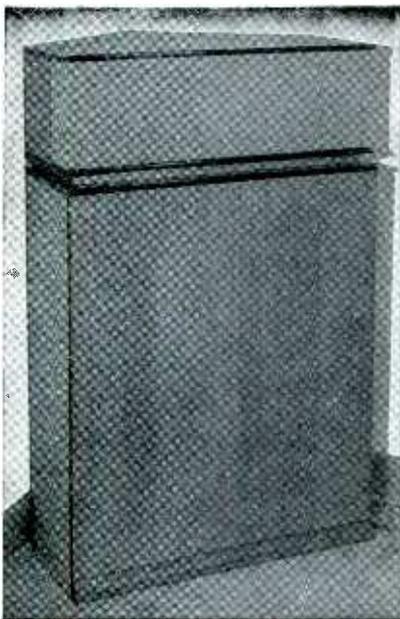
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Like the functional structure, Klipschorn's designing and styling result from application of many skills and surpassing craftsmanship. Utility, furniture, and deluxe finishes are part of the products, and have contributed to the acceptance of "King Klipschorn".

Models from \$516 to \$711. We suggest Klipschorn as the ultimate goal in your long range planning.

*For complete data, see your  
nearest dealer or write* →

## AUTHORIZED DEALERS for Klipsch and Associates

### CALIFORNIA

Berkeley Custom Electronics, 2302 Roosevelt Ave., Berkeley 4 Tel: THornwall 3-4180

Joseph B. Craig  
1220 N. Valley St.,  
Burbank Tel: Charle-  
ston 8-7856

Western Research As-  
sociates, P. O. Box  
1591, Sacramento  
Tel: Gilbert 3-6382

### COLORADO

R. C. Matthews, 6100  
E. Severn St., Denver 7

### D.C.

Customcraft Radio &  
Television, 1636 Con-  
necticut Ave., N.W.,  
Washington 9 Tel:  
COlumbia 5930

### ILLINOIS

Chas. C. Henry, 6705  
Caldwell, Chicago 30  
Tel: Rodney 3-8707

### KENTUCKY

Electronics & Sound  
231-33 Fairfield Ave.,  
Bellevue, Tel: Colonial  
6212

### LOUISIANA

Custom Electronics, 813  
Chartres St., New Or-  
leans 16  
Tel: Canal 4120

Audio Engineering As-  
sociates, P. O. Box  
6274, Shreveport

### MASSACHUSETTS

Paul W. St. George  
368 Congress St., Bos-  
ton 10  
Tel: Liberty 2-8385

### MICHIGAN

K-L-A Laboratories,  
Inc., 7422 Woodward  
Ave., Detroit 2  
Tel: TRinity 4-1100

G. M. Schiedel, 4250  
Textile Rd., Ypsilanti

### MINNESOTA

W. Lee Torgeson, 2323  
Pierce St., N.E., Min-  
neapolis  
Tel: Sterling 2917

### MISSOURI

Richard White, 4800  
Jefferson St., Kansas  
City 2 Tel: Logan 1575

Van Sickle Radio Co.  
1113 Pine St., St. Louis  
1, Tel: Chestnut 1814

### NEW YORK

Klipsch Eastern, Inc.  
420 Madison Ave.,  
New York 17  
Tel: Plaza 9-1700

Craig Audio Labora-  
tories, 12 Vine St.,  
Rochester  
Tel: Baker 1345

### NORTH DAKOTA

G. Pepple, 609 Black  
Building, Fargo

### OKLAHOMA

R. F. Sutherlin, 1217  
South Zuni, Tulsa  
Tel: 9-4104

### PENNSYLVANIA

S. J. Pensock, 138 N.  
Wyoming St., Hazleton

University Radio Co.  
4524 Forbes St., Pitts-  
burgh 13  
Tel: SChenley 1-1876

Continental Sound Con-  
sultants, P.O. Box 172,  
Warrington  
Tel: Doylestown 5929

### TENNESSEE

Electra Distributing Co.  
1914 West End Ave.,  
Nashville 4

### TEXAS

Richard McGrew, 5810  
Llano, Dallas 6  
Tel: TE 9662

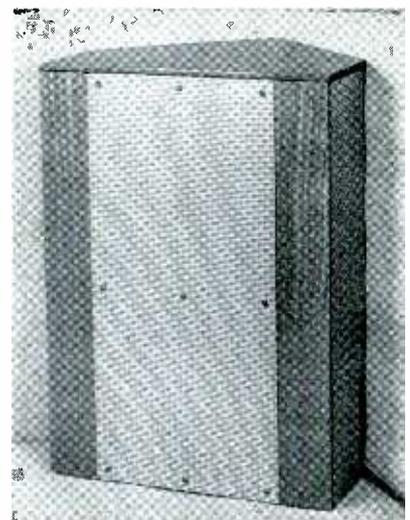
N. J. Dicken-Deebee  
Assoc., 4600 Byron  
St., El Paso Tel: 6-2611

Gulf Coast Electronics  
1110 Winbern Street,  
Houston 4  
Tel: Justin 1551

Sound Haven  
P.O. Box 668, Wharton

### WASHINGTON

Hallgren Associates  
1502 Fortieth Ave.,  
Seattle  
Tel: Prospect 2085



## REBEL

Rebel is a horn-housing for direct radiator drive systems, and, like Klipschorn, utilizes the walls at a room corner as part of the loudspeaker horn. The resulting extension in bass range is at least an octave better than offered by conventional "baffles", and the loading reduces distortion to vanishingly low levels even at high input. Rebel is priced from \$87 to \$156, and is designed for application of 12 inch and 15 inch single and coaxial speakers.

Whether Rebel is used as an "ultimate" speaker or an "interim" unit within the structure of a longer range plan to culminate in a Klipschorn, the Rebel assures a high intrinsic quality and good performance per dollar.

# Klipsch & Associates

## Hope, Arkansas

Telephones: 7-6795 and 7-4538

## IMPORTANT BOOKS

**Musical Engineering**, by Harry F. Olson. 379 pages, 6½ by 9½, 314 illustrations. McGraw-Hill Book Co., New York. 1952. \$6.50. HIGH-FIDELITY Book Department No. 95.

The subtitle of "Musical Engineering" is: an engineering treatment of the interrelated subjects of speech, music, musical instruments, acoustics, sound reproduction, and hearing. That so wide a range of subjects can be covered in a volume this size is possible because the author writes with an extreme economy of words. Every sentence explains an important fact; discussion is held to a minimum. And the author is in a better position to state the facts of acoustics than probably any other person in this Country: he is Director of RCA's Acoustical Laboratory in Princeton, and President-elect of the Acoustical Society of America.

Thus, this is an authoritative, factual book. For the engineer, it is a valuable reference work and text. For the layman, it contains much of interest — since there is a great deal to be read and learned from "Musical Engineering" which is non-technical. The layman will smile from time to time as he observes the antics of the engineer when the latter translates a familiar physical phenomenon into terms of electricity and acoustics. For instance, on page 168 is a "schematic view" of the larynx. The illustration of the physical construction of the larynx might have come from a book on anatomy, but the "electrical analogy" looks like a wiring diagram for a new amplifier circuit.

The engineering drawings of the mechanics of practically every known musical instrument are fascinating — to layman and scientist. So, too, are the descriptions of the instruments. For instance, the bassoon "consists of a double mechanical reed coupled to a conical tube. It covers a lower frequency range than the oboe. In order to operate in this lower frequency range and still retain a portable and easily handled instrument, the tube is doubled back on itself. The effective length of the resonating air column is determined by the holes in the side which may be opened or closed by the fingers either directly or by keys. A change in the effective length of the resonant air column produces a change in the resonant frequency. In this manner a series of resonant frequencies corresponding to the musical scale can be obtained. The tube in the bassoon is conical, with no appreciable flare at the mouth. The fundamental frequency range of the bassoon covers about three octaves, from B-flat<sup>1</sup> to E-flat<sup>5</sup>. The doubled conical air column is about 93 inches in length. The overall length of the instrument is 48½ inches."

Some of the most interesting paragraphs for high fidelity enthusiasts have to do with tests of how much distortion people can hear, in the chapter on sound reproducing systems.

Chapter headings in "Musical Engineering" give a further idea of its content:

*Continued on page 80*



## Years ahead in listening pleasure

When you own a Newcomb amplifier you own more than just a carefully built piece of electronic equipment that measures up to the most exacting mechanical requirements. You also own... what you *really* want... the phonograph amplifier that's designed to give you *the most in listening quality*.

Let your own ears be the judge. When you listen to a Newcomb you hear your favorite recordings or radio and television shows come gloriously to life. These superb amplifiers are subjected to rigorous testing procedures throughout their production to insure mechanical and electrical perfection. **BUT... more than that...** they must meet the most critical *listening quality* tests.

Newcomb Model KXLP-30 is a 20-20,000 cycle, low distortion, 30 watt phonograph amplifier providing the reserve power to make full use of its special tone control circuits. Superbly balanced electrical design, the result of many years experience, gives you remarkable *listening quality*. The *Magic Red Knob* four stage record condition compensator frees tone controls from the function of controlling surface noise. Thus any desired tonal balance may be obtained under any condition of operation at any volume level. Adaptable for use with AM-FM radio tuners, TV, wide range loudspeakers and magnetic or crystal pickups, it is engineered for *your listening pleasure*.

Write for complete descriptive literature

# Newcomb

THE SOUND THAT QUALITY BUILT



Model HLP-14, 14 watt Phonograph Amplifier



Model P-10A, 10 watt Phonograph Amplifier



Model R-12, Three Speed Portable Phonograph



Model RC-12, Three Speed Portable Phonograph



Model B-100 Radio

NEWCOMB AUDIO PRODUCTS CO., DEPT. W, 6824 LEXINGTON AVENUE, HOLLYWOOD 38, CALIFORNIA  
MANUFACTURERS OF P.A., PHONOGRAPH, MOBILE, INSTRUMENT AND WIRED MUSIC AMPLIFIERS  
PORTABLE SYSTEMS, PHONOGRAPHS, RADIOS, TRANSCRIPTION PLAYERS AND RACK EQUIPMENT

*Beautiful to look at...  
now even more beautiful to hear*



the new **JIM LANSING**  
acoustical lens gives the  
highs a smoothness your  
ear appreciates instantly

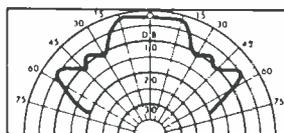
The magnificent Jim Lansing enclosures are a perfect complement to the matchless tone reproductions made possible by the new Jim Lansing full acoustical lens.

The new lens, a natural development brought about by the inadequacies of the multicellular horn, distributes sound constantly and uniformly over the entire audio spectrum.

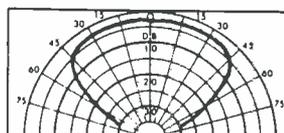
This gives the highs a smoothness impossible to match by any other method.

The band width of the lens, being broader than the entire audio spectrum with which it is used, distributes sound to all points in the listening area without variation of intensity regardless of the frequency.

Drop into your high fidelity dealer and ask for the full story on the Jim Lansing 175 DLH, driver-horn-lens assembly, today.



Multicellular HORN, 5,000 Cycles



Acoustic LENS, 5,000 Cycles

**JIM LANSING** → first in fine sound

James B. Lansing Sound, Inc. • 2439 Fletcher Drive., Los Angeles 39, Calif.

## IMPORTANT BOOKS

*Continued from page 79*

Sound Waves, Musical Terminology, Musical Scales, Resonators and Radiators, Musical Instruments, Characteristics of Musical Instruments, Properties of Music, Theater, Studio, and Room Acoustics, Sound-reproducing Systems.

"Musical Engineering" is a must for engineers and technicians concerned with the science of sound reproduction, for it explains the science of the original sound. For the non-technical man who wants to increase his background of factual information, "Musical Engineering" is a primary source of complete information and sustained interest.

The Recording and Reproduction of Sound, Second Edition, by Oliver Read. 805 pages, 6½ by 9¼, over 700 illustrations. Howard W. Sams & Co., Inc., Indianapolis. 1952. \$7.95. HIGH-FIDELITY Book Department No. 46.

It is quite impossible to review this book! It is a reference work which, in the hi-fi library, has no equal and no peer. It would be much better if readers of HIGH-FIDELITY who want something to turn to for more information on almost any topic related to sound recording and reproduction would just scrape together the \$7.95 and send it to our Book Department.

The first edition of "Recording and Reproduction of Sound" was the best of its kind, even though it had only 375 pages. The new edition is double the size and four times the value. Practically every aspect of the subject matter indicated by the title is covered. The approach is semi-technical. There is much for the layman, who will be enticed into a perusal of the schematics and formulae. The engineer will find basic technical data supplemented with a wealth of practical information.

There are a few very minor flaws: not every question is answered; it could not be so in less than 10 volumes, considering the scope of the book. On the other hand, there is so much material crammed into the 800-odd pages that the same subject may be brought up in several places — depending on the point of view from which it is being examined. However, there is no duplication.

A valuable feature is that, in the course of discussing principles, a great many typical pieces of equipment are described in detail. Everything that was in the first edition is here in the second, revised, brought up-to-date if need be, and supplemented by 430 new pages.

About the best we can do toward giving an idea of the scope of this compendium is to list chapter headings: Behavior of Sound Waves, History of Acoustical Recording, Basic Recording Methods, Lateral Disc Recording, Disc Recorders, Microgroove Recording, Recording Styli, The Decibel, Phono Reproducers, Tone Arms and Reproducing Styli, Magnetic (Tape and Wire) Recording, Magnetic Tape Recorders, Magnetic Film Recorders, Microphones, Loudspeakers and Enclosures, Dividing Networks and Filters, Tone Control (Equalizers),

*Continued on page 82*

# METERS ARE ACCURATE...

# TALK IS NOT...!

When an important conclusion is to be reached... when a dependable comparison is to be made... among several supposedly similar products... we do not rely upon conversation, claims and mere words! WE WANT FACTS...!

So, when it comes to comparing Magnetic Sound Recording Tape... words don't mean a thing, unless supported by laboratory experience. And, in view of the ease with which accurate measurements can be obtained, it seems entirely unnecessary and even hazardous to make a choice based upon the uncertainty of the spoken word or written claim.

## The Reason?

There are differences in Magnetic Oxides. ORRADIO molecular lubricated oxides are more stable to coating conditions and turn out more uniform dispersions... that is one of the reasons for the growing acceptance of ORRADIO Tape.

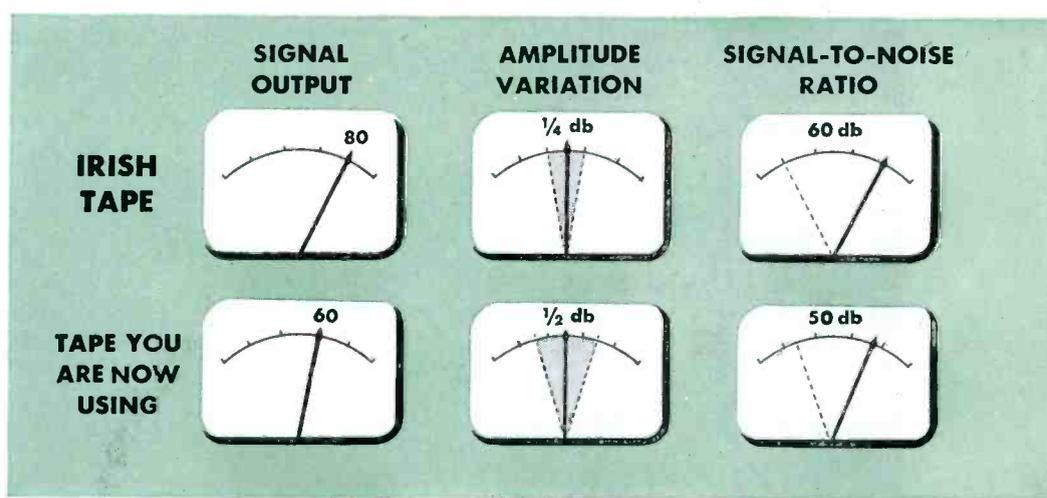
Be sure your next Tape has molecular lubricated oxide. You can be sure of the finest recordings possible with ORRADIO 211RPA Plastic Base Professional Tape. Available at your local Radio Parts Distributor or at your favorite Photo Supply Store.



## MAKE THIS ABSOLUTELY FOOL-PROOF TEST BY ACTUAL METER READINGS:

- 1 Splice end-to-end, ORRADIO IRISH BRAND 211 RPA with any conventional tape you may be now using.
- 2 Record a 6000 cps audio signal through the splice from ORRADIO 211RPA to the "comparison" tape.
- 3 Rewind and play back with your VU meter across the output.

## THE DIFFERENCE WILL BE STARTLING!

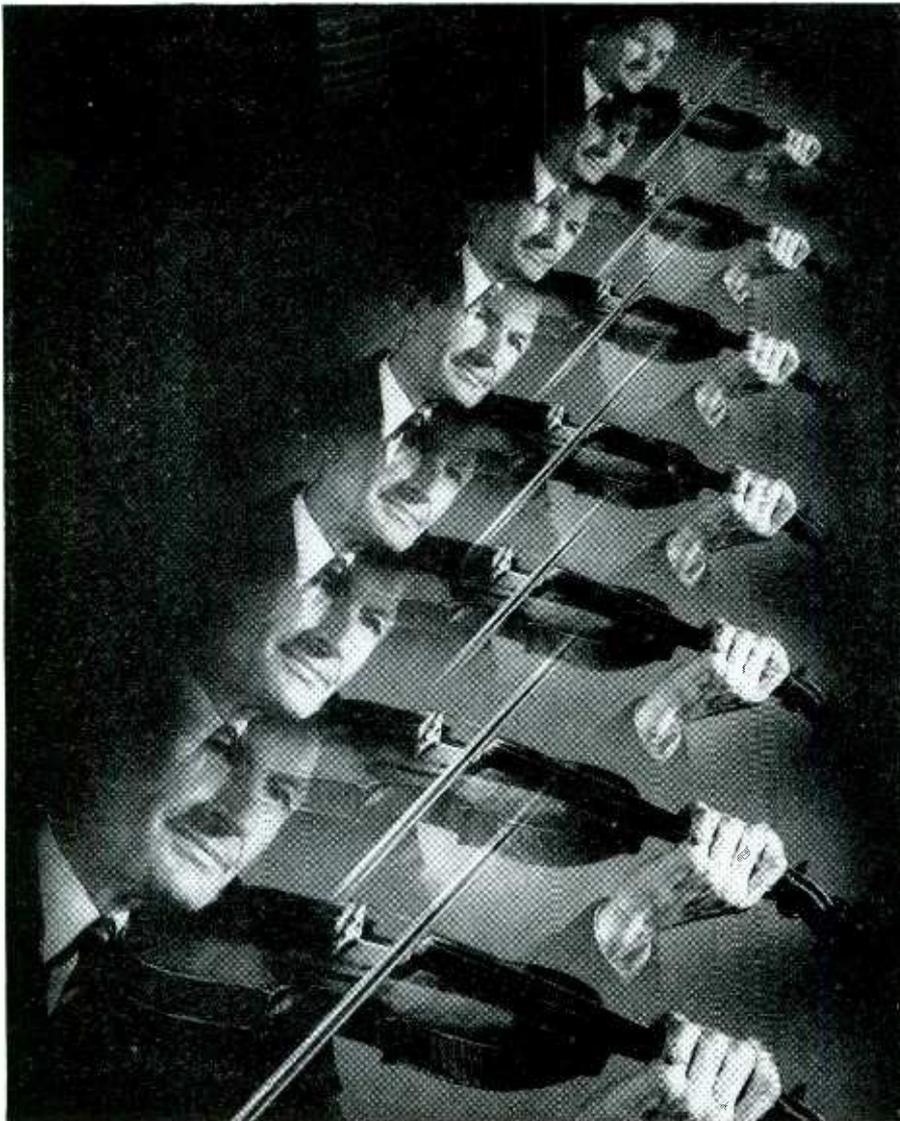


- NOTE: The greater Volume Output of ORRADIO IRISH TAPE.
- NOTE: The greater Amplitude Constancy of ORRADIO IRISH TAPE.
- NOTE: The greater Signal-to-Noise Ratio of ORRADIO IRISH TAPE.

The performance results will be comparable at other frequencies, as well. This is metered proof of the superior quality of ORRADIO IRISH Magnetic Tapes.



Manufactured in U.S.A. by  
**ORRADIO INDUSTRIES, INC.** OPELIKA, ALABAMA  
 World's Largest Exclusive Magnetic Tape Manufacturer



Ewing Galloway

for faithful reproduction—

Whether you prefer disk or magnetic recordings for your high fidelity system, your choice of phonograph needles, recording tape, or recording wire, is important . . . As important to you as the essential components in your system . . . That's why so many high fidelity fans prefer Fidelitone—products manufactured to precise standards of *performance* as well as design.

Fidelitone Phonograph Needles and Styli are available at your record shop, in diamond, jewel and osmium alloy tips. Also Fidelitone Recording Tape and Wire, with ultra-low surface noise factors, in Standard Time Lengths.

PERMO, Incorporated, Chicago 26.

# Fidelitone

NEEDLES • TAPE • WIRE

## IMPORTANT BOOKS

*Continued from page 80*

Attenuators and Mixers, Amplification, Pre-amp-Equalizers, Music Systems, PA Sound Systems, Acoustics, Tuners (AM-FM), Speech Input Systems, Complete Recording Systems, Record Manufacture (Pressings), Audio Measurements, Recording and Reproducing Standards, and—last but not least, an Appendix.

## NOTED WITH INTEREST

*Continued from page 9*

rectly with the new unit. To date, we have examined the control amplifier only on paper, but it looks good. Vic is getting the unit into production as we go to press. He has promised us one of the first ones and, if we get it soon enough, we'll have a report on it in the next issue of HIGH-FIDELITY. Described briefly, the control amplifier incorporates a bass control giving 5 steps of boost, flat, and 2 steps of cut. By means of clever design, the bass control is interlocked electrically with the volume control, so that bass is boosted more at low volumes than at high, thus recognizing the idiosyncrasies of human hearing as reported by Messrs. Fletcher and Munson. For example, maximum bass boost of 30 db at 30 cycles is attainable only when the volume control is down 40 db. With the volume wide open, boost is 20 db. Maximum bass cut is -20 db at 20 cycles. The treble range is from a boost of about 7 db at 10,000 cycles to a cut of 20 db at the same frequency, accomplished by a step control which provides two boost positions and five of attenuation.

An input selector switch controls four input connections. There are two output connections: one "normal" and one, not affected by the volume control, for connection direct to a tape recorder so that the program can be recorded and listened to, simultaneously. Neat, that!

More about this unit in the next issue, we hope.

### Why We Like Records

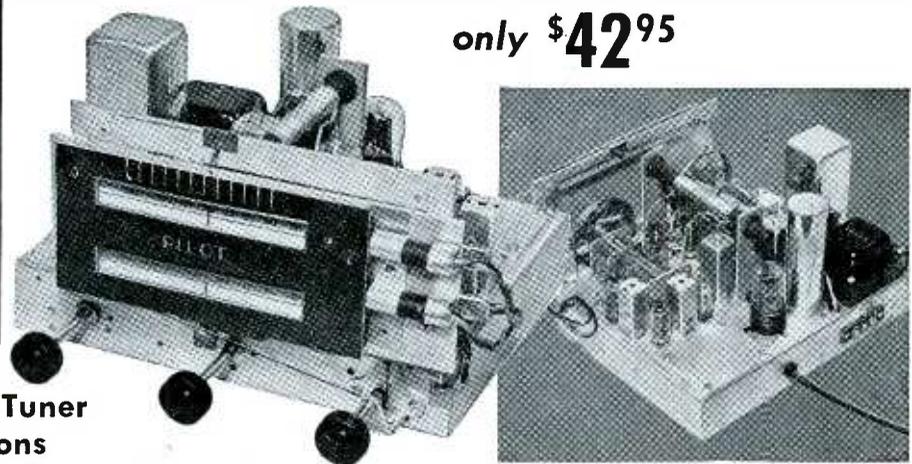
We live in somewhat of a benighted area for television — one station, take it or leave it. We find that we leave it a great deal more than we take it, and our hopes for the future were not raised by a flyer which came to our desk from an organization which provides films for TV. The front page blazoned forth the exciting news that "This collection of top quality, high budgeted feature films insures the most sales-conscious sponsor of highest audience ratings as well as the prestige that goes with superior television entertainment". The rest of the flyer was devoted to details of the films, which included: The Count of Monte Cristo, Kit Carson, Shirley Temple in Miss Annie Rooney, The Last of the Mohicans . . . er . . . excuse us a minute while we crank up the Edison. Dan Quin has just released a new cylinder.

*Continued on page 84*

GET THIS  
**ALLIED**  
 Best Buy  
 in Hi-Fi

**New Pilot AF-605 Hi-Fi AM-FM Tuner**  
 at a sensationally low price

only \$42<sup>95</sup>



**Lowest Cost High-Quality Tuner  
 Ideal for Custom Installations**

The new Pilot AF-605 Tuner provides splendid reception of standard AM broadcasts and the 88-108 mc FM band. Features flat response within 2 db from 20-15,000 cps, with low distortion and high signal-handling ability. Has relatively low output impedance to minimize high frequency attenuation in output cable. Includes inputs for phono and TV, controlled by band switch. With slide-rule dial (each band separately illuminated); separate 3-gang tuning condensers for AM and FM; provision for outside AM and FM antennas; self-contained power supply.

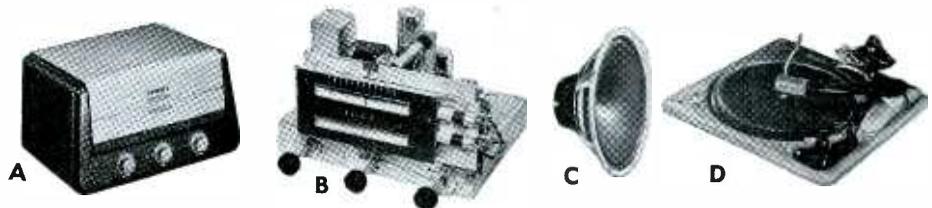
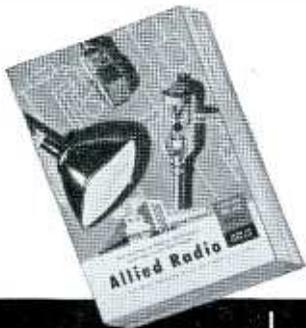
**FM Features:** Tuned RF stage for maximum sensitivity and selectivity; built-in line; antenna temper-

ature-compensated oscillator; ratio detector with 225 kc wide linear response; IF response 200 kc wide at 6 db points; 300 ohm balanced input to antenna coil with electro-static shield.

**AM Features:** Tuned RF stage; built-in high efficiency new "ceramic loop stick" iron-core antenna; IF wave trap; IF response 7.5 kc wide at 6 db points; separate diode for AVC voltage.

**Pilot AF-605 Tuner Complete.** Chassis size, 11 1/2x6x9". For 110-120 volt, 50-60 cycle A.C. Complete with 9 miniature type tubes and rectifier. Shpg. wt., 8 1/2 lbs. 97-944. *ALLIED'S low price only* . . . . . \$42.95

**Best Buy  
 IN A CUSTOM  
 Hi-Fi AM-FM-  
 Phono System**



**a complete top quality AM-FM-Phono System at low cost**

Here's the special value **ALLIED** complete home entertainment system that provides superb reproduction from records as well as AM-FM broadcasts. The system includes (A) the famous **KNIGHT 20-Watt High-Fidelity Amplifier** with response  $\pm 1$  db, 20-20,000 cps—unconditionally guaranteed for one full year; (B) the **Pilot AF-605 FM-AM Tuner** described above; (C) the **General Electric S1201D 12" High-Fidelity Speaker** with 14.5 oz. Alnico V magnet; (D) the **Webster-Chicago 106-27 Three-Speed Automatic Record Changer** with plug-in heads and 2 General Electric variable reluctance cartridges (one for standard

records, one for LP records). The system is supplied complete, with all necessary cables and leads for interconnecting the components, plus all tubes, hardware and complete installation and operating instructions. Cables are equipped with plugs, ready to connect—no soldering required. Shpg. wt., 66 lbs. Here is a complete High-Fidelity system, unsurpassed for value, providing wide-range reproduction from records and AM-FM radio.

**93-422. Complete AM-FM-Phono System.** *ALLIED'S low price...* \$169.50  
 \$25.43 down, \$12.73 monthly for 12 months

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 212-PAGE  
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 CATALOG**

Send today for **ALLIED'S** authoritative, complete 1952 catalog, listing full selections of tubes, parts, test instruments, audio equipment, industrial components—everything in Electronics at lowest prices. Look to **ALLIED** for speedy delivery, expert personal help and complete satisfaction. Get your **FREE 212-page ALLIED catalog** now.

**ALLIED RADIO CORP., Dept. 49-D-2**  
 833 W. Jackson Blvd., Chicago 7, Illinois

- Ship the Pilot AF-605 AM-FM Tuner (\$42.95)
- Ship the complete AM-FM Phono System (\$169.50)
- \$..... enclosed.  Full Payment  Down Payment
- Send **FREE** 1952 **ALLIED** 212-Page Catalog

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# Balanced tone

... from the flashing sunlight  
of Mozart to the storm of  
Shostakovich



PERMOFLUX  
ROYAL EIGHT" WITH  
THE FAMOUS  
BLUE CONE

## Permoflux ROYAL EIGHT"

AUDIOPHILES the country over acclaim the clean, brilliant, life-like musical reproduction of the Permoflux Royal Eight"...the 8" Speaker comparable to any 12"! Combined with the new Permoflux Corner Baffle, Model CB-8-M, the Royal Eight" re-creates original programs with even superior sensitivity and fidelity—every instrument in full-range tonal balance. Here's Big Speaker Performance in a small, easy-to-install frame at a sensible price. (\$22.50 List, less Baffle..

See your Radio Parts Distributor or write to Permoflux today for full information about the complete Royal Blue Line of 6" to 15" Speakers and Baffle Combinations. Ask for Permoflux Catalog J-207.

**"Sound in Design!... Sound in Price!"**  
**PERMOFLUX CORPORATION** 4916-AW. GRAND AVE., CHICAGO 39, ILL.  
236 S. VERDUGO RD., GLENDALE 5, CALIF.

Canadian Licensee—Campbell Mfg. Company, Toronto, Canada

## NOTED WITH INTEREST

*Continued from page 82*

### Ray of Sunshine

Like Pollyanna, we must have our ray of sunshine ever breaking through the clouds. In this case, the clouds (largely engendered by the preceding item) are television programming, the ray of sun an announcement from WOI-TV that they began, on March 10th, a six-week lecture series on "Background Europe — Versailles to Yalta". This is one of the experimental programs to be produced by the Fund for Adult Education, an independent organization established by the Ford Foundation in cooperation with WOI-TV.

We certainly do not advocate that TV should become an unending series of lectures and other good-for-the-soul programs, but an occasional interruption from the antics of the burlesquedians should be welcome.

### Tape Playback Only

Those interested in tape playback only — not in recording — should investigate the two low-cost Pentron models, PB-1, which is player and preamp only, and PB-A2, which includes an amplifier and speaker. Both operate at 3¼ and 7½ ips. Write the manufacturer for complete details: Pentron Corp., 221 E. Cullerton St., Chicago 16.

### I.R.E. Show

Early in March, the Institute of Radio Engineers held a week-long pow-wow at the Grand Central Palace in New York. More than anything else, the combined impact of 357 exhibits and 30,000 visitors made us feel that audio is but a mote in the electronic eye of an enormous industry. Millions of dollars' worth of equipment were assembled for display; only a tiny fragment, confined to a short corridor close to the attic, could be considered remotely connected with the recording and reproduction of audible sound. (Supersonics and subsonics received due attention.) Every facet of a microwave's life could be examined and thrown open for intimate study on the oscilloscopic face of any one of a dozen wonderful test instruments. Only one instrument, costing over \$2,000, cast even a side-wise glance at audio — and it didn't do a very good job, at that.

Ah well, we shall go out to Chicago soon, to the Audio Fair, and then we shall be able to puff out our chest and feel big and important, once again.

There was little at the I. R. E. show of special interest to the audio fraternity. Magnecord introduced its "Magne-Cordette", essentially a PT6-AH plus a preamp-equalizer unit so that, at last, Magnecord equipment can be used in a high fidelity installation without requiring the purchase of a Magnecord record-playback power amplifier and speaker. The unit comes in an attractive cabinet; takes 7½ or 10-in. reels; operates either at 15 and 7½ or 7½ and 3¼

*Continued on page 86*

# AUDIO-PHILE'S BOOKSHELF

A list of books which will be of interest and value to you, carefully selected from the many publications related to music, records, and sound. Using our Book Service, you can have your choice by return mail. Just send the coupon with your remittance.

**ELEMENTS OF SOUND RECORDING:** John G. Frayne and Halley Wolfe, 686 pages, 483 illustrations, 6 x 9¼, cloth.

Two experts in the field of sound recording present a technical discussion of the basic problems in recording and reproduction of sound. A standard reference text for the designer, engineer, technician and student.

No. 53.....\$9.50

**WILLIAMSON AMPLIFIER BOOKLET:** D. T. N. Williamson, 36 pages, 31 illustrations, new edition, paper.

This booklet contains complete design data for constructing this famous high-fidelity amplifier. In this new edition, the author has added a considerable amount of information on tone controls, low pass filters and record compensating circuits.

No. 94.....\$1.00

## G. A. BRIGGS

Noted British Authority

We now have available in good supply these two important books:

**PIANOS, PIANISTS AND SONICS:** 190 pages, 102 illustrations, 5½ x 8½, cloth.

Written in non-technical terms, this book is intended for all music lovers and sound enthusiasts. The complete story of the piano, including history, construction, aids in selection and care, and the relationship between the instrument and sound-recording, reproduction, and room acoustics.

No. 55.....\$2.50

**LOUDSPEAKERS:** 88 pages, 44 illustrations.

Much material has been added in the third edition of this book to provide complete answers to questions on speakers and enclosure designs. It is a thorough treatise, written in non-technical terms.

No. 56.....\$1.25

**THE RECORDING AND REPRODUCTION OF SOUND:** Oliver Read, Second Edition, 805 pages, over 700 illustrations, 6½ x 9¼, cloth.

A complete and authoritative treatment of the entire subject of sound, this book covers all aspects of recording including a complete analysis of recorders, as well as full data on reproduction equipment such as amplifiers, speakers, microphones and phonograph equipment. Everything that was in the first edition is here in the second, revised, brought up to date, and supplemented by 430 new pages. It is a reference work which is a MUST in the Hi-Fi library.

No. 46.....\$7.95

**ACOUSTIC DESIGN IN ARCHITECTURE:** Knudsen and Harris, 457 pages, 5½ x 8¼, cloth.

Although this book is primarily intended for architects and designers, laymen interested in correct acoustic design of home listening rooms will find this an excellent and helpful reference book. Principles, procedures and specific applications are discussed in detail.

No. 62.....\$7.50

**MAKE MUSIC LIVE:** Greene, Radcliffe and Scharff, 256 pages, illustrated, 6½ x 10¼, cloth.

A practical guide for planning, assembling and installing high-fidelity home music systems. This book includes detailed explanations on how to buy and select components, complete installation instructions for equipment, data on types of woods, woodworking joints, hardware specifications, finishes and methods of concealing elements in existing furniture.

No. 70.....\$4.50

**MICROPHONES:** compiled by The British Broadcasting Corporation; 111 pages, 62 illustrations, 5½ x 8½, cloth.

This book, originally written as a textbook for use in training BBC engineers, has now been made available for general publication. It will prove to be of great interest and value to all concerned with microphones in sound engineering.

A few of the topics discussed are: requirements for microphones in a broadcasting studio; laws relating to sound waves and their behaviour; design and characteristics of various types of microphones and details of the ribbon, moving-coil, crystal and condenser instruments.

No. 73.....\$3.25

**SELECTIVE RECORD GUIDE:** Moses Smith, 5½ x 8½, cloth.

This book is a truly selective and practical record guide, emphasizing economy and quality of performance and recording. The author supplies a running commentary on the music and on composers and their place in the historical scene.

No. 85.....\$4.50

**LISTENING TO MUSIC CREATIVELY:** Edwin J. Stringham, 479 pages, illustrated, cloth.

This book presents in an absorbing and ingenious way not only the history of music but a method by which the untrained listener can find pleasure and meaning in music. Dr. Stringham covers all the forms of music, analyzing simply and clearly a specific example of each type. In so doing, he furnishes an excellent guide for building a well-integrated record collection.

No. 89.....\$6.00

**ACOUSTICS OF MUSIC:** Wilmer T. Bartholomew, 242 pages, illustrated, cloth.

This book fills the need for clarifying the fundamentals of acoustics, and gives to music lovers, in readable form, the materials for understanding acoustical problems of composition, performance, teaching and appreciation. The various types of sound — percussive, vibratory, etc., and the technicalities of sound origination, are also discussed in detail.

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**MUSICAL ENGINEERING:** Harry F. Olson, 357 pages, well illustrated with 303 figures and 28 tables, 6 x 9¼, cloth.

Musical Engineering will serve as an excellent reference book for those interested in every aspect of music, whether student, teacher, musician, engineer or layman. Acoustics, sound reproduction and musical instruments, with facts on their construction, range and characteristics, are some of the many phases of musical engineering now clearly explained and interrelated in this book.

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**WHAT TO LISTEN FOR IN MUSIC:** Aaron Copland, 281 pages, 5½ x 8.

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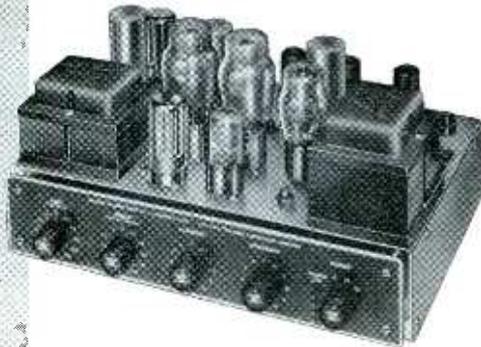
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## NOTED WITH INTEREST

*Continued from page 84*

ips.; permits earphone monitoring of the input to tape; all in all — a good move by Magnecord.

Two miniscule tape recorders were seen: Amplifier Corp. of America displayed a battery operated job — and Al Travis (of Broadcast Engineer's Specialty Co.) showed off his very neat, well-designed portable.

### Neat Trick of the Month

Permo-Fidelitone of Chicago has brought out a cute gadget: a little record brush mounted on a narrow strip of Mystik adhesive tape. Stick the tape to the cartridge (or arm) and the brush sweeps up the dust just ahead of the stylus. It's a wise investment and costs only 50 cents at most record shops.

### Worn Styli

The damage done to records by worn styli was brought out forcefully in Gerald Shirley's article in the previous issue of HIGH-FIDELITY. The problem is being attacked from many angles; various organizations have ordered thousands of reprints of the article and, approaching the matter from another angle, Walco is making available to dealers a high-powered microscope with which customers' needles can be inspected. Good idea, Walco!

### Stick to the Alarm Clock

We have distinct memories of having dismantled several \$1.98 alarm clocks, back many years ago. We do not recall ever having counted the parts, nor do we recall any great moments of jubilation, so we assume that they never ticked again.

Even though we are now older and perhaps more learned, we are most certainly never going to take a television set apart. That resolve has always been firm in our minds, but should it ever waver, we will glance quickly at a photograph sent us by Admiral showing the innards of a table model TV set spread neatly on a large table. There are, says Admiral, over 1,600 parts . . . and it takes 2,000 soldered connections to put them all together.

By the way, Admiral, if you are going to all this trouble to lay things out and photograph them, couldn't you give us an *exact* count? Or will we have to take one of your sets apart to find out, precisely?

Oh, No! What are we saying! Let's see that photo again!!

### New Record Changers

At the Audio Fair in Chicago, we shall examine with interest several additions to the V-M line of record changers. Most noteworthy, we believe, will be the Model 956-GE, which uses a four-pole motor, muting switch, and GE variable reluctance cartridge. It plays all speeds, all sizes, and shuts off automatically and completely after the last record.

*Continued on page 87*

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## NOTED WITH INTEREST

*Continued from page 86*

### More Carpenters

Here are additions to lists of carpenters and cabinetmakers already published in HIGH-FIDELITY.

*Clearwater, Fla.:* In answer to your plea for names of superior cabinetmakers, I submit the following: G. B. Snyder, 312 Jefferson Ave. Mr. Snyder is an excellent, experienced cabinetmaker, and has an understanding of audio systems as well. I have found his prices to be quite fair. Having recently placed a superb installation (a conversion) in my home, he has my highest recommendation. — Don Johnson, 1160 Drew St., Clearwater, Fla.

*New Rochelle, N. Y.:* We note that in your Readers' Forum in the Winter issue, you have a request for the name of a reputable cabinetmaker who can make cabinets to house the FM, TV and phono equipment. We have made cabinets for several New York custom installation organizations and would appreciate it if you would keep our name on file for your subscribers. — Real Art Furniture Corp., 335 North Ave.

*Jacksonville, Fla.:* In response to your note in the Winter issue of HIGH-FIDELITY, requesting names of cabinetmakers with experience in audio cabinet work, I should like to submit my name. I have a power workshop and have had considerable experience in audio work. I have constructed several radio-phono combinations, speaker enclosures (bass reflex and folded horn), portables, and a permanent installation for a local junior college. I have also worked with custom television and records. — G. Franklin McClure, 1242 Belvedere Ave.

*Danville, Ill.:* I understand you are looking for names of people who do cabinetwork. We build Pipe organs from the raw material to the finished job. — Cozatt Organ Builder, Danville.

*San Francisco, Calif.:* For your file on cabinetmakers in the San Francisco Bay area, I would like to recommend the Perma-style Furniture Co., 950 Columbus Ave. I have seen several excellent examples of their cabinetwork, including speaker enclosures, radio-phono cabinets, and other furniture. One of their best features is the ability to follow drawings submitted by the customer, and have the final product come out with correct dimensions as planned. I had them build a cabinet for me to house an amplifier and controls, tuner, record changer, transcription turntable, and tape recorder. Since our living room must also have room for a few people after all the above equipment is installed, it was necessary to design the cabinet without too much space to spare. I am pleased to report that everything fits! All sliding units, doors, and the lid of the transcription compartment are carefully fitted, and all exposed edges are nicely veneered (no painted raw edges). Cabinet material is very sturdy. Walnut, natural finish, was used throughout, including sub-bases for turntable, changer and recorder. Finish is dull varnish, very beautifully done, and the

*Continued on page 88*

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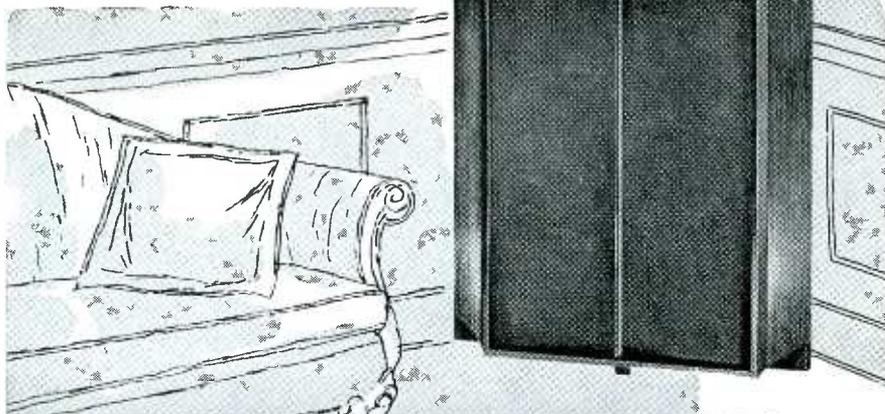
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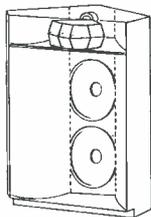
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LANSING CORPORATION

## NOTED WITH INTEREST

*Continued from page 87*

entire job is very satisfactory. — W. D. Rambo, 2561 Poppy Dr., Burlingame, Calif.

*Toronto, Canada:* I will build speaker enclosures to any design for Canadians who may write in to you. — Harold A. Miller, 65 Southvale Dr., Toronto 17.

*Danville, Ill.:* In response to your inquiry concerning carpenters who do careful work, I believe I can highly recommend Mr. Perry Cozatt, RR No. 2, Danville. Mr. Cozatt is a skilled cabinetmaker. His specialty is manufacturing Pipe organs and chimes. While he hasn't been handling custom radio work, I believe his skill as a musician and cabinetmaker would well qualify him in that line. — Ransom Beers, Sidell, Ill.

### Cabinets: to order and Ready Made

The list of carpenters and cabinetmakers who will build to your specifications keeps growing steadily; we'll publish a revised and complete list in the next issue of HIGH-FIDELITY. Meantime, we continue to ask your help in sending us names of organizations which you have found to be capable.

If a ready-made cabinet will do the job, we suggest you write for literature to G & H Wood Products Co., 75 North 11th St., Brooklyn 11, N. Y. They have available a variety of equipment and speaker cabinets, some in kit form, all at reasonable prices.

### FM Stations

We are always anxious to know of the good-music activities of FM stations. From S. J. Greear, of Denver, Colo., we have received the following report on *bad*-music stations:

"The three Denver stations in your FM listing have no right to appear in a hi-fi magazine. Their music is AM network, with an occasional local sports program. Denver listeners should not waste money on FM receivers."

On the sunnier side is a long report from John Meeker of Berkeley, Calif. on the fine-music activities of KPFA. Excerpts:

"I have just finished reading with interest your article on radio station WGBH. It represents the type of station that I am highly interested in and hope to see more of throughout the Country. It is not, however, the first radio station to start operations on the basic premise that high quality programs will be thoroughly appreciated by a mature and discriminating audience. That distinction goes to my favorite station, KPFA of Berkeley, Calif. which was and is the only listener-sponsored station in the Country. It first went on the air in the Spring of 1949 and since its inception has shown that the idea of listener-sponsorship is practical and workable. The station is now operating with an ERP of about 16 kw., and is in the process of revamping the transmitter building to make room for a new transmitter which will provide an effective radiated power of 52 kw. The new signal will make the station the third most powerful station in the San Francisco Bay area and will

*Continued on page 89*

## NOTED WITH INTEREST

*Continued from page 88*

reach out to a substantial portion of Central California.

"The program quality of the station's broadcasts are consistently high. A large percentage of the programs are live with the recorded ones being of varying degrees of quality technically due to the variation in the sources of recorded material.

"Twice a week the station broadcasts studio recitals by Bay Area musicians. On Monday nights, the student musicians and those just starting their careers present a half-hour program; on Friday nights the professionals, both well-known and not so well-known, present a program of about an hour's duration. These are live broadcasts and really give FM a chance to show its worth.

"There are some good things available on the FM band here in addition to KPFA but they have to be looked for. Station KRON deserves credit for its good music programming on weekdays. It operates Monday through Friday from 3 to 10 p.m. with music and news and most of the time has fairly good music (from my point of view). The music is from the classics and light classics generally and usually is from fairly good recordings.

"KNBC deserves credit for bringing the FM audience live concerts of the San Francisco Symphony Orchestra. The Standard Oil Company has presented the Standard Hour for about 25 years over the NBC network and since the advent of FM, the network outlet in San Francisco has put up a good quality FM transmitter which gives excellent coverage to the metropolitan area. The program features the various symphony orchestras of the Pacific Coast and when the program originates from the San Francisco Opera House or from the new Berkeley High School Community Theatre, the technical quality is superb.

"One other station deserves mention here for its work. KRE in Berkeley has the distinction of having produced a high quality program of serious music for the longest time of any station in the Western U. S. This program, Music of the Masters, is presented each weeknight from 7 to 8 and has been the best program of recorded music available in this area for years. KPFA has caused a change in the situation so that KRE's program now shares the spotlight for quality. KRE is now operating on FM as well as AM and the music program can be heard on FM. It is mostly from LP recordings provided and selected by the manager of one of the local record stores with a quality of announcing and advertising that equals the quality of the music.

"The other FM stations in this area are not very exciting to me. KALW is the station operated by the San Francisco Public Schools and is primarily a laboratory for the students in radio-engineering and announcing. They produce, plan, and announce the programs while the technical students operate the controls of the console and transmitter. The programs are more or less average. It gives fairly good signal quality to my locality in Berkeley. KCBS-FM is the CBS network station and duplicates

*Continued on page 90*

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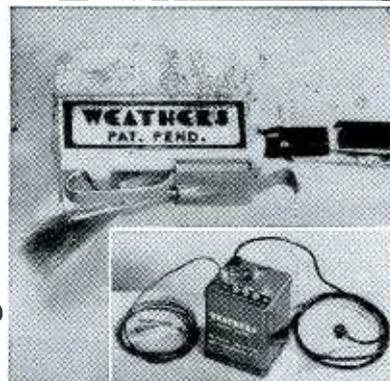
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- Distortion less than  $1/2$  of one per cent
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The 5106AX, a new 500 ohm voice coil co-axial speaker. The perfect companion for the 500 D Amplifier

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**NOTED WITH INTEREST**

*Continued from page 89*

the AM schedule. I have trouble picking it up for some reason. KGO-FM is the ABC network station here and duplicates the AM schedule; KJBS-FM is defunct after having tried to put on program schedule of good music during the broadcast day. KNBC-FM duplicates the AM schedule but, as noted above, is to be commended for its work with the local symphony orchestra broadcasts. KRON has been mentioned above. It is operated by the San Francisco Chronicle and is an adjunct of the paper's TV station. KSFH is now defunct and its transmitter site has been purchased by KPFA. KDFC originally put out good music, well programmed, but monetary influences have changed it into a "Musicast" station with second rate programming."

Here are more reports on activities of concert stations:

"FM station WRSW, Warsaw, Ind., presents numerous music programs which are worthwhile and enjoyable." — B. Brennan, Columbia City, Ind.

"In response to your request for reader reports on FM stations programming good music hours, I would like to direct your attention to station WBIB-FM, New Haven, affiliated with WQXR-FM, New York, and serving as a relay station for most, if not all of the latter's programs.

According to your list, WBIB-FM operates at 20 kw. I think this is incorrect; *i. e.* I believe the station is at present operating below this licensed power level. As a matter of fact, it is difficult to receive the signal clearly here in Hartford, since station WCOP-FM, Boston, interferes (WCOP-FM is a 20 kw. station on the same frequency, 100.7 mc.)." — Theodore A. Guest, W. Hartford 7, Conn.

"In response to your request for information on programs over FM as per HIGH-FIDELITY, I must say this: KISW-FM here in Seattle is about the only station over which you can enjoy high fidelity reception. They play all LP's whereas the other stations play the same transcriptions as they do on AM. The network programs on KOMO FM and AM are poor, except those from California, like the Standard Hour (usually good). KOMO-FM has the equipment to put out the programs, but the cross-country telephone lines limit response. Guess we'll have to sit back and enjoy our own records and KISW-FM until such time as the Phone Company puts up better lines!" — R. E. Greenwood, Seattle, Wash.

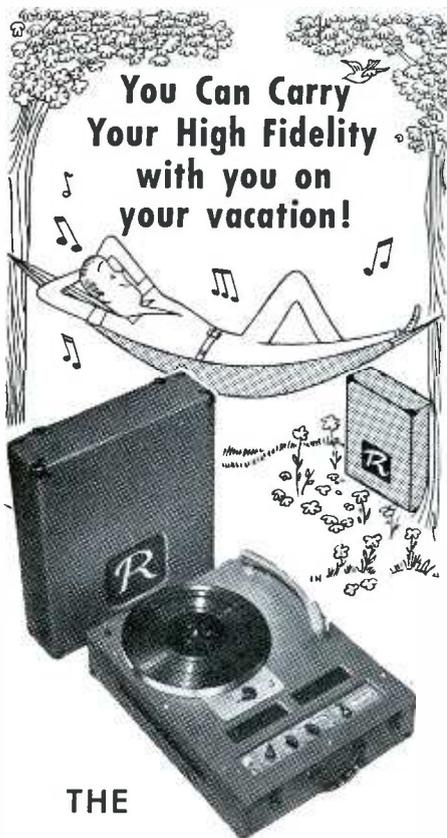
"Here's some data on Chicago area FM stations:

WAAF-FM duplicates sister AM station schedule between 12 noon and AM's sign-off.

WBBM-FM and WENR-FM duplicate AM schedule between 3 and 9 p.m.

WBIK, an FM-only station, broadcasts recorded and transcribed music six hours a day without any commercials.

*Continued on page 91*



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NOTED WITH INTEREST

Continued from page 90

WEFM, Zenith's FM station, broadcasts 14½ hours of fine music on recordings. WEHS is temporarily off the air due to changes in existing station.

WFJI is Chicago's only radio station that offers complete variety of programs without paid commercials.

WFMF is a functional music and storecast station, thus broadcasting 18 hours of music. WGNB usually duplicates AM schedule between 3 and 10 p.m.

WMBI-FM duplicates AM schedule while it is on the air.

WMOR is temporarily off the air.

WXRT and WIFA are permanently off the air.

WEXI, St. Charles, is off the air temporarily due to fire.

WOPA-FM is now operating.

WOAK is now WFMT and broadcasts all classical music.

There are over 600,000 FM homes in the Chicago area and approximately 80% of these are faithful listeners. This proves there is a definite future in FM". — Howard Schock, Morris, Ill.

"FM broadcasting in the Pittsburgh area has reached a low ebb. It is to be hoped that sales of FM-TV receivers plus an increasing awareness of the thrill of high fidelity will turn the tide.

WPIT-FM and KQV-FM were no longer on the air when your list appeared. The former had fine evening music and good transmission, while it lasted; the latter featured storecasts superior to those which remain on WKJF (see below).

Two stations, WWSW and WKJF, formerly had live broadcasts of the Pittsburgh Symphony, at least one of which was superb.

My opinions on the remaining stations: Educational WDUQ, with fine recorded and occasional live music is the best station for programming, but its flea-power transmitter can't be heard. KDKA once had separate FM, now merely relays network shows, as do two other stations. On my receiver, always too much hiss from KDKA. Announcers superior. WKJF, independent, transit and storecast, has library of incessantly-played "music between" records that all sound alike, plus poor announcers and awful modulation. WWSW, independent, sports and music, shouldn't try to do both. Transmission good but weak. Daytime programs, popular (?) records; night music programs too short, too briefly annotated. Announcers average. FM sportcasts make music highly uncertain. Station will interrupt anything to present news. WCAE and WJAS, network programs only, good power and unimpeachable transmission.

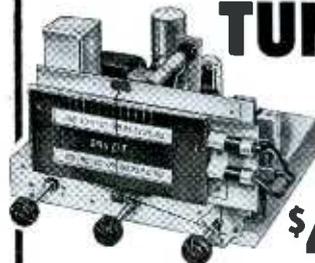
WJAC, Johnstown, has strong transmission of network programs into this area, duplicating KDKA. WJPA, Washington, has at times had excellent live program material.

If just one local station had the courage and imagination to re-establish separate, good FM programs — with announcers who have completed high school English — it would be a vast blessing to this City." — Harry L. Wynn, Pittsburgh, Pa.

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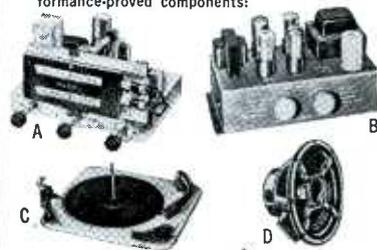
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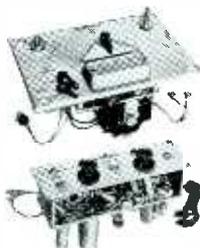
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*Tested in the Home*

As far as we know, there is no exact equivalent to the Altec-Lansing high fidelity system. We believe we are correct in saying that it is the only complete and integrated system available today.

That statement may raise a few eyebrows, so we hasten to explain exactly what we mean by "complete and integrated".

By integrated, we mean that the components be matched one to the other, that the interconnections be so simple that anyone (literally) can make them without danger of mistake, and that there be no duplication of controls.

By complete, we refer principally to inclusion of essential controls: volume, bass, treble, record compensation, and input selection.

The importance of completeness need not be pointed out to the high fidelity enthusiast. Even manufacturers are beginning to realize the need; record compensators as well as tone controls are now generally available.

And for the thousands of people who have struggled to connect an ABC tuner to a DEF amplifier with GHI preamplifier in the middle and a JKL compensator somewhere in the lineup, integration is a topic which might best not be brought up at all! Altec was one of the first, if not the first,



Fig. 1. FM-AM tuner, preamplifier, and all controls are housed in one cabinet.

manufacturer to recognize the need. Others are beginning to follow suit.

It is very much to Altec's credit that they have produced a system which is complete, flexible, and integrated.

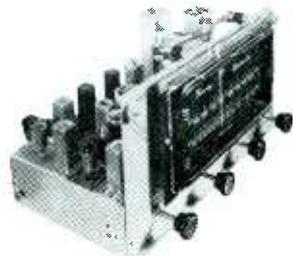
Three fundamental units are available: first, a power amplifier. Second, an FM-AM tuner which incorporates volume, bass, treble, input selector, and record compensating controls. Third, for those who do not need FM-AM tuning facilities, the control section of the tuner is available separately as a chairside unit. Figs. 1, 2, and 3 illustrate the units.

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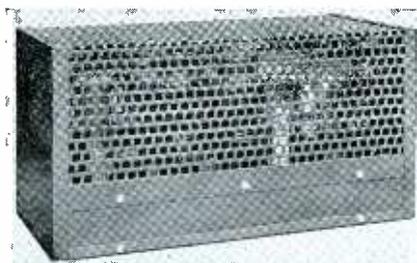


Fig. 2. Power amplifier is separate chassis.

The power amplifier is a straightforward design having a stated frequency response of  $\pm 1$  db from 20 to 20,000 cycles. It is rated at 27 watts output with less than 5% total harmonic distortion, 15 watts with less than 0.5%. Intermodulation distortion at 40 and 2,000 cycles, is 8% at 16 watts.

The preamplifier-control unit, either alone as a chairside unit, or incorporated into the FM-AM tuner, provides a range of bass and treble control indicated in Figs. 4 through 7. Fig. 4 shows the effect of the tone controls alone; Figs. 5, 6, and 7 show the control possible when the input selector is set to PHONOGRAPH and one of the three record compensation positions are used in conjunction with the tone controls. The three record compensation positions provide: 1) turnover 250 cycles, treble flat; 2) turnover 800 cycles, treble flat; and 3) turnover 450 cycles, treble attenuated 11 db at 10,000 cycles. Position 3 matches the AES curve.

The output of the preamp-control unit is of cathode follower design, so either the chairside unit or the tuner may be located up to 50 ft. away from the power amplifier. (Note, however, that the connection from phonograph cartridge to control unit should be kept short.)

The tuner section is more or less standard. Antenna connections are interesting: lead-in from the FM antenna can be used as an AM antenna, or a separate AM line may be used. Further, by disconnecting a small resistor under the chassis, AM sensitivity can be increased for long-distance operation. Keeping sensitivity low tends



Fig. 3. Chairside control unit employs cathode follower circuit so it can be placed up to 50 ft. away from power amplifier.

to improve reception in congested, strong-signal areas.

In testing the Altec FM section, we found that, on most semi-strong signals, no diff-

*Continued on page 102*

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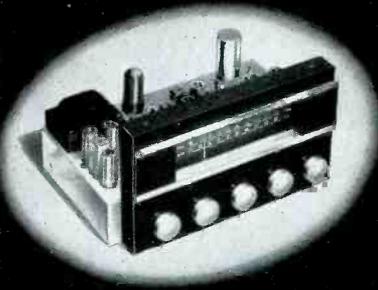
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# Tested in the Home

At the Audio Fair in New York last Fall, Paul Weathers<sup>1</sup> exhibited his 1-gram pickup. Most pickups for LP records operate with a stylus pressure of at least 6 grams. Reduction of pressure to 1 gram would mean a corresponding reduction in record and stylus wear. A sapphire stylus, good for perhaps 30 hours of LP record playing, would last for 200 hours; if a diamond stylus were used, the new pickup could be labeled "lifetime" without danger of the manufacturer being called up by the FTC for misrepresentation in advertising.

The sound which the new pickup produced was exceedingly fine, and it was achieved by a method not currently used by any other manufacturer. Instead of relying on the principles of magnetism, or the energy-producing characteristics of crystals, Weathers employed what amounts to a miniature FM transmitter. Variation in capacitance, caused by the stylus shank moving in close proximity to a small plate on the cartridge, modulated a radio signal generated by an oscillator.

The Weathers pickup caused a furore at the Audio Fair. We have since received many reports from readers: all have been favorable. One of the most glowing was from C. A. Anglemire (whose music listening group was described in the previous issue of HIGH-FIDELITY.) Mr. Anglemire wrote, in

<sup>1</sup>Weathers Electronic Industries West Collingwood N.J.



Fig. 1. The Weathers pickup rides on the record with a stylus pressure of one gram.

part, "We wish to report that some time ago, we had an opportunity to try out the Weathers pickup and found it out of this world!" Engineers with whom we have talked have been highly enthusiastic.

We have been working with a Weathers unit for the past several weeks and can corroborate the opinion of others: it is exceptionally good. The experimentally-inclined audiophile is likely to achieve results considerably above average. And, every user of a Weathers is at least quadrupling the life of his records.

The cartridge is illustrated in Fig. 1. The loop of metal, running from just under the prongs at the right and around to the stylus end of the unit is a protective guard and part of the assembly which holds the stylus. The guard and stylus slide off the cartridge body. Behind the guard is the

## University LOUDSPEAKERS

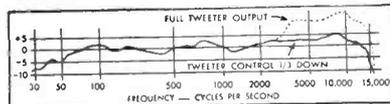
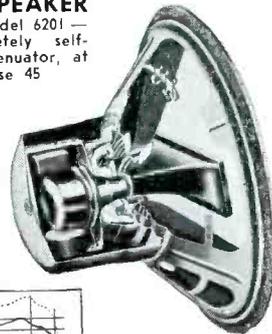
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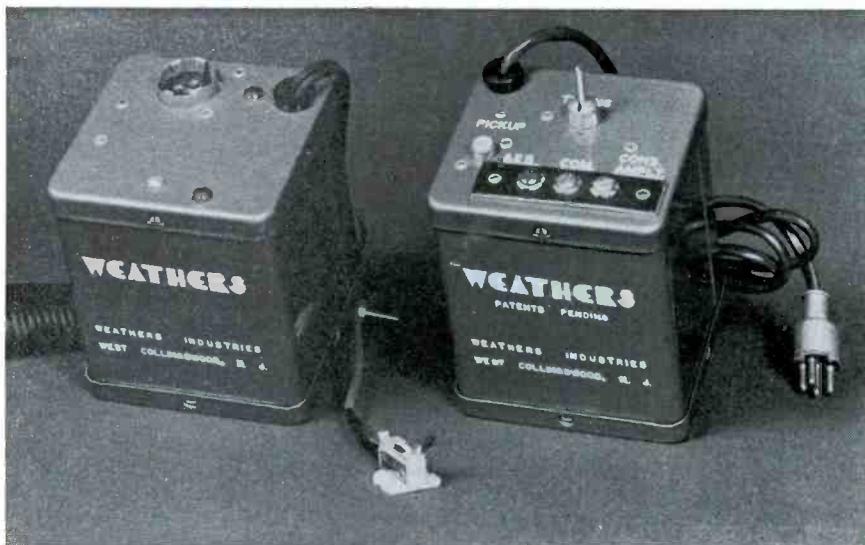


Fig. 2. The oscillator is shown at the right; accessory power supply at the left.

stylus shank and tip. Between the stylus and the brush is the plate which forms one half of the capacitor (the other half is the stylus shank), which is part of the cartridge assembly. The variation in capacity, which modulates the oscillator, is produced by the motion of the stylus in relation to this fixed plate. Normal spacing is 10 to 20 thousandths of an inch.

Beyond the plate is the brush which is an integral and important part of the Weathers unit. For one thing, the brush cleans

the record. For another, it absorbs 4 grams of the total cartridge pressure of 5 grams, leaving 1 gram for the stylus tip to carry.

We asked Paul Weathers how long the brush would last. None has worn out to date. After 6 months of almost continual use, the bristles tended to set and the pressure on the stylus tip increased to 1½ grams. Beyond this time limit, no change has been noted.

A shielded wire, cut to specific length and furnished by the manufacturer, attaches to the two prongs at the right in Fig. 1.

*Continued on page 96*

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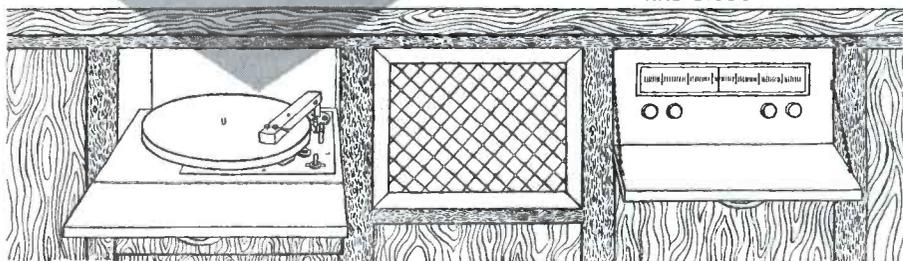


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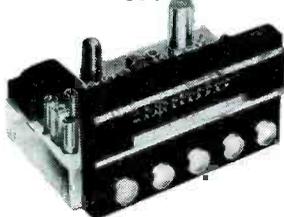
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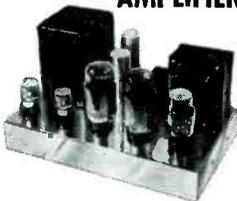
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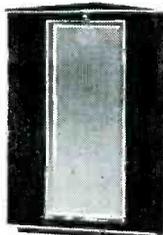
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## PHONO PICKUP

Continued from page 95

It is very important to note that this wire is part of the electrical circuit. If its length is changed, it will be necessary to adjust the tiny "trimmer" capacitor in the oscillator unit, Fig. 3. Similarly, the spacing of the two prongs, to which the wire is attached, is critical. If the cartridge is used in a holder which requires spreading of the prongs, as in Webster-Chicago plug-in heads, the trimmer capacitor must be adjusted to counterbalance the change in capacitance between the two prongs.

The shielded wire from the pickup cartridge is connected to the RMA plug (PICKUP) on the oscillator, shown at the right in Fig. 2. Power requirements for the oscillator are 250 volts of thoroughly filtered DC at 2 milliamperes and 6.3 volts AC at 0.3 amps. This power may be drawn from the power amplifier or other associated equipment, or it may be obtained from the Weathers power supply, shown at the left in Fig. 2.

A short, shielded lead is connected from the oscillator to the power amplifier (not to a preamplifier). If the amplifier has

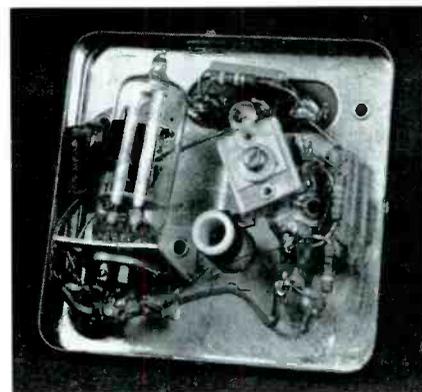


Fig. 3. View of underside of oscillator chassis. Tube at left is 6AT6. Almost in center is oscillator coil, which is slug tuned. Trimmer capacitor is just above coil.

an input connection which is compensated for crystal pickups, the COM (common or ground) and CONS AMPLT (constant amplitude) connections on the terminal board of the oscillator are used. If the amplifier has only a flat input connection, the connection is made to COM and AES terminals. In either case, the shield is connected to the COM terminal.

The volume control normally used with the amplifier serves to control the output of the Weathers unit.

Readers who saw the Weathers unit demonstrated at the Audio Fair will wonder why we have not mentioned the slim, attractive arm which Paul Weathers was using. The reason is that, by improving his design, Weathers has been able to avoid the necessity of using a special arm. As described in the November 1951 issue of *Radio and Television News*, the arm was an integral part of the electrical circuit, the oscillator used two 6AT6 tubes, and the price was stated to be around \$200. Since then, the

Continued on page 97

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## PHONO PICKUP

*Continued from page 96*

arm and one 6AT6 tube have been eliminated — and the cost brought down to under \$40.

Three types of styli are available: standard .003-in. radius, .001 radius, and a truncated tip, designed to play either 78 rpm. or LP records. Attempts by other manufacturers to develop a universal stylus, using the truncated principle, have not been entirely successful. What the result will be with a truncated tip in a 1-gram pickup remains to be seen.

So much for a description of the unit. How does it work? We said several things at the beginning of this Report which indicated our general reaction.

We said "engineers are highly enthusiastic" — and that is true. The theory behind the pickup is excellent. The design is clean, simple, and not likely to get out of adjustment. The fulfillment of this design is good. But — and this is why we mentioned "experimentally-inclined audiophiles" — fitting the unit into an existing system may take experimenting. The man who merely wants to plug a new head into his Garrard changer should proceed with caution.

Four characteristics of the Weathers should be considered in relation to the rest of the system: first, the stylus pressure is so low that some changers will not trip; second, some plug-in heads require spreading of the connecting pins on the cartridge, necessitating adjustment of the oscillator; third, the output of the Weathers is very low, and will not be sufficient to drive all makes of amplifiers; and fourth, since the pickup is plugged directly into the power amplifier, benefit of record compensators may be lost. Let's examine these points separately.

### Use with Record Changers

The question here is the amount of stylus pressure required to hold the stylus in the groove so arm motion will trip the changer mechanism at the end of a record. The Weathers' pressure of 1-gram is sufficient for a Webster-Chicago or an RCA 45 rpm. unit, insufficient for the time being for a Garrard. It is understood that adjustments can be made on the Garrard; owners of these units should write the U. S. distributor for instruction.

### Adapting to Pickup Arms

The Weathers cartridge can be used with almost any standard arm. It can be screwed into the RCA 45 rpm. changer arm without difficulty. It can be screwed to the plug-in head arrangement on the Gray 108-B. The regular terminals on this arm should be removed; weight should be added until the stylus just barely drifts down onto the record surface. Pickering arms will require some modification. There is a small lug which interferes with the terminals on the Weathers cartridge. The lug can be removed or bent out of the way, or long screws and shims used to build up under the cartridge

*Continued on page 98*

new Jensen

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**PHONO PICKUP**

*Continued from page 97*

until the terminals clear the lug. With either Gray or the Pickering, the connecting wires supplied with the arms should be removed and the special Weathers wire substituted.

Arms which have plug-in heads, such as the Webster-Chicago, can be used easily insofar as mechanics are concerned. The cartridge will fit in the head; the terminals on the cartridge can be spread and soldered to the standard plug-in head terminals. However, as mentioned earlier, this upsets the capacitance of the circuit. The screwhead on the trimmer capacitor, located on the underside of the oscillator, Fig. 3, will have to be turned counter-clockwise (as seen in the illustration) about one-quarter turn. Then the oscillator itself will have to be retuned. This is accomplished by turning the long threaded screw on top of the oscillator. In Fig. 2, this is directly behind the COM terminal. Instructions supplied with the Weathers explain exactly how this should be done; it is easy.

**Required Gain of Amplifier**

The main problem we ran into with the Weathers is that its output is low — relatively, lower than any of the standard magnetic or crystal units. Magnetic units have an actual output far lower than crystals or the Weathers, but they are always used in conjunction with preamplifiers. The latter raise the output until it is sufficient to drive an average power amplifier. Now, since the gain of power amplifiers depends on design and hence, on make, the Weathers will work with some but not with others. We tried the Weathers with the Altec tuner and amplifier which we were testing for the report on page 92. Results were perfect. We simply connected the AES output of the Weathers oscillator to the SPARE terminals of the Altec tuner; both sound and volume were wonderful. However, when the Weathers was used with a McIntosh 50-W-2, or the Sarsers-Sprinkle version of the Williamson, we did not get anything like enough volume.

Therefore, if the Weathers is to be connected direct to the power amplifier, it is important that the amplifier have sufficient gain. Gain, expressed in decibels, is usually stated by the amplifier manufacturer. For instance, the Williamson-type which we mentioned has a gain of about 70 db; the Altec is stated to have a gain of 82 db. The difference of 12 db is the difference between — with the Weathers — satisfaction and dissatisfaction.

If the amplifier to be used with the Weathers does not have sufficient gain, it is possible to use the pickup with a standard preamplifier provided the bass boost characteristics of the preamp are counter-balanced. This can be done either by modifying the circuit of the preamp, or by using a compensating network between the Weathers oscillator and the preamp input. Design of such a network is going to require experimentation. For our test, we used a Brociner preamplifier-compensator. Victor Brociner has worked with the Weathers and

*Continued on page 99*

## PHONO PICKUP

*Continued from page 98*

had designed a compensating network to match it to his unit. Because we use a corner reflex Air Coupler, our extreme low frequency response is probably better than average. Anyway, we feel that we got too much very-low bass. With a different speaker system, this might not be an objection.

Paul Weathers suggested that we use a 500 mmfd. capacitor in series with the AES output terminal. The effect seemed to be about the same. Further experimenting is needed here — or a "de-bassed" preamp.

### Use of Record Compensators

The fact that the Weathers unit is connected to the tuner or crystal input connection on the power amplifier (through a volume control, of course) and not through the customary preamplifier means that controls used to compensate for recording characteristics will be inactivated in nearly all cases.

Actually, inability to compensate for recording characteristics is not as important with the Weathers as with magnetic units. The reasons are complicated: magnetic cartridges are constant velocity devices. Records are cut with a constant amplitude characteristic up to their turnover point, then with a constant velocity characteristic. Therefore, magnetic cartridges require bass boost below the turnover point, and the user should be able to vary the point where the boost begins so that it will match the point on the frequency scale where the record manufacturer changed from constant amplitude to constant velocity characteristics.

On the other hand, the Weathers unit is a constant amplitude device. Hence, it follows the recording characteristic up to the turnover point (without compensation), but would droop thereafter. To compensate the droop at high frequencies, Weathers incorporates a network into the oscillator circuit. This network is in the circuit when the AES connections are used; it is out of the circuit when the CONS AMPLT terminals are wired to the crystal input connection of an amplifier.

The effect is that turnover compensation is not necessary, and that treble compensation is good enough for most records.

### Conclusion

This report has been unusually long but, as we said much earlier, the Weathers 1-gram pickup cartridge has wonderful potentialities and will be a delight to many ears — but it cannot be plugged nonchalantly into just any sound reproducing system or any arm. We confess, we worked with the Weathers for some time and were thoroughly discouraged — until we tried it with the Altec amplifier which we were also testing. The discussion of this pickup has been long because we want readers to share our enjoyment, not our original trials and tribulations.

Soundwise, the Weathers ranks close to or at the top. It's the old story, given correct associated equipment, it is hard to distinguish by ear one top pickup from

*Continued on page 100*

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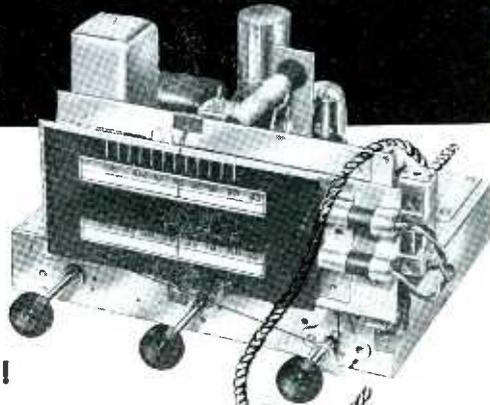
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## PHONO PICKUP

Continued from page 99

another. Extreme low frequency response on the Weathers is above average, by ear and by meter; the overall curve is smooth. The ear reports clean, brilliant but not harsh highs. Surface noise seems held to a minimum — below average. We also noted that the Weathers seemed particularly good at low volume levels. Sound had a translucent quality; dynamics were well preserved.

Perhaps the biggest feature is the reduction in record wear. The 1-gram weight is really something!

## COMPACT CABINET

Continued from page 40

most advantageous spot in the layout. The power amplifier, of course, could be put almost anywhere. By using a 10-in. turntable, the control knobs of the preamplifier could be moved close to the record-playing unit, since the turntable was high enough for a 12-in. record to ride clear of the knobs. In this way, the inside width of the cabinet would have to be made only about one-half inch wider than the diameter of the record itself.

By making every possible change and improvement of this kind, I was able to effect an astonishing decrease in the size of the cabinets. Instead of the 8.7 cu. ft. of the commercial cabinet, my requirements came to about 3.2 cu. ft. To a person whose living quarters, while not cramped, forbid anything quite as elaborate as has been seen up to now in HIGH-FIDELITY, such space-saving is invaluable. Instead of a bulky piece of furniture 23½ by 35½ by 18 ins., I needed a box only 14½ by 17½ by 21½ ins. The final design is shown in Fig. 1.

The plan and elevation, showing positions of the units, is sketched in Fig. 2. Fig. 3 shows front and side views of my arrangement in comparison with the smallest commercial cabinet available.

As finally constructed, the cabinet, Fig. 1, has some unusual features. The power amplifier is set on a platform very close to the floor, within a four-sided shallow base. Ventilation is achieved by having the cabinet proper rest on two grooves cut in the front and back sides of the base. But, it overhangs the base at each end, as shown in Fig. 3. This leaves an open space about 13 by 1½ ins. on each end, through which cool air may circulate. The air heated by the power amplifier and other equipment, escapes in two directions: through the ¼-in. space between cabinet sides and the phonograph motor mounting board, and through five 1-in. holes cut into the back wall of the cabinet just above the power amplifier.

The mounting board, on which the phonograph motor is mounted, is suspended on brackets, cushioned with rubber and screwed to the sides, as indicated in Fig. 4. This facilitates removal of the board when replacement of tubes or repairs are needed.

Continued on page 101

## COMPACT CABINET

*Continued from page 100*

The tuner and preamplifier are suspended on brackets attached to the sides of the cabinet proper, Fig. 5.

Controls have been simplified for maximum convenience: The main power switch, formerly on the tuner, has been incorporated into the selector switch on the preamplifier, as has the phonograph motor switch. Thus the selector has the following positions: 1) power off; 2) tuner, amplifier, preamplifier on; and 3) pickup, amplifier, preamplifier, and phonograph motor on. The only other controls are the speed changer for the phonograph motor, and the treble, bass, and gain controls. I do not seem to require an adjustable turnover switch, either because I can obtain satisfactory balance with the treble and bass controls, or because I'm just not fussy. Such extreme simplification of controls is not essential in making the installation compact, but it does contribute to overall convenience. A total of six knobs certainly contrasts with the baker's dozen I have seen pictured in some installations.

Although the amplifier and control unit I am using are not standard models, there is no reason why the ideas outlined here cannot be used with any of the equipment now on the market. I found that even the bulkier units, such as the more elaborate FM-AM tuners, adapt themselves unexpectedly well to such concentration and overlapping as I have outlined.

Perhaps the most important factor in any high fidelity installation is careful planning—in the selection of the components, and then in their installation into a well-designed, carefully thought-out cabinet. Only through plenty of forethought can the ultimate goal of visual, as well as aural, attractiveness be achieved.

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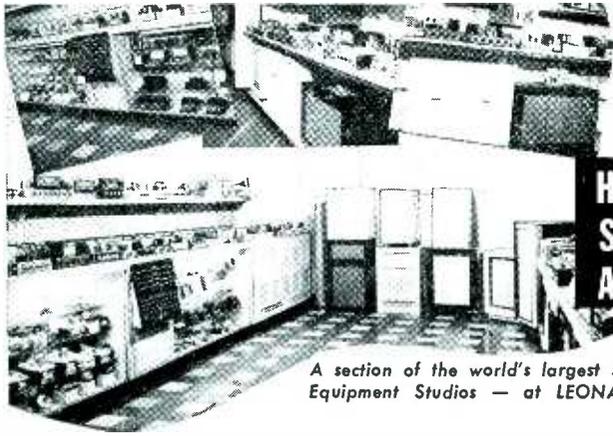
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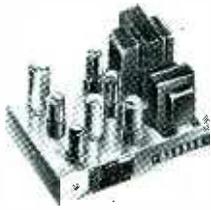
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## HI-FI SYSTEM

Continued from page 93

ference could be detected aurally between the Altec, which uses a ratio detector, and a top quality, Armstrong-type tuner. On weak signals, cars passing near the listening post were more noticeable with the Altec, and over-all background noise was a little heavier.

Input possibilities to the tuner are PHONO and SPARE — in addition, of course, to FM or AM. The SPARE feeds through the tone controls; the PHONO is for magnetic or

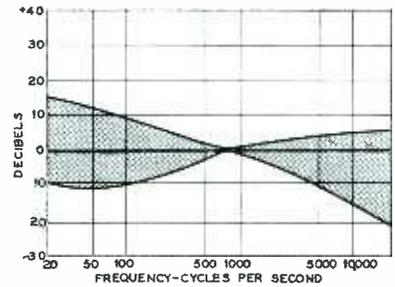


Fig. 4. Basic bass and treble control range possible for FM, AM, and SPARE inputs.

variable reluctance cartridges and operates through both record compensating and tone controls. Three input connections are provided on the chairside preamplifier unit: a PHONO, which is identical with the one on the tuner, and two SPARES which can be used, for instance, for radio and television.

Output from the amplifier is tapped for 4, 8, and 16 ohm speaker systems.

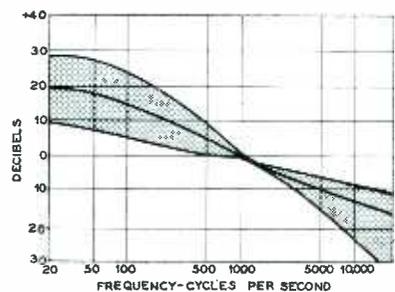


Fig. 5. Control range for AES PHONO input.

The fidelity of the system is excellent. The Altec engineers speak of their system as just about it. Good, conservative design produces good, clean sound. It is not a sports car, nor a hot rod jalopy.

Note that from the SPARE connection on the tuner to the loudspeaker, the Altec has more gain than most amplifiers. See the discussion of this feature in connection with the report on the Weathers pick-up on page 94.

We liked the simplicity of the Altec controls. Once in a great while we might wish

Continued on page 103

## HI-FI SYSTEM

Continued from page 102

that we had a bit more control. In 98% of the cases, there is enough, but when a really poor record must be played, more would be nice. That's a minor point which does not begin to outweigh the many good points of this equipment, nor the one outstanding feature: convenience and simplicity of installation.

It is a little hard to describe on paper the hitching together process, but here is an attempt. When the tuner is used, the

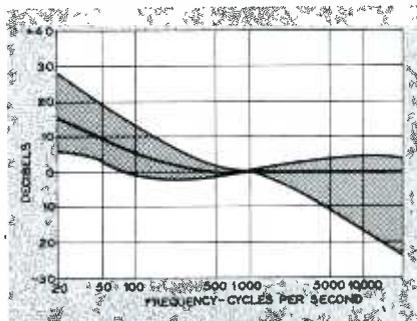


Fig. 6. Control range with record compensator in No. 1 position; turnover 250 cycles.

amplifier gets its AC power from an outlet on the tuner chassis, which is controlled by a switch associated with the volume control on the tuner. When used with the preamp unit, the amplifier is plugged into a wall outlet but it is still controlled from the panel of the chairside preamp unit. Then there is a spare AC outlet on the amplifier chassis so that operation of a television

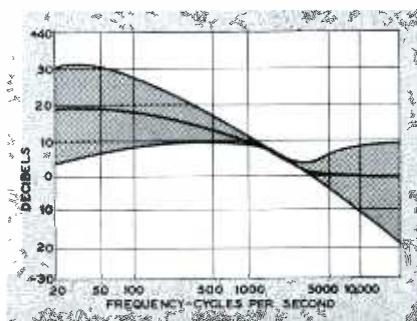


Fig. 7. Compensator at No. 2; turnover 800.

tuner, phono motor, or whatever, can be tied in with the amplifier.

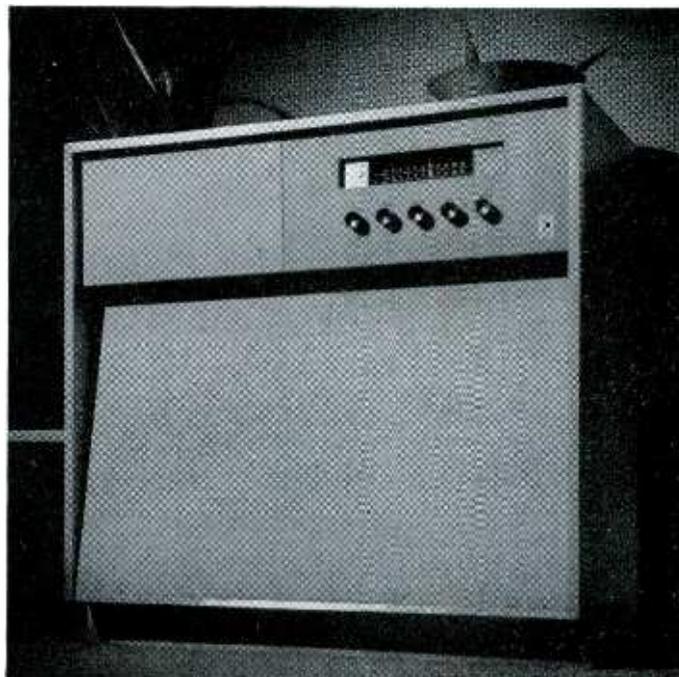
If the preamp is used, it gets its power via a four-prong socket on the amplifier chassis. The tuner develops its own power, so when it is used instead of the preamp, a dummy four-prong plug is inserted into the socket of the amplifier to short it out.

The output of the tuner or of the chairside preamp unit is connected by means of a three-prong plug to the power amplifier. Even our grandmother couldn't get these connections mixed up, especially since each is polarized so it can be inserted only one way!

Continued on page 104



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## HI-FI SYSTEM

Continued from page 103

### Conclusion

Highly recommended, most particularly for the person who knows little about the intricacies of audio and who wants to plug things together as simply and quickly as possible — and then sit back for continued enjoyment.

We wish the Altec system had been available when a friend came in, a year or so ago, to ask our recommendations for a system to be installed in his parents' home. He followed our advice, had the installation made, and everyone was delighted. The parents think the music is beautiful — but they hardly touch the equipment when their son is away. Why? Because there are ten knobs to cope with — including two volume controls, two on-off switches, and two input selectors!

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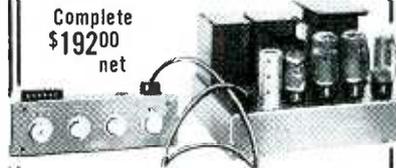
Bach's Goldberg Var., Italian Conc.  
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pre-amplifier which  
has compensated  
settings for all  
records.

Complete  
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In the TL/12 amplifier, hum and noise levels fall within -80 db and -72 db relative to 10 watts and are entirely inaudible. Feedback is taken from low side of output transformer and due to the magnitude of feedback, there can be no rise of voltage. The reproduction of transients, especially of low frequency, is astonishingly clarified.

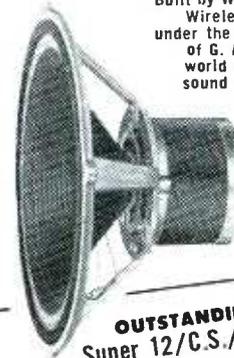
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## FOUR COMMANDMENTS

Continued from page 23

Those are the four basic rules which Mr. Bachman gave us. Here are some general comments and suggestions from him:

"Record collectors are sometimes concerned about variations in the color and gloss of long playing disc surfaces. Some 33 1/3 rpm. records appear to be dull and grey, while others are shiny and black. The fact is simply that the gloss or shine of a record is the reflection from flat surfaces or 'land' between the grooves. The duller, greyer surface means that there is less 'land' because the record actually contains more grooves. More 'land' appears as the number of grooves decreases. Grey or dull records are not defective by virtue of the apparent lack of gloss. They simply contain more grooves and hence more music. In fact, if discs which appear dull are slanted so that light is reflected from the groove walls, it will be seen that their surfaces are black and glossy.

"Some Columbia records are produced by a process of variable pitch which uses up practically all of the 'land'. In this process the space between adjacent grooves is governed by the loudness of the music, allowing the greatest possible playing time without sacrificing any recording quality or volume.

"Heat and dust are the two greatest dangers to records. Long playing records should never be stored near radiators or other sources of heat. High temperatures will aggravate the tendency to warp if records are not held flat. Proper storage is the most important preventative for record warpage.

"Flattening warped records is a slow process. In many cases months are required. Records should be placed in their jackets on a flat surface, like a glass table top, and weighted down with more records or some other large, flat object that will cover the entire surface.

"Records should be stored absolutely flat, stacked either vertically or horizontally, but flat. Multiple-disc sets in albums or boxes should not be mixed in horizontal stacks with single records, since the variation in thickness will cause warpage. Such sets should always be stored vertically.

"Careless dropping of the needle on a record surface should be avoided. But once the record is scratched, the audible effects can be minimized somewhat by turning down the phonograph treble tone control.

"Records should always be put back into their jackets immediately after each playing. Long playing discs should not be left to lie around unprotected. And be sure to buckle the jackets in order to slide the record easily into its container and to permit one to hold the record lightly at the edge while re-inserting.

"A dusty record should be cleaned with a slightly dampened cloth. This will remove lint and grit from the surfaces, although the lint alone is not particularly harmful.

"Grease marks from fingerprints should be removed because they will retain particles of grit and dust. Rub them off with a dry cloth. Any lint which remains can then be removed with a damp cloth.

Continued on page 106



# EAS Air-Coupler for Bass Reinforcement

**Good News . . .** The Dual Air-Coupler for bass reinforcement is in stock, ready for delivery. This is the improved model described in *Radio Communication* last October, and in the Winter Edition of *High Fidelity*.

As more and more of the most critical audio experts install Air-Couplers in extended-range systems, reports of remarkable performance continue to pour in. One of the most enthusiastic owners is Paul deMars, former chief engineer of the Yankee Network, and a pioneer in high-quality reproduction. He said: "I have never heard such magnificent tone from records and dual-talent FM as I am getting from my Air-Coupler in combination with a dual speaker for intermediate and treble frequencies."

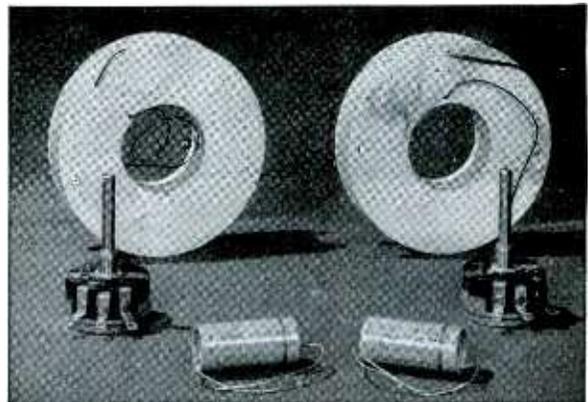
**For your convenience . . .** the Air-Coupler is available in both knock-down form, so that you can assemble it with a screwdriver, or completely assembled, ready to mount the speaker. Made entirely of first-quality 3/4-in. plywood, with each piece cut to precision fit.

**DUAL AIR-COUPLER, IN KNOCK-DOWN FORM** .....now only **\$34.50**  
Every part is furnished, including the screws. Illustration shows assembled Air-Coupler, before front panel is mounted. Opening is cut for any 12-in. speaker, the recommended size.

**DUAL AIR-COUPLER, COMPLETELY ASSEMBLED** .....now only **\$47.50**  
If you haven't the time or the inclination to put the parts together yourself, then here is the Air-Coupler completely assembled and finished in a truly professional manner. Supplied as illustrated, with front panel in place, ready for the speaker.

**MISCELLANY:** we carry in stock . . . Altec 600-B 12-in. speaker for the Air-Coupler, \$46.50; Peerless S-230Q output transformer, \$26.00; Peerless R-560A power transformer, \$16.00; Peerless C-455A power choke, \$10.00; English KT-66 output tube, \$4.95; Racon CHU2 tweeter, \$23.10.

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By a judicious selection of associated components, the three coil sizes on which G.A. has standardized enable our customers to secure low-cost crossover networks which will operate at 14 different crossover frequencies! For the experimenter, that means a wide range of choice without having to break the bank to buy dozens of coils. For the man who wants to install his system once and for all, it means money saved, because G.A. saves money by making only three coil sizes (10.2, 5.1, and 1.6 Mh) — and it passes on those savings direct to its customers.

If you want to use three speakers with crossover points at 350 and 1,100 cycles, for example, just order two of the networks listed above (for an 8-ohm system, with rapid crossover attenuation, it would be No. 6 and No. 8).

As most everyone has found out by now, G.A. is headquarters for crossover networks. As far as we know, we're the only organization stocking networks specifically designed for use with Air-Couplers.

If you are in doubt about the selection of a network for your particular speakers, send 10c for the G.A. Network Data Sheet, from which you can determine your requirements exactly.

### RAPID ATTENUATION NETWORKS

12 db droop per octave. These networks use two inductance coils.

Impedance of low frequency speaker	Crossover Frequency	Order by Number	Price 2 Coils Only	Price Complete*
16 ohms .....	2,200	No. 1	\$7.00	\$11.50
	1,100	2	7.00	12.00
	700	3	12.00	16.00
	350	4	12.00	17.50
	175	5	20.00	24.00
8 ohms .....	1,100	6	7.00	12.00
	550	7	7.00	13.00
	350	8	12.00	17.50
	175	9	20.00	24.00
	85	10	20.00	26.50
4 ohms .....	550	11	7.00	13.00
	275	12	7.00	15.00
	175	13	12.00	19.00
	85	14	20.00	26.50

\* Complete networks include necessary capacitors and level controls. Be sure to indicate whether you want just the coils or the complete network.

SAVE C.O.D. Charges! Send remittance with your order.

# General Apparatus Co.

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**New!**  
**Pickering 410**  
**Control Unit**



A self-powered preamplifier-control unit for use with basic power amplifiers, such as the Musicians Amplifier and others of the Williamson type, as well as the new Stephens 500D.

**FEATURES:**

- Accurately equalized for ALL magnetic cartridges. A 3-position compensator for matching the characteristics of popular types of records; response curves are unaffected by make of pickup used.
- Separate bass and treble controls, flat position of controls indicated by a round dot. Controls are step type.
- Cathode follower permits remote location from power amplifier without loss of frequency response.
- Three AC outlets on rear of chassis permits master control of power for other components of a music system with the AC switch on the panel.
- Amplifier and tube sockets shock mounted to minimize microphonics.
- Tubes: 1 - 6AU6; 3 - 6AB4; 1 - 6X4.
- Built in power supply, specially designed for minimum hum level, removes the problem of properly decoupling when tapping a power amplifier for B+ and filament voltages. Plugs into 117 volts, 50/60 cycles AC.
- Dimensions: 3" H; 6 3/4" D; 13 1/2" W.

NET PRICE . . . . . \$99.00

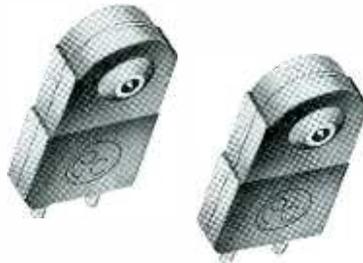
**Price Reduced ...**  
**By Popular Demand!**

The continued and increasing demand for Sun Radio's "Great All Triode Amplifier" has enabled us to reduce prices in the face of rising costs.

Two models engineered by us from a design published by CONSUMERS' RESEARCH, INC., Washington, N. J. (Special Bulletin #31). PEERLESS TRANSFORMERS used throughout on both models. Clear, rich, full, brilliant High Fidelity at a low, low price.

- Output transformers especially designed for this transformer. CR-10 uses a standard quality "husky" transformer, response from 30 - 15,000 cps; CR-10Q uses the famous Peerless S240Q, 20-20 line transformer, vacuum impregnated and moisture resistant, response from 20 to 20,000 c.p.s.
- All triodes in this unique circuit employing self bias. Seven tubes including rectifier.
- Harmonic distortion less than 2%; hum level 60 to 70db below rated output.
- Built in preamplifier for magnetic cartridges, input for radio tuner, crystal microphone or other signal source. Selector switch, volume control, bass and treble controls and power switch are the controls on the front panel.

**New and Improved**  
**Pickering Cartridges**



They're New; Different; Improved and better than ever. The new Pickering magnetic cartridges with Dynamic Coupling provides: better tracking, better frequency response and less intermodulation distortion. The appearance is the same, but the entire inner mechanism has been redesigned to provide cleaner and more realistic quality than ever before.

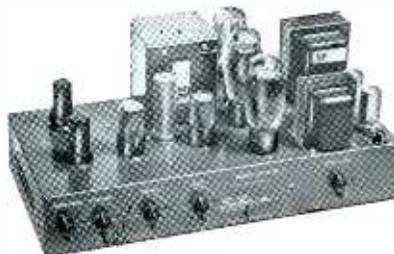
- New Stylus Mounting Assembly reduces "needle talk" to a minimum. Provides greatest possible compliance with minimum mass.
- Constant stylus contact with the record groove over the entire audio spectrum (20-20,000 c.p.s.).
- Full frequency response; full transient response; no resonances; no mistracking; no grinding of the groove wall.

**DIAMOND CARTRIDGES:**

For microgroove records, Model D140S . . . . . \$36.00  
 For standard 78 records, Model D120M . . . . . \$24.90

**SAPPHIRE CARTRIDGES**

For microgroove records, Model S140S . . . . . \$15.00  
 For standard 78 records, Model S120M . . . . . \$9.90



- Kits supplied with punched chassis, finished in bronze hammertone, with control designations silk screened on the front panel; all necessary components; transformers and choke; tubes. Easy to follow instruction book containing step-by-step instructions, schematic and pictorial diagrams.

**NEW LOW PRICES**

Model CR-10 Kit . . . . . \$49.50  
 Model CR-10W wired & tested . . . \$76.50  
 Model CR-10Q Kit . . . . . \$59.50  
 Model CR-10QW wired & tested . . . \$86.50



**FOUR COMMANDMENTS**

*Continued from page 105*

"The record cleaning cloth should not be too moist. If too damp, it may leave droplets of water on the record which are not harmful in themselves, but which will give a spotty appearance to the disc when the moisture dries.

"Many record collectors are concerned about static. Actually this condition does not in itself interfere in the least with the sound of the record. Discs accumulate electricity because they are good insulators, and the electrical charge attracts dust particles. The charge is developed through friction, even by rubbing a dry cloth across the record surface. For this reason, cleaning should be done with a damp cloth."

**READERS' FORUM**

*Continued from page 15*

Some time ago, we established a bi-weekly habit that is now becoming tradition and a very enjoyable one. On Friday nights, for two hours, we project ourselves into a make-believe world and have symphony concerts of our own. The concert starts at 8:00 p.m., programs that have been typed up are passed out, the lights are dimmed and by the light of a warm fire and in comfortable chairs, we can easily imagine ourselves at a live concert.

The program usually follows the set concert pattern: two or three shorter selections, an intermission and then the major work of the evening. Some nights are devoted to chamber music, piano recitals or a complete opera. Until one has tried it, it is truly amazing how much "alive" a good high fidelity system can sound in semi-darkness.

Later, over coffee cups, a hot discussion on the relative merits of composers, conductors, orchestras, recordings, hi-fi equipment and audio in general take place.

*John H. Nowak*

Germfask, Mich.

SIR:

In the last issue of HIGH-FIDELITY, there is an article in Readers' Forum that interested me very much, "Group Listening". Every Friday night in my home is Concert night. My friends enjoy the recordings very much, and they are all good listeners. The only sad part is none of them has a high fidelity setup.

My installation is a Scott 800-B tuner with separate amplifier, Rek-O-Kut T12-H transcription turntable, Gray 108-B arm using G-E magnetic pickups with diamond styli. Equalizer is the Radio Shack HL 1-6 with six positions. I use an Altec Lansing 604-B in a corner cabinet. The next thing I am planning to buy is a tape recorder; I like the Concertone very much.

I have been collecting records for ten years and am proud of my collection. It is very well rounded out: symphonies, concertos, three complete operas, and chamber music. On chamber music, above all, with

*Continued on page 107*

## READERS' FORUM

Continued from page 106

a good high fidelity system, the enjoyment is endless. For the last three years, I have been switching my library to long playing records which is well over two hundred now.

I wish HIGH-FIDELITY Magazine complete success. I am sure we will look back a few years from now, when everyone who loves good music and knows what high fidelity means, will know HIGH-FIDELITY Magazine is a must for the layman.

Les J. Sampson

New York, N. Y.

SIR:

It seems as though pre-recorded music on tape is getting to be a big thing of late. The A-V Library is probably the biggest venture, and it's been preceded and followed by possibly half a dozen smaller outfits. And, that's where Nocturne comes into the picture.

Nocturne turned exclusively tape several years ago, and furnishes "mood music" in any degree desired to wired music outlets, FM stations employing continuous musical segments, private collectors who desire complete symphonies cut for them on tape, etc. Our latest — and probably the most interesting — venture is that of furnishing tapes adaptable to collectors of color slides and color movies. We prepare running commentary, complete with appropriate background music, that can make "talkies" out of amateur film work.

We're not a very large outfit, but we've got ideas. And, background music for every application is moving very fast of late. We don't have catalogues as yet, but can supply listings to fit every need. Just thought that our activities might interest you and your readers a bit.

Jack Hartley

Nocturne Productions  
88 Diamond Bridge Avenue  
Hawthorne, N. J.

SIR:

I most heartily agree with your decision to use smaller type for the Record Reviews, run-over material, etc. We're more interested in content than pages, and anyway, I would expect that one whose auditory perception warranted high fidelity audio would not be too deficient in the visual acuity department!

My opinion of your magazine is probably best expressed by the 3-year renewal subscription which I sent the day after your expiration notice arrived. I especially like the Record Reviews and think it a good idea to have them on yellow paper so that they're easy to refer to. (The yellow is easier on the eyes too — for the fine print!)

Paul Vance, Jr.

Urbana, Ill.

We think the ivory color in this issue is real purty . . . do readers agree?

Continued on page 108

# BASS REFLEX

## KITS

## EQUIPMENT CABINETS

by **Cabinart**



**DIMENSIONS**  
33 1/2" high  
23" wide  
16" deep

**LUMBER**  
3/4" thick  
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Equipment cabinet accommodates any WEBSTER, GARRARD or REK-O-KUT changer, and any combination of standard tuners or amplifiers. Tuner compartment inside dimensions: 20" high x 21 1/4" wide x 15 1/4" deep. Bass reflex cabinet volume: 6 cu. ft.

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Dimensions: 30" high x 18 1/2" wide x 12" deep.

MODEL 758  
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#### All kits include:

- Lumber Cut to Size
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### KITS FOR CORNER FOLDED HORN ENCLOSURES

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12" Speaker  
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Everything you'd want for the very finest in High Fidelity . . . top quality—full guarantee—and BONAFIDE saves you plenty!

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Fully Guaranteed! **\$106.95 only**

25% deposit with order, balance C.O.D. Visit New York's Newest, Most Modern and Complete Sound Studio. Come in—browse around or write for catalog H.

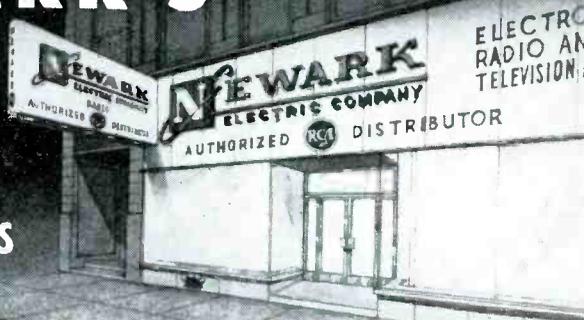
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**PILOT AF-605 HI-FI FM-AM TUNER.** Save more than half the original price on this sensational hi-fi value! It's a deluxe FM-AM tuner chassis actually worth \$89.95—now selling, while they last, at \$42.95. Bandswitch has 4 positions: AM, FM, Phono and TV. Circuit includes 1-stage audio amplifier with flat response,  $\pm 2$  db, 20 to 15,000 cps. Has negative feedback for low distortion. Separate 3-gang tuning condensers and tuned RF stages on both FM and AM. FM section has temperature compensated oscillator for minimum drift; AM section has IF wave trap for rejection of signals in the IF passband. Sensitivity: FM, 20 microvolts for .3 volt audio output with quieting; AM, 3 microvolts for 3 volt output. With: 6-6BA6, 1-6BE6, 1-6AL5, 1-6AT6, 1-6X5GT. Self-contained power supply. Has built-in FM and AM antennas, plus provision for external antennas. Chassis size,  $11\frac{1}{2} \times 6 \times 9$ ".  
**81F003. Shpg. wt., 8 $\frac{1}{2}$  lbs. SPECIAL . . . . . 42.95**

**TAPEMASTER PT-121 TAPE RECORDER.** New low-cost basic recorder for use with external amplifier or radio. Dual track. Records at  $7\frac{1}{2}$ " per second. Fast forward speed, 20:1 ratio. Flutter, less than 0.5%. Response,  $\pm 3$  db, 70-8,000 cps. Inputs for mike, tuner and phono. Blue-gray case,  $12 \times 12\frac{1}{2} \times 9\frac{1}{2}$ ". With tubes, 5" reel of "B" tape, 7" take-up reel, and 3-ft. cable with plug. Less amplifier (see below).  
**75F150. Shpg. wt., 21 $\frac{1}{2}$  lbs. NET . . . . . 99.50**

**TAPEMASTER SA-13 AMPLIFIER AND SPEAKER.** Companion unit for above. Response  $\pm 1$  db, 30-15,000 cps. Peak output, 8 watts. Less than 1% distortion at 5 watts. Bass control boosts 7 db, attenuates 12 db—at 30 cps. Treble control boosts 12, attenuates 10 db—at 15,000 cps.  $7\frac{1}{2}$ " accordion type speaker with floating cone. Tubes: 5881, 6SN7GTA, 6C4, 5Y3GT. Size  $9\frac{1}{2} \times 12 \times 18\frac{1}{2}$ ".  
**75F153. Shpg. wt., 25 lbs. NET . . . . . 79.50**

**PFANSTIEL "PFAN-WOOD" TONE ARM.** New functionally designed high-fidelity tone arm with no interfering resonances. Features knuckle-type bearing for both lateral and vertical motions. Tracking angle is adjustable for any record diameter. Pressure adjustable from 0 to 1 oz. In wooden sections,  $11\frac{3}{4}$ " long. Less cartridge.  
**50F850. Shpg. wt., 3 lbs. NET . . . . . 24.75**

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 See Newark's display of the latest in High-Fidelity Equipment at the Conrad Hilton Hotel, Rooms 705A and 706A on May 23rd and 24th.

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Send For Newark Catalog 51  
 160 pages of High-Fidelity and  
 Electronics Equipment

**READERS' FORUM**

*Continued from page 107*

SIR:

I was much interested in Mr. Burnside's letter partially quoted in "Noted With Interest" in the Spring issue of HIGH-FIDELITY. My experience matches his, only I do not hesitate to return records which I find have been damaged or which are faulty in any way. Perhaps I am more fortunate than many in that I deal with a shop where this is possible.

I was much interested, while I was in London last Fall, to find that some record shops advertised "mint copies" which is equivalent to Mr. Burnside's sealed carton.

The problem posed by Mr. Burnside will require the cooperation and understanding of the manufacturer, the merchant and the consumer. The consumer contribution to this problem is not well enough understood. It seems to me that there should be less and less need for the buyer to want to play a record at the shop before buying. This is due to the great increase in the number and quality of record reviews in many magazines — HIGH-FIDELITY, for example.

Ordinary shopping habits and attitudes do not function effectively when one buys records. The purchase of a recorded symphony, for example, should be a matter of some study and thought, regardless of the status of one's economic health. Such study and thought is now possible without actually playing the record once, twice or more times at the possible expense of the merchant or another buyer.

If the merchant finds it necessary to provide means for the prospective buyer to review a record at first hand, he should see to it that the best possible equipment is available and that the salesman supervises the playback session.

I have in mind only serious music, expertly performed and recorded on LP records. The answer to Mr. Burnside's complaint is the "mint copy". This will require some re-education of the record buyer and a willingness on the part of the merchant and manufacturer to take back records which can be demonstrated to be technically imperfect.

*H. M. Evans*

New York, N. Y.

SIR:

It has just occurred to me that FM broadcasting might get a lift if you can get all your readers to write something similar to the following to the advertisers. We lost an FM broadcaster in this town because he couldn't get enough advertising to pay him to run an AM and an FM station simultaneously. Worse yet, he owns the local daily and through said sheet, he gave the impression that his FM station was being discontinued because FM was on the way out, and I meet many lifted eyebrows that indicate that I am out of date because I just fresh bought a fancy new FM outfit.

Would it be ethical for you to give me the names of any other subscribers in Kan-

*Continued on page 109*

"Designed for Discriminating Users"

# "SOUNDCRAFTERS"

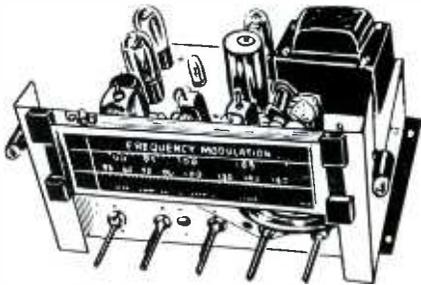
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## JAN SOUND EQUIPMENT CO.

222 Fulton St., New York 7, N. Y.

Phone WOrth 0632

## READERS' FORUM

Continued from page 108

kakee to your magazine? The local record stores tell me that they have a limited stock of classical records because no one ever asks for them. I am ordering mine from New York and Chicago, and am wondering if others here are doing the same. As a gang, we might convince the shops here that classical music does have an audience.

Will readers write direct to Mr. Hoskinson? His mail address is given below along with excerpts from his letter to a broadcast advertiser.

"Reynolds Metal Co.  
 Louisville, Kentucky  
 Att: Sales Department

"Gentlemen:

"I wish to thank you for your sponsoring of the FM broadcasts of the symphony orchestra programs at 5:30 p.m. CST on Saturday evenings. This is a musical treat that is priceless and enjoyed by our entire family, and also by some of our neighbors who are not fortunate enough to have FM receivers.

"Transmission quality on amplitude-modulated broadcasts is so bad that we listened to AM programs only long enough to get the weather forecasts, until we got our new FM receiver lately. The tone quality of your symphony, broadcast by WMAQ-FM, is so realistic and so easy to listen to that you will find us in your audience every Saturday evening."

E. M. Hoskinson

Rt. 2  
 Kankakee, Ill.

SIR:

I would appreciate your sending to me a list of home recordists who would be interested in corresponding with others with a similar hobby. I happen to be a disc recording enthusiast who gets as much enjoyment from recording classical music from the radio as from any commercial record yet to be issued. There is just something about an actual Met broadcast or a Toscanini concert that doesn't get into the grooves of commercial records.

Along this line, there may be a collector or two who would be interested in trading copies of their best attempts, or of some program that they didn't get.

Many thanks, and wish you would hurry that next issue of HIGH-FIDELITY on as I have just about finished memorizing the last three.

Robert M. Gravelly

Martinsville, Va.

SIR:

I have one fault to find with a record extolled in your "The Hat Trick" on page 54. I bought Tchaikovsky's *Fourth* on Westminster WL 5096 and settled back for the miracle to happen. It did! The music was

Continued on page 110

**NEW! 2ND EDITION**  
**of the only complete**  
**reference on AUDIO!**

## "The Recording & Reproduction of SOUND"

by OLIVER READ



Completely revised and vastly enlarged new edition

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Now you can have all the *right* answers to any subject in the field of Audio. Learn how to select and get the most out of recording equipment. Tells you how to select the proper amplifier for given applications, how to test amplifier performance, how to eliminate hum. Explains microphone, speaker and pickup principles and selection factors. Shows how to utilize inverse feed-back, expanders and compressors. Covers hundreds of subjects—a vast wealth of reliable information found in no other single volume. If you work in the field of Audio, this book belongs in your library. Order your copy today!

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My (check) (money order) for \$..... is enclosed.

Send ..... copy(ies) of *The Recording & Reproduction of Sound* (RR-2). \$7.95 per copy.

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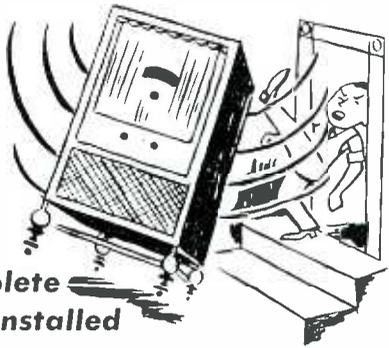
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and your console is right - up - to - date



**NEW FEATURES**—Improved Frequency modulation circuit, drift compensated - 12 tubes plus rectifier, and preamplifier pick-up tubes - 4 dual purpose tubes - High quality AM-MF reception - Push-pull beam power audio output 10 watts - Switch for easy changing to crystal or variable reluctance pickups - Multi-tap output transformer supplying 4—8—500 ohms.

Write Dept. HF for literature and complete specifications on Model 511-C and others.

It is not necessary to spend a large sum of money to modernize your old radio or to become a "High Fidelity" enthusiast. ESPEY chassis provide the Highest Quality at moderate prices.

Fully licensed under RCA and Hazeltine patents. The photo shows the Espey Model 511-C, supplied ready to play. Equipped with tubes, antenna, speaker, and all necessary hardware for mounting.

Makers of fine radios since 1928.

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**MANUFACTURING COMPANY, INC.**  
528 EAST 72nd STREET, NEW YORK 21, N. Y.

## READERS' FORUM

Continued from page 109

reproduced with the help of Messrs. Rek-O-Kut, Pickering, Williamson, and Altec-Lansing. After turning down the volume control so that the lows were just audible, a crashing crescendo knocked a pewter teapot off the fireplace mantle. Since my living room is approximately 14 by 30 ft., I would warn anyone not to buy this record unless they have at least a small auditorium handy.

I have one suggestion. Every improvement we try to make in our means of reproduction brings with it at least several minor irritants the cure for which most of us find by the good old trial and error method. Such things as a buzzing tone arm, a 60-cycle hum, etc., present problems that are easily solved if you know how. Why not an article on DDT for the bugs of high fidelity?

John A. Timm

Boston, Mass.

SIR:

After reading the cordial and enthusiastic letters in Readers' Forum, I am tempted to invite some kindred spirit to try to ease the intra-family tension which was raised when I suggested placing a 15-in. loudspeaker in the plaster wall of our living room. The good wife is resigned to the idea if the eyecore can be camouflaged.

I have thought of concealing it behind a framed watercolor which can be hinged so as to swing back against the wall when the loudspeaker is being used, but I don't know whether it is a good idea. If it is placed where planned, there will not be adequate space for suitably-sized pictures on either side of it, if it is merely covered by fabric and frame painted to match the wall.

Any suggestions by readers who can solve the delicate domestic impasse will be gratefully received.

Hugh M. Hart, M.D.

New Wilmington, Pa.

SIR:

As devoted audiophiles (my husband on the technical end and I on the listening end) may we add our praise, commendation and appreciation of the job you are doing with HIGH-FIDELITY.

My request concerns an article in the near future on the care and storage of records, both LP's and 78's.

Mrs. C. W. Watson

Chicago, Ill.

See page 22, this issue.

SIR:

To be more specific as to why I find HIGH-FIDELITY so enjoyable, I think you have produced just what you apparently set out to do; namely, a collection of timely and informative articles and departments earmarked for those who are primarily interested in faithful reproduction *per se* rather than in the complexities that create it.

James Causey

Portland, Ore.

### Williamson Type

#### AMPLIFIER Features

- First Williamson Type Amplifier supplied with matching preamplifier
- Uses Altec Lansing Peerless output transformer.
- Practically distortionless - Harmonic and intermodulation distortion both less than 1/2 of 1% at 5 watts output.
- Frequency response ± 1 db from 10 cycles to 100 kc.
- Output impedance 4, 8, or 16 ohms.

The new Heathkit Williamson Type Amplifier kit is the best obtainable in amplifiers today - the choice of the really discerning listener. You can hear the difference and measurements actually bear out the superb performance. Frequency response ± 1 db from 10 cycles to 100 kc allow you to hear the highs and lows with equal crispness and clarity. Harmonic and intermodulation distortion both less than 1/2 of 1% at 5 watts output eliminate the harsh and unpleasant qualities which contribute to listening fatigue.

The circuit is similar to the one published in Audio Engineering Magazine for November, 1949, and is considered by engineers throughout the audio field as one of the best ever developed. The Main Amplifier (which may be purchased separately) consists of a voltage amplifier and phase splitter using a 6SN7, a driver stage using a 6SN7, and a push-pull output stage using a pair of 807 tubes. The output transformer is manufactured by the Peerless Division of Altec Lansing and is built to their highest standards. Output impedances of 4, 8, and 16 ohms are available. The power supply uses a separate chassis with husky Chicago Transformer power transformer and choke, and 700V Mallory filters for long hum-free operation. A 5V4G rectifier is used.

The main amplifier and power supply are each on a chassis measuring 7" high by 5 1/2" wide by 11" long.

#### PREAMPLIFIER AND TONE CONTROL UNIT KIT

The preamplifier kit consists of: a 12AX7 (or 12AY7) dual diode first amplifier stage with a turn-over control for LP or 78 record types, and a 12AU7 amplifier stage with individual bass and treble tone controls which provide up to 15db of boost or attenuation. A switch on panel selects either magnetic, crystal, or tuner inputs. Preamplifier also is well suited to custom installations - it will operate in either vertical or horizontal position, and special notched shafts of the controls and switches allow a variety of shaft lengths to be selected. Dimensions: 2 1/4" high by 10 1/4" wide by 7 1/4" deep.

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Send data sheet.  
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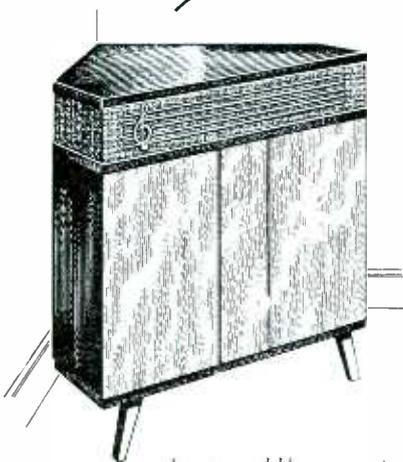
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ROCHESTER 21, N. Y.

**A NEW CORNER SPEAKER**

**FM BROADCASTING**

*Continued from page 36*

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*Literature available upon request*

● Performance of unrivalled purity and smoothness over the entire audible range! Powered by a remarkable twin cone driver unit\* designed expressly for horn loading, this dual horn achieves naturalness that simply cannot be put into words or expressed in terms of specifications. MODERATE IN SIZE AS WELL AS PRICE, it lends itself to graceful, attractive, decorative treatment that renders it a complement to the finest decor. Available in traditional as well as modern design.

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**WORLD'S FINEST AMPLIFIER!**

• Less than 1% harmonic or inter-modulation distortion even at peak power—reproducing the entire audible range from 20-20,000 cps

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50 Watts (Peak: 100)\*

**SINGLE FREQUENCY HARMONIC DISTORTION**  
GUARANTEED MAX VALUE AT 50 WATTS  
1% (TYPICAL MEASUREMENT)  
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**AE-2A Amplifier Equalizer**

**MC INTOSH LABORATORY, INC.**  
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faculties. In general, they seem to take the attitude: "I don't care how the station, or program, sounds as long as you tune it in." Or: "It must be good enough, because we don't get any complaints."

That is the situation at many stations. To most station managers, it seems, the name of the program or the performer is of paramount importance. If it's a good name, it must be a good show. Some of the poorest "reception" I have ever heard has been at the annual conventions of the National Association of Radio & Television Broadcasters. Each year, there is a final banquet at which some of the big-name talent provides what is described as "entertainment". You would expect such performers to be really experts at microphone technique. But no! Practically without exception, they drape themselves on the microphone stand, and sing or shout at the top of their lungs so close to the mike that they seem to be chewing off the paint. The sound system of the ballroom at the Hilton Hotel in Chicago is really very good, but what comes out of the loudspeakers when the talent mugs the mike is simply awful to hear!

To anyone of even moderately critical taste, ten minutes of that kind of audio reproduction is too much. Yet most of the men who run the broadcast stations in this Country listen to those performances every year and, apparently, think they are wonderful. At least, that's the way they applaud. For my part, I'd like to see them put a fence around the mikestand so that no one could get nearer to it than ten feet. Then, I think, the sound from the speakers would seem to come from human beings and musical instruments, and not from Tin Pan alley.

Of course, that is a general criticism, albeit well deserved. Nevertheless, there are important exceptions, and there are signs of continuing improvement among the FM stations. Listening to radio is definitely a habit, and broadcasters have come to take that habit for granted, forgetting that it is possible for people to become discouraged by inferior programs and poor reception to the point where they get into the habit of NOT listening. Audio broadcasting no longer has the advantage of novelty which television enjoys. Hence listener interest can be held only by good reception of good programs.

And since station managers only judge their programs by the letters of comment from listeners, programs will be improved only to the extent to which we make our opinions known by writing the stations about what we don't like, and what we do like, too.

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Assembly**



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**2940**

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HEAVY DUTY  
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MOTOR**



**Base  
and Cables**

Mixer-changer with one simple control knob. Mounted in metal base. Fully jamproof. Automatically plays 7, 10 or 12-inch records at 33 1/3, 45 or 78 rpm. Pickup arm returns to rest and motor shuts off after last record! 13 1/4" W, 12" D, 8" H. With cables and plugs, **3519**

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Can be mounted in console or custom installation. A truly high-fidelity amplifier providing: minimum distortion (less than .3 at 10 watts), maximum frequency response (flat from 10 to 50,000 cycles). Optimum damping factor (exceeds 20) and tremendous dynamic range (over 70 db).



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Plays through your own  
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RTMA standard 7 1/2" per sec. tape speed, fast forward and rewind. Full monitoring and self-powered (105-125 V., 60 cycle AC). Inputs for Radio-Phonos and mike, outputs to Amplifier and Headphones. Complete instructions furnished.

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Improved model — brilliant performance on both bands! Built-in preamplifier for G.E., Pickering and similar wide-range cartridges. Automatic frequency control circuit simplifies tuning, eliminates station



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**13150**

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A new 15 watt "ultra-fidelity" amplifier using the famous Williamson circuit. Gives the remarkable performance for which this design is world-renowned. Frequency



response 20-20,000 cps ± 0.1 db. Total harmonic distortion less than 0.01% at average listening level below 1 watt.

**9950**

NOTE: This combination provides one of the finest phono amplifiers we have tested. **TERMINAL** will make the necessary interconnecting cable and plug set for you.

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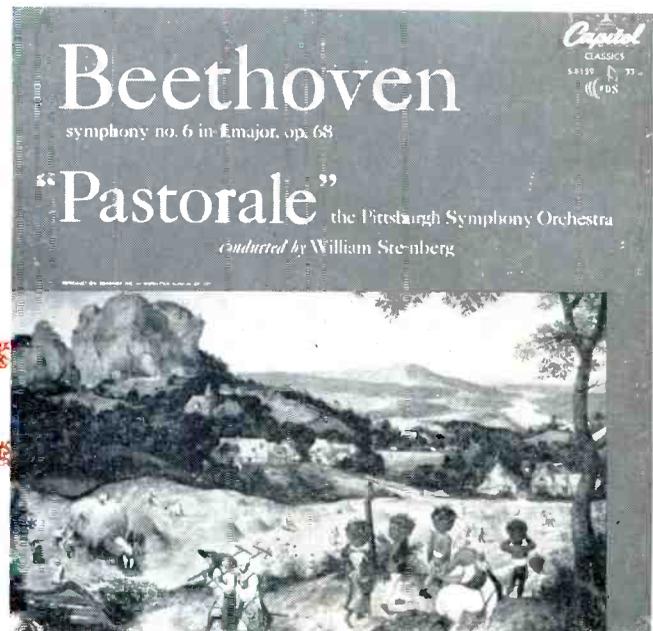
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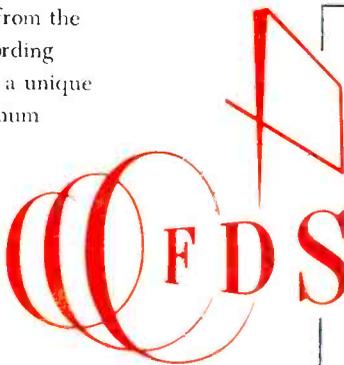
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