

Music AT HOME



HI-FI MUSIC • EQUIPMENT • INSTALLATION • OPERATION

Published by
MILTON B. SLEEPER

the Voice  of Music



Fidelity[®]

thrilling authentic high fidelity from 40 to 15,000 cps

The elegant V-M Fidelity (Model 560) table model high fidelity phonograph is first to offer you the musical pleasures of an audio system that includes three extended range speakers, extra large, exclusive bass reflex tone chamber that provides superior quality low frequency performance equal to console size instruments, plus full range angular tone dispersion. Exclusive V-M tone-o-matic[®] loudness control affords equal hearing loudness at different frequencies over the entire audio spectrum to give you balanced "live performance" music reproduction at power levels suitable to your home. Hear, enjoy, all the music in your finest records. V-M Corporation, Benton Harbor, Michigan, is the world's largest manufacturer of phonographs and record changers.



Your Choice — Blende or Mahogany Fidelity at same price! (black or brass legs optional @ extra cost) \$149.95*



V-M Model 556 Portable high fidelity Phonograph, tone o matic, exclusive speaker system \$119.95*

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Incomparable...



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"Triumph"

Since 1935,

the Garrard has been sold and serviced throughout the United States.

It is recognized everywhere for superior performance, ruggedness, and reliability; respected as the

World's Finest Record Changer

Please turn this page for a detailed explanation of Garrard features...

HEAVY DRIVE SHAFT:

A unique feature! Exclusive with Garrard!

Drive shaft for 33 1/3 rpm and 45 rpm is heavy, thus obtaining more consistent quality at critical low speeds. Wows and wavers eliminated.

TRIPLE SPEED SWITCH:

Speed changes are clearly marked, easily made. The RC-80 plays 33 1/3, 45 and 78 rpm. Records are placed on the player and simple settings made. Action is then completely automatic, including automatic shut-off after last record of any size.

CONVENIENT START-STOP-REJECT LEVER:

Start, stop and reject lever are combined and located conveniently away from tone arm.

PUSHER TYPE PLATFORM:

Adjusts simply to 7"-10"-12" records regardless of diameter or size of spindle hole. No record changing mechanism has been developed to equal the performance of the precision pusher platform. For records with standard center holes, the pusher platform is the only method that gives positive gentle record operation.

PULL-AWAY IDLER WHEEL:

Avoids flattening of drive wheel when changer is not operating.

AUTOMATIC STOP:

Insures positive and unfailing action at end of any type record.

BALANCE-MOUNTED TONE ARM:

Parallel lift tone arm construction guarantees true tangent tracking. Disturbing resonance eliminated.

INTERCHANGEABLE PLUG-IN HEADS:

Carefully engineered to accommodate user's choice of crystal or magnetic cartridges for standard and micro-groove reproduction, such as Astatic, Pickering, Audak and GE twist models.

GARRARD WORLD'S FINEST RECORD CHANGER

WEIGHTED TURNTABLE:

RC-80 turntable is heavily weighted to give flywheel action so that any variations in the drive motor are not reflected in record reproduction. No turntable rumble.

HEAVY DUTY SILENT 4-POLE MOTOR WITH ABSOLUTELY NO RUMBLE:

Speed maintained throughout a wide variation in line voltage. There is no appreciable speed variation operating unit "cold" with a full load or "hot" with one record, regardless of weight, thickness or diameter of records.

IMPORTANT!

Only a 4-pole motor can assure no hum when used with sensitive magnetic pickups.

TWO INTERCHANGEABLE SPINDLES:

Easily inserted, the two Garrard Spindles accommodate all records as they were made to be played. a: Typical Garrard spindle for standard center holes. b: Easily inserted wide spindle for 45 rpm records, remains stationary when record is played. Only a small collar revolves, assuring larger center hole and record wear. Eliminates fixed spindles (as on ordinary changers) . . . which require ripping records upwards over metallic spindle projections after playing.

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Perfectly meshed to insure constant smooth action and years of service.

MUTING SWITCH:

No sound while changer operates on run-in or run-off grooves. Continuity of music undisturbed by noises.

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All parts are precision made, fastidiously assembled and simple to adjust.

A complete stock of replacement parts is readily available to all Garrard owners.

Pictured here are the compelling reasons why discriminating listeners have insisted upon Garrard, world's finest 3-speed record changer, since 1935. Take this page to your favorite sound department and compare for yourself!

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Please send "Sound Craftsmanship" to:

Name _____

Address _____

City _____ Zone _____ State _____

Mail coupon today for a complimentary copy of "Sound Craftsmanship" 16 pages illustrating and describing all Garrard Record Players and the other fine products of the British Industries Group.



Music AT HOME

THE GUIDE TO HI-FI REPRODUCTION FROM RECORDS, TAPE AND FM RADIO



Photo by Phenix of San Francisco

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MUSIC AT HOME is published bimonthly by Sleeper Publications, Inc., Hi-Fi House, 207 East 37th Street, New York 16, N. Y. Telephone: Oxford 7-0542. Editorial, advertising, and circulation departments are located at the address above. MUSIC AT HOME is not connected or associated with any other magazine.

Subscription rates are \$3.00 per year (6 issues) or \$6.00 for 3 years (18 issues). Single copies, 50¢. Outside the USA, Canada, and the Pan American Postal Union, rates are \$4.00 per year, or \$9.00 for 3 years. Copies are mailed on the 1st of January, March, May, July, September, and November. Allow time for delivery by second class mail.

Editorial contributions and interesting photographs are welcome, and will be paid for immediately they are scheduled for publication. No responsibility can be accepted for unsolicited manuscripts, and they will not be returned unless they are accompanied by return postage.

Entered as second class matter at New York City, and additional entry at Concord, N. H., under the Act of March 3, 1879. Printed in the U.S.A. by Rumford Press, Concord, N. H.

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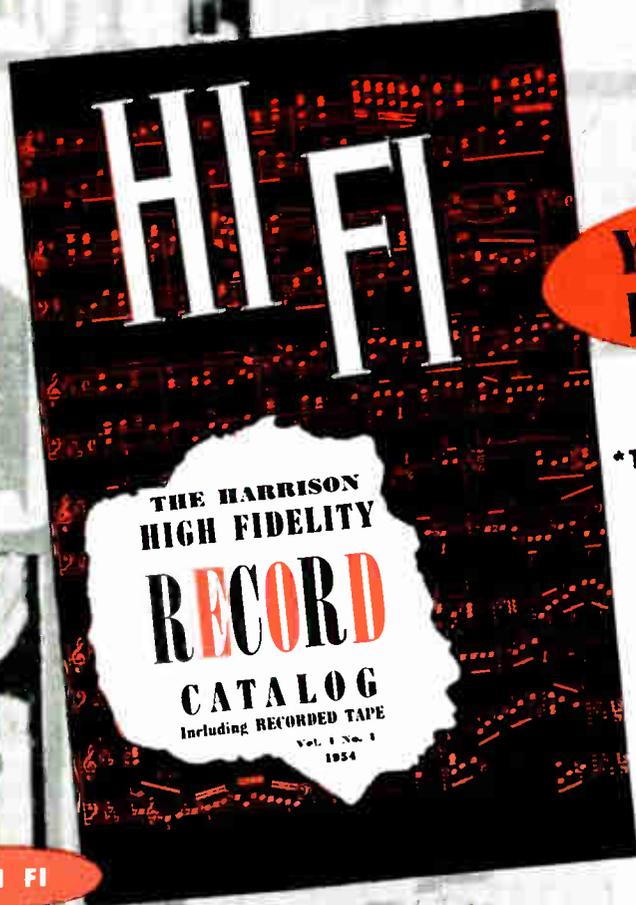
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COVER PHOTO: This radio-phonograph installation by Fidelity, Ltd. of San Francisco is in the apartment of Mr. Alan Levitt, announcer at KROW, Oakland. The shelves are supported on neatly piled face brick, making it possible to demount and move the installation easily. The speaker is not shown, as it is located against the opposite wall.



Your Guide to Hi Fi Records

Available now at your record-music or hi-fi equipment dealer...

*The HARRISON HIGH FIDELITY RECORD CATALOG

EVERY really hi-fi record made by EVERY company . . . EVERY recorded tape selection . . . at your finger tips.

ALL the information you need about hi-fi records: title, composer, performer, RPM speed, price. Even articles that tell you what hi-fi is, how to care for your hi-fi records, etc.

If you're a hi-fi set owner or planner, this is for you . . . for more and better hi-fi enjoyment. Better get your copy early.

Ask your neighborhood record-music or Hi Fi equipment dealer for The Harrison High Fidelity Record Catalog or send us his name and address and we will see that he gets a copy for you.

Write to Harrison Catalogs, 274 Madison Ave., New York 16, N. Y.

• By the Publishers of Record Retailing • The Opera Catalog • The Children's Catalog • The EP 45 RPM Catalog • The Convention Daily of the National Association of Music Merchants.



Records, Tape, and FM Radio

No More 78's

Major record companies do not plan to produce any more new 78's. Music that has been recorded on 78's in the past will be put on 45's in the future. This change affects pop music principally. Only objection will come from juke box operators, since one-speed players for home use have been considered obsolete for a long time.

Swap-Sell-or-Buy Column

Do you have equipment or records that you would like to sell, or to exchange, for something else? Or are there some items you would like to buy second hand? It has been suggested that Music at Home provide a column where readers can conduct their private swap-sell-or-buy trading. So we shall try out the idea, starting in the September-October issue. There will be no charge, at least for the present. You may use up to 35 words. Your copy must be received before August 1st if it is to appear in September-October. This free service is available only to individuals — not to dealers or any commercial enterprises.

Binaural FM Broadcasting

One of the most interesting papers given at the engineering session of the recent annual broadcasters' convention was that by William Halstead on binaural and trinaural transmission from a single FM station. Major Armstrong developed and demonstrated multiplex FM transmission and reception many years ago. His subsequent work was demonstrated at a meeting of the Radio Club of America a short time before his death. In our September-October issue, Mr. Halstead will describe the latest equipment by means of which any FM station can transmit signals for monaural reception on standard FM sets, and binaural or trinaural reception on FM sets equipped with a simple auxiliary unit.

Changes

Whenever David Hall tackles a job, he gives it the best he has, which is considerable. So he has done for Music at Home as Music Editor. But this work, added to his heavy commitments to Mercury Records, left him no time to himself. So he asked us to replace him. Just before that, we met Anita de Mars at a demonstration of Paul de Mars' new loudspeaker. (They are distantly related!) That was when we asked her to handle the Hi-Fi Concert Programs. Now, we have persuaded her to take over as Music Editor, an undertaking for which her professional experience makes her eminently suited.

It was with Miss de Mars' approval that
(Continued on page 6)

July-August 1954



You are FRONT ROW CENTER...

with FAIRCHILD's High Compliance Diamond Cartridge

Now—you hear for yourself—new brilliancy in recorded sound reproduction made possible by the Fairchild Series 215. This remarkable high-compliance cartridge brings amazing life like quality to the most delicate nuances of recorded sound and eliminates completely listening fatigue caused by tracking distortion. Compare. You'll select Fairchild professional quality at

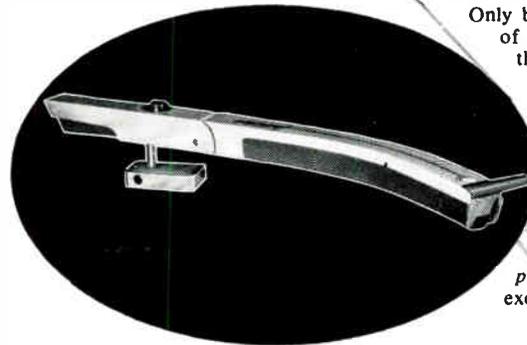
ONLY \$37.50



with FAIRCHILD's Plug-in Type Transcription Arm

Only by eliminating the adverse effects of arm resonance can records sound their best. Fairchild's new transcription arm allows the cartridge alone to lift all of the tone color from high-fidelity recordings. Dual pivoting plus a precision engineered offset provide continuous mid-groove tracking. And an automatic built-in arm rest safeguards the stylus. Any standard cartridge slides into this professional quality Series 280. An exceptional value at

\$29.50



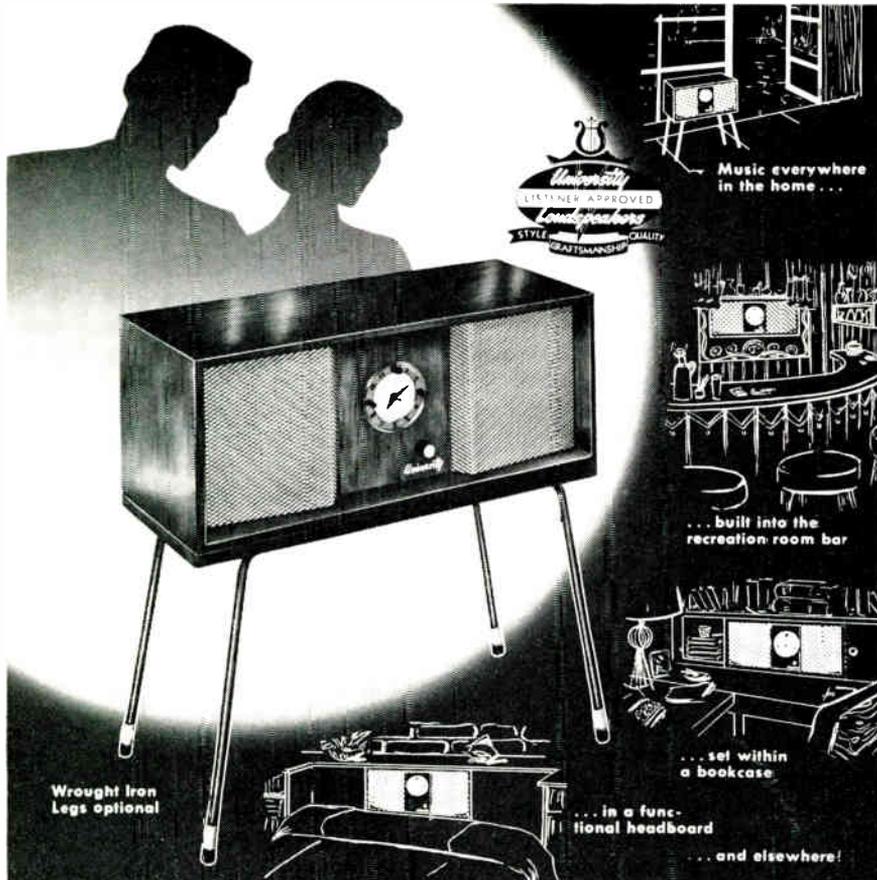
with FAIRCHILD's Balanced-Bar Pre-amplifier-Equalizer

Imagine—tailoring your high fidelity system to your listening room characteristics. It's all possible with Fairchild's new Model 240 Balanced-Bar Pre-amplifier-Equalizer. This exclusive feature results in simplicity of operation, yet allows full professional flexibility of control for the unusual record. Complete record compensation and gain controls. Four dual-triode tubes plus built-in rectifier. And, just as important, decorator styling keyed to today's living. Net to users,

\$98.50



SEE YOUR AUDIO DEALER or for free folder write:
FAIRCHILD RECORDING EQUIPMENT
156th STREET & 7th AVE., WHITESTONE, L. I., N. Y.



Records, Tape, and FM

(Continued from page 5)

we dropped the "Record Shopping Guide" published in previous issues. We came to the conclusion that these listings did not offer sufficiently important advantages over the record catalogs, and that the space could be used to better advantage for editorial material not available elsewhere.

Station KCBQ San Diego

Operating on clear channel 1170 kc., AM station KCBQ is carrying a very interesting hi-fi program Monday through Friday evenings for Breier Sound Center of San



Diego. Departing from the usual long-hair format, jazz, pops, and semi-classical records of high audio quality are being used. Audience response is reported as highly enthusiastic. The four principals concerned with this show are, left to right, E. F. Breier, Dan Lawrence, KCBQ owner Charles Salik, and Bob Reagan.

Need Money?

An announcement from the Provident Loan Society of New York states that acceptable collateral for loans includes jewelry, cameras, silverware, stamps, and — believe it or not — LP records!

An Added Feature

Effective with the September-October issue, we shall inaugurate a Tape Review department. The reviews will be handled by Dr. Hans Wolf, whose article "Recording Techniques" appeared in the March-April issue. Dr. Wolf has just completed a series of tape recording sessions in the music centers of Europe, and has left Vienna with the intention of making his home permanently in the United States. With the expansion of pre-recorded tape libraries, we believe you will find the new department of great interest. Dr. Wolf, because of his wide experience as a conductor and a director of recording sessions, is eminently fitted to serve as a critic.

Audio Show at Atlanta

First show of the fall season will be held at the Henry Grady Hotel, Atlanta, Ga. on Saturday and Sunday, August 28 and 29. Exhibits and demonstrations on the mezzanine and third floors will be open to the public from 1:00 to 10:00 p.m. Bi-

(Concluded on page 58)

Every Room a Music Room . . . with the UNIVERSITY 3-WAY "Companion"

Within the confines of a small enclosure—
performance that spans the complete musical range . . .
from rich, vibrant bass to lyrical, brilliant highs.

HERE'S HOW:



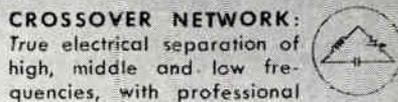
WOOFER: Heavy Duty exclusive "W" Alnico 5 magnet and rim-centered diaphragm with oversized voice coil on buzz-free duraluminum suspension provide exceptional richness and depth of the lowest bass tones.



MID-RANGE: Patented "Diffuser" element comprises dual radial mid-range projector and diffraction ring for efficient full-bodied reproduction of the middle octaves, retaining all the original "presence".



TWEETER: Genuine heavy duty driver unit with exclusive "reciprocating flares" wide angle horn reproduces the full range of the highest musical tones clearly and with true brilliance.



CROSSOVER NETWORK: True electrical separation of high, middle and low frequencies, with professional inductance/capacitance type network, results in deep dimensional spatial orchestral quality.



BALANCE CONTROL: Adjusts performance of the system to suit program quality, room acoustics and accommodates a wide gamut of personal taste.



AUTOMATIC CLOCK: Versatile timepiece will plan your musical itinerary—record broadcast programs in your absence—awaken and permit you to retire with choice music by adjusting a simple control . . . and the entire music system, tape recorder or radio will "perform" or "shut off" remotely or automatically.

For latest information write Desk 38-G.

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the *Ultimate* in
engineering skill created by **Pilot**

MODEL AF-860 AM-FM PILOTUNER \$179.50*



the *Ultimate* in
sensitivity interpreted by the exclusive

micro-meter



The *Ultimate* in High Fidelity . . . a proud achievement in engineering efficiency exemplified by Pilot's vast electronic experience for 34 years.

- ✓ Armstrong Dual Cascade Limiter—Discriminator circuit on FM.
- ✓ FM Sensitivity better than 1.5 microvolts for 20 db of quieting.
- ✓ AM Sensitivity better than 2 microvolts for 20 db signal-to-noise ratio.
- ✓ Exclusive **Micro-Meter** for Laboratory Precision Tuning on FM and AM.
- ✓ Continuously variable amplified AFC (automatic frequency control).
- ✓ Two-stage IF amplifier for broad or sharp AM bandwidth with 10KC whistle filter.
- ✓ Complete professional Preamplifier and Equalizer with 3 inputs and 2 Cathode Follower Outputs. Dual Equalization Switches provide five positions of Treble Roll-off and five positions of Bass Turnover.
- ✓ Phono Preamplifier inputs are variable for precise loading of all magnetic or variable reluctance cartridges from 6800 ohms to 100,000 ohms.

Visit your Pilot dealer for a new concept of brilliant musical reproduction. **\$179.50***



Write for free brochure M-3

*Slightly higher West of Rockies

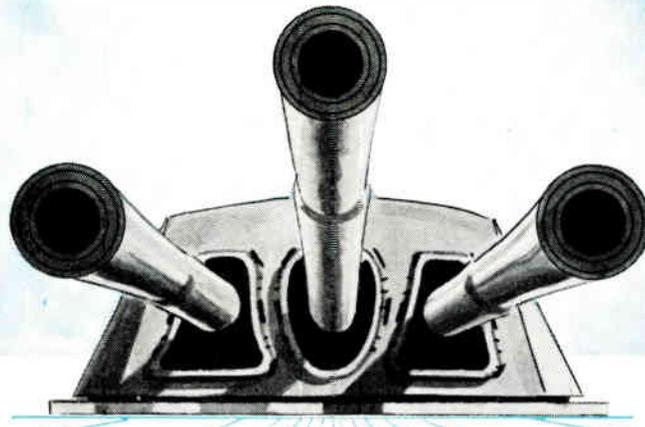
PILOT RADIO CORPORATION 37-06 36th ST., LONG ISLAND CITY 1, N. Y.

July-August 1954

7

Out of

a new



Since early in World War II, 9 out of 10 Navy ships have been equipped with radio receivers designed and built by the National Company.

Despite storms and salt spray — despite the jarring shocks of gunfire — despite static and earth-girdling distances — these sensitive, yet rugged "ears" of the fleet picked up vital, life-and-death messages, 24 hours a day, months on end.

Similarly, other National radio equipment dependably serves the Army, the Civil Aeronautics Administration, communication companies, industry and radio amateurs in 125 countries.

National radio equipment was carried on the perilous Kon-Tiki Expedition.

Out of this hard core of specialized technical experience — unmatched by any other high-fidelity manufacturer — National has produced an AM-FM tuner and associated inter-matched amplifiers so advanced in engineering, performance and styling they obsolete present equipment on the market today!

See and hear National's new HORIZON line at your high-fidelity headquarters today. Listen to a demonstration — you won't believe your ears!

tuned to tomorrow



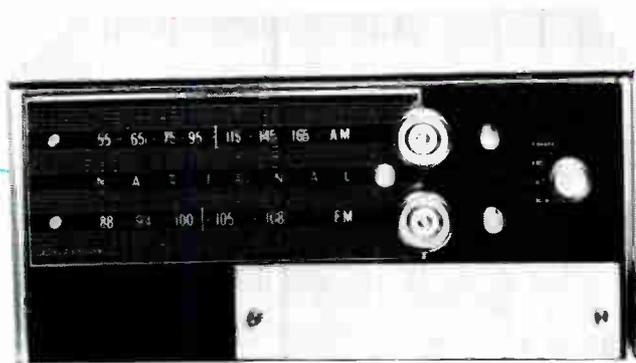
National 

FOR COMPLETE SPECIFICATIONS WRITE DEPT. A-74

World Radio History

the roar of big guns . . .

HORIZON *in high fidelity*

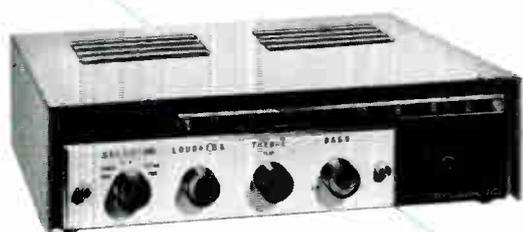


In designing this fabulous new HORIZON line, National offers the most advanced circuitry in the entire high-fidelity field.

To match this superlative engineering achievement, National called on a top designer to style the entire line for contemporary living.



These units are so striking, so fashion-smart, they need no cabinetry! Yet, if cabinet installation



is desired, they complement the richest setting, whether modern or traditional.

See and hear this distinguished line and see why it has already been hailed as "America's outstanding achievement in audio design!"



For a preview, please turn the page.

NATIONAL CO., INC., 61 SHERMAN ST., MALDEN 48, MASS.

World Radio History



a new **HORIZON** *in performance*



Just as engineering brilliance has been lavished on the circuits — just as high artistry has conceived the styling — so every care

has gone into the manufacture of the truly magnificent HORIZON line.

The very latest advanced production techniques (including printed circuits in the tuner and the preamplifier-control unit) have been employed.

Mutomatic Tuning and Unity-Coupling are exclusive National features. Each unit must run a long gamut of exacting tests before shipment. That's why you can be sure the HORIZON line will live up to advertised specifications.

tuned to tomorrow

National 

FOR COMPLETE SPECIFICATIONS WRITE DEPT. A-74

World Radio History



HORIZON 20

20-WATT AMPLIFIER \$84.95 (SIZE: 14½" x 4")

To surpass the present high level of amplifier design, National proudly introduces new power amplifiers with a revolutionary new output circuit employing unity coupling.

With unity coupling, the output transformer is no longer required to supply the coupling between output tubes for distortion cancellation as in normal push-pull circuits. Instead, the transformer supplies only the impedance matching between the tubes and the speaker system, thus eliminating impulse distortion created by transformers. Music is reproduced with an unclouded transparency — at all listening levels — never before achieved!

The HORIZON 20 is a 20-watt amplifier with a total harmonic distortion of less than .3% and total intermodulation distortion of less than 1% at full rated output. Frequency response is ± 1 db 20 cps to 20 kcs.; ± 1 db 10 cps to 100 kcs. Power response at rated output is $\pm .15$ db, 20 cps to 20 kcs. Hum and noise is 80 db below rated output.



HORIZON 5

PREAMPLIFIER-CONTROL UNIT \$49.95

The HORIZON 5 achieves a new high in frequency response (± 1 db, 20 cps to 100 kcs) and voltage output (up to 10 volts) — a new low in distortion (less than .2% harmonic, .3% intermodulation!)

Four inputs, 7 record equalization curves, a loudness-volume control and bass and treble controls are provided.

Entire unit slips quickly, easily into either the tuner or 20-watt amplifier.



HORIZON Criterion

AM-FM TUNER \$169.95 (SIZE: 16½" x 7¾")

Never before a tuner so versatile!

You can enjoy full-band AM!

You can listen to matchless, drift-free FM!

You can hear both at the same time, using dual sound systems!

You can receive revolutionary new binaural broadcasts as they are made available in your area! Two gain controls and separate tuning condensers are provided — one for AM, one for FM!

Exclusive Mutamatic FM Tuning eliminates all hiss and noise between stations, so annoying when tuning conventional tuners! Stations leap out of velvety silence — stay locked in automatically! Superior design eliminates drift.

An exceptional capture ratio rejects all unwanted signals up to 80% of the strength of the desired signal. The FM sensitivity proves the name — "the Criterion" — by which all other tuners are judged.



HORIZON 10

10-WATT AMPLIFIER \$79.95 (SIZE: 14½" x 4")

Incorporating the revolutionary new unity-coupled circuit in a 10-watt amplifier design, the HORIZON 10 offers performance never before achieved at such a moderate price!

The built-in preamp-control unit offers a choice of 3 inputs, 3 record equalization curves, a loudness control and separate bass and treble controls.

Harmonic distortion is less than .5%; intermodulation distortion, less than 2% at rated output. Frequency response is ± 1 db, 20 cps to 20 kcs.; power response, ± 2 db, 20 cps to 20 kcs. Hum and noise are better than 70 db below rated output on high-level input, better than 50 db on low level input.

NEW PACESETTER in today's Most Complete line of GENERAL-PURPOSE



NEW "623"

SLIM DYNAMIC

Size 7½" x 1-5/16".
Net wt. 15 ozs. List \$49.50

DYNAMIC MICROPHONES

You get advanced styling...plus E-V quality...in this new pacesetter! Proved E-V features guarantee dependable operation indoors and outdoors...for public address, paging, recording and communications.

The "623" can be used on a stand or in the hand. Omnidirectional. Response 60-11,000 cps. Output -55 db. Acoustalloy diaphragm. Pressure cast case finished in Satin Chromium. Tilttable head. Built-in cable connector. 5/8"-27 thread. "On-Off" switch. Choice of Hi-Z or Low-Z by changing one wire in cable connector. 18 ft. cable. *Get full details now.*



Model 647 Lavalier

Small, rugged PA dynamic for chest, desk or hand use. Supplied with neck cord, support clips and 18 ft. cord. Omnidirectional. Response 60-13,000 cps at -57 db level. 150 ohms or Hi-Z. Acoustalloy diaphragm. Black anodized finish. Size 5" x 1". List \$80.00

Model 636 Slimair

Exceptionally fine dynamic for PA, recording and general use. Response 60-13,000 cps. Output -55 db. Acoustalloy diaphragm. Pop-proof head. Omnidirectional. Wide pick-up range. Tilttable head. "On-Off" switch. Satin Chromium finish. 18 ft. cable. 1-1/16" diam. Use for Hi-Z or Low-Z. List \$70.00

Model 611 Mercury

Smartly styled dynamic. Response 50-8000 cps. Output -55 db. Omnidirectional. Acoustalloy diaphragm. Tilttable head. "On-Off" switch. Satin Chromium finish. Available in 50, 150 or 250 ohms, or Hi-Z. With 6 ft. or 18 ft. cable.

Model 611-8. List \$35.50
Model 611-20. List \$37.50

Model 630

High fidelity, high output dynamic. Response 60-13,000 cps. Output -55 db. Use on stand or in hand. Acoustalloy diaphragm. Omnidirectional. Tilttable head. "On-Off" switch. Satin Chromium finish. Compact, rugged, versatile. 18 ft. cable. Available in 50, 250 ohms or Hi-Z. List \$47.00

Model 605

Durable dynamic. Response 65-7500 cps. Output -55 db. Omnidirectional. Acoustalloy diaphragm. Head at 22° fixed tilt. Satin Chromium finish. Choice of 50, 250 ohms or Hi-Z. Models with 6 ft. and 18 ft. cable.

Model 605-8. List \$27.50
Model 605-20. List \$29.50

Cardyne Cardioid

Provides wide-angle front pick-up dead at rear. Reduces feedback and reverberation pick-up. High-Low impedance selector. Tilttable head. "On-Off" switch. Satin Chromium finish. 18 ft. cable.

Model 726. Response 50-8000 cps. Output -55 db. List \$75
Model 731. Response 40-10,000 cps. Output -52 db. Dual-type external shock mount. List \$95

No Finer Choice Than

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In addition to the models shown here, the complete E-V line includes famous TV and BC Microphones, hand-held Mobile-Mikes, Differential Noise Cancelling Microphones, and others. Write for helpful information on any application.

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MUSIC for YOUR HOME

DO YOU THINK that the current interest in music from records, tape, and FM radio will continue to grow? That question is being asked right now by many people for many different reasons. Instead of trying to give an answer here in the form of an opinion, let's dig down to basic facts. First of all, let us call hi-fi what it really is: *a recreational activity*. Thus we know that the enjoyment of hi-fi calls for spare time and extra spending money. Continued interest in hi-fi depends, however, on the extent to which this activity is a rewarding experience. On these points, definite information is available.

MR. AND Mrs. America have an increasing amount of time for recreation not only because the average work week was reduced from 50 hours in 1929 to 40 hours in '53, but because the number of people enjoying paid holidays and vacations increased so greatly. For example, prior to '29, 40% of production workers had one week's paid vacation, while today 90% average almost two full weeks. Additional time has been made available to office, sales, and service workers by the postwar extension of the 5-day working week. It is certain, therefore, that the factor of available time favors the growth and the permanent establishment of hi-fi.

As for extra spending money — in 1929 only 20% of the families had incomes, expressed in 1953 dollars, amounting to \$4,000 or more, while in '53 over 45% of our 51 million families earned upward of \$4,000.

This income figure is used by economists because it is far enough above the subsistence level to permit a substantial margin beyond necessities to be spent for hobbies and luxuries. It is interesting to note, however, that spending for serious hobbies, into which category hi-fi falls, starts in the column of necessities and extends over into the list of luxuries. You can see that illustrated in a striking manner at the hi-fi equipment stores where enthusiasts of obviously limited means spend a much larger percent of their incomes on hi-fi than would be spent for the same purpose by those in the higher income brackets. From these basic facts, it can be concluded that an increasing amount of money is becoming available to more and more people for the purchase of equipment to produce hi-fi music from records, tape, and FM radio.

But even though there is time to enjoy hi-fi, and money to spend on it, might it not prove to be just a passing fad, as building radio sets turned out to be back in the early 20's? Or will it find a permanent place in the interests of its devotees? To put the question differently: What does hi-fi do for people?

The love of music is basic in human nature. The most enjoyable source of music is the live performance. The mechanical phonograph fell into disuse after the novelty wore off because the quality of reproduction did not approach the original performance. Similarly, it was the thrill of picking up distant broadcast stations, and not

the musical entertainment provided, that put millions of men and boys to work on assembling radio sets. That was in the early days of radio, when sets were of simple design. After the superheterodyne circuit came into use, the complicated wiring and adjustments required factory assembly methods and precision test equipment. Then what had been a project for the kitchen-table workshop became another item in the list of home appliances that could be built better and more cheaply on factory assembly lines.

AS FOR HI-FI, its score adds up in this way: 1) as a source of music, it fills a fundamental human need, 2) it provides music of a quality which can be a virtual recreation of the original performance, and 3) the finest reproduction is available from equipment which can be installed with simple tools and limited experience, at a cost far below prices at which factory-built, cabinet instruments of equal performance could be offered.

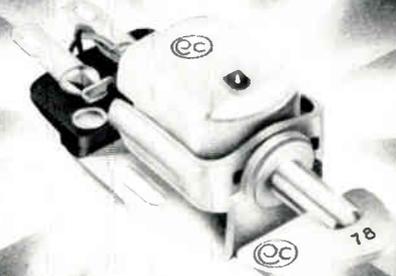
There are other factors to be considered. Statistics show less interest in such spectator activities as attending baseball games and movies, but more in participant activities. The latter, for example, accounts for an increase in the purchase of home workshop tools from \$50 million in 1947 to over \$200 million in '53. Hi-fi falls in the second category, because the construction of an audio system provides an opportunity for participating through the use of home workshop tools, and because the choice of initial components, their installation, the improvement of performance, selection of records, and making tapes call for participation.

Of greatest importance to most people, however, are the rewarding experiences of listening to fine music, and acquiring the imaginative capacity for auditory participation. These lead to by-product interests, such as gaining a knowledge of composers and conductors and their techniques, of artists and orchestras or special types of music, and taking part in group listening and discussions. These adult activities, it should be noted, are supported by the increased emphasis which our schools are putting on the subject of music, and new plans for coordinating the children's music listening at home with school courses in music appreciation.

Now, if the significant facts and factors have been presented here in their proper perspective, it can be concluded that interest in hi-fi music is here to stay as a principal home activity, and that, as the demand for hi-fi equipment continues to increase, a stable industry of major proportions will be created.



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Katie Lee, TV and night club performer, uses Sound-on-Sound to record her folksongs

NOW YOU CAN RECORD SOUND-ON-SOUND

With a 3-head recorder and a little practice, you can make like Les Paul and Mary Ford

By HARLAN THOMPSON

WHEN Les Paul and Mary Ford began multiplying themselves via New Sound recordings, and Capitol began selling same by the millions, they certainly started something. One of the things they started was the desire on the part of a whole lot of other people to go forth and do likewise. But just the desire was not enough. In addition to the ability to play like (well, something like) Mr. Paul and to sing like (or at least after the manner of) Miss Ford, it was necessary to have at least two high-quality tape recorders as well as equipment for mixing multiple sound tracks.

As Les and Mary had been carrying a couple of Concertone recorders around the Country with them since 1951, and as news about this got around, the amateur tapers began to inquire about the L. and M. technique, because they wanted to do, or try to do, the same thing. We didn't feel we had any business prying into the Paul-Ford recording procedure, but we did think it might be a good idea to provide the means for Concertone owners to make quartets out of themselves, if they felt they simply had to succumb to the urge to try it.

The problem was to add one sound track on another,

with the same tape, but without going to the expense of buying a second recorder and a lot of mixing equipment. We had no violent objection to selling more recorders, you understand, but we thought we should help our amateur friends avoid the expense of employing professional methods.

To do Sound-on-Sound recording, you can't just cut out the erase head on your recorder and start recording one track on top of another, because of a little matter called "super-sonic bias." That's the name the engineers have for a species of electronic modulations of such high frequency and intensity that the molecules of iron oxide, which coat the tape, are driven into a state of schizophrenic hysteria. In their disturbed condition, they offer no objection to being magnetized — and



You will need to add this adapter unit

that's how a tape recording is born. The only trouble is that the supersonic bias also has a strong erasing effect, and so takes off practically all of anything previously recorded on the tape. As you can see, this, for sequential recordings, is not so good!

So Dick Hoskin, Concertone's chief electronics engineer, went to work on the problem. Several days, and even more headaches later, he came up with the answer: the Sound-On-Sound (S-O-S) adapter. Plug it into your tape recorder, if it has *three* heads, and you can become the Sextet from Lucia or the Hot-House Hobos from Hoboken, all by yourself. You will have fun doing it.

And how is it done? You've probably been asking that question for at least the last three paragraphs. The first step is to rearrange the heads on the recorder so that they read, from left to right, **PLAYBACK**, **ERASE**, **RECORD**, as shown in Fig. 1.

On the Concertone, this means slipping off the connectors, loosening the mounting straps, and realigning the heads in their new positions on the head bracket. As you will see, this is easily done.

You can do the aligning yourself if you have an aligning tape for the playback head, and an oscillator set at 10,000 cycles for 7½ ips or 15,000 cycles for 15 ips tape speed to check the record lead. In both cases, maximum output indicates the correct adjustment. If you aren't set up to do this job, have it done by an expert who has the necessary test equipment. Anything less than precise alignment will affect the audio quality of your recording.

It is also necessary to tune the adapter to your particular recorder, unless it was furnished with the machine, so that the frequency of the oscillator in the adapter will be the same as the bias frequency of the recorder. That is a simple adjustment to make. Tuning is necessary to keep the high-frequency erase and bias oscillations from sneaking into the playback and record circuitry, and making a frightful nuisance of itself.

Now let's get to the Les Paul part. The first track is recorded in the usual way. If it is the melody, put it on the tape at full level, because it is going to have a lot of other music piled on top of it subsequently!

Next, plug the two leads of the adapter into the **INPUT** and **OUTPUT** jacks of the recorder. Also plug a set of earphones which, not unnaturally, go on the ears of the person performing at the microphone. The first track is then played through the recorder. The person with the earphones hears it and proceeds to sing, play or what-have-you in time with it. The mike, of course, sees that this gets to the record head.

And what is happening to the previously recorded track at this time? Well, as you can see from Fig. 1, it is being picked up by the playback head, detoured around the erase head, and recorded all over again, along with the output from the microphone. Result, two tracks where only one grew before.

At this point you're probably asking what happens when the first track gets to the erase head. The answer is simple. It gets erased! But who cares, since the music recorded previously is fed from the playback head past the erase head to the record head, and at the same time that the new part is being fed to the record head from the microphone. The erase head still does its erasing, but its real purpose is frustrated by bridging past it from playback to record!

There are other Sound-On-Sound stunts that you can try. For example, if you want to play duets with your fiancée in Philly, have her make a piano recording and send it to you. Then you can add loving lyrics to it and send it back to her. Or you can tape your own

voice as you accompany your favorite band, on records, thereby proving how much better you are than that over-rated soprano they insist on keeping around.

One word of caution: Don't try laminated sound unless your recorder has three separate heads. Most models have only two. So far, no one has found out how to do this in any simple way with less than three.

If you are interested in further details of the electrical process by which Sound-on-Sound recording is done, here is the explanation in brief. When the heads are arranged as in Fig. 1, the first recording is put on the tape by the record head in usual manner. Since the tape moves from left to right, the erase head first takes off anything recorded previously, which is as it should be.

Now for the second "layer" of sound to be added to the first: In Fig. 1 the first layer on the tape is represented by fine dots on the section at the left. As it passes over the playback head, two things happen, and they happen at the same time. That is, the music already on the tape is fed to the headphones you are wearing, and exactly the same sounds are fed to the recording head.

Two things happen simultaneously at the recording head, too. While it is recording what comes to it from the playback head, it also records whatever comes to it from the microphone. These combined sounds are represented by the coarse dots at the right. Meanwhile, the erase head performs its normal function of wiping everything off the tape as it goes by, after the first sound layer has reached the record head.



Any Concertone model can be arranged for S-O-S recording

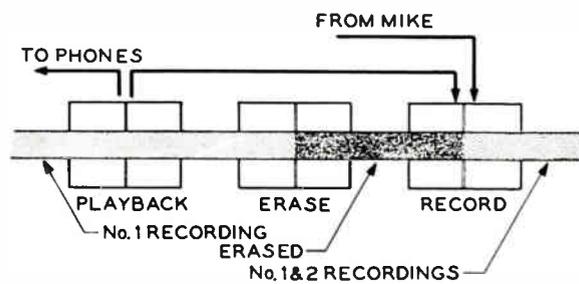
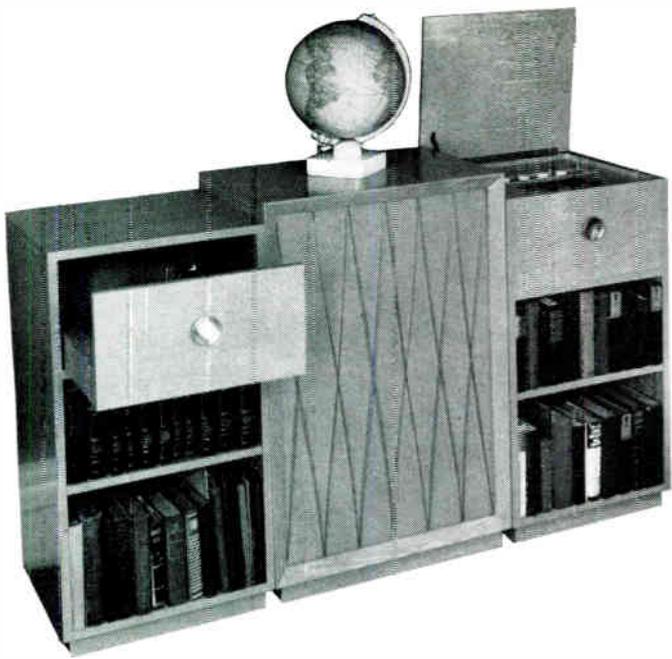


Fig. 1. Diagram showing the successive stages of S-O-S recording



Design to Please a Wife Who Likes to Move Her Furniture

By WALTER F. BUEHR

WHEN the high fidelity bug first hit me, I started shopping around for that dream-set, the kind which would, at last, bring recorded music to life. But I found, as most hi-fi fans do, that no factory-built cabinet model would fill all my wife's esthetic requirements, and my own specifications of performance. So we undertook to write down our separate ideas as to what we would have if we could have exactly what we wanted.

My wife would make no compromise in specifying that the cabinet work must not only be attractive, but it must harmonize with our other furniture, and it must be planned to fit into rooms of different furniture arrangements, since we lived in an apartment and would undoubtedly move more than once during the useful life of the equipment. This, she noted, would rule out any sort of built-in construction.

If I satisfied her requirements, then I could have my way with the technical aspects, which is about the way thinking on hi-fi installations comes out in most homes. For my part, I wanted to assemble an FM-AM tuner, amplifier, speaker, and record-changer, all of top quality, in a readily accessible way for operation and repair, and I was very emphatic about a speaker cabinet large enough to assure good tone quality. We agreed that our ideas must not lead us into spending more than a modest sum for our hi-fi system. Needless to say, we did spend more than our original figure, but the results have amply justified our going overboard a little!

Selecting Our Hi-Fi Components

We quickly came to the conclusion that the only way to get exactly what we wanted was to design and build our own system, for no factory-built radio-phonograph even remotely resembled what we wanted. Our first step got us off on the right foot, and worked out so successfully that we can recommend it heartily to others. Since we had to know the dimensions of the components we were going to use before we could start on the cabinet, we prevailed upon a friend who had built several installations of excellent performance to spend an afternoon with us while we

selected, with his help, the best combination of components we could afford.

Remembering some of the "expert" assistance that had let some of our friends into expensive mistakes, I want to emphasize that we had confidence in our consultant not because he admitted knowing all about hi-fi equipment, but because we were familiar with the excellent installations he had made for others!

After asking a lot of questions and doing considerable research on our own, we decided that selecting the components was duck soup compared to working out the design of a speaker enclosure. We decided that 10 cubic feet should be provided for this purpose, but no matter how we juggled the dimensions, the cabinet would be awfully big! So big, in fact, that we would have a veritable elephant on our hands, hard to move, and occupying so much wall space that it might be impossible to use it in some rooms.

We Solved the Problem of Size

That led us to the conclusion that, to achieve a flexible design, we must use three small cabinets, one for the tuner and amplifier, one for the record-changer, and another for the speaker. We learned later that there was nothing original about this idea but, like most beginners, we had to work out our own plan, which is always the hard way!

Fortunately, our reasoning proved to be sound. The small size and light weight of the separate units make them easy to handle. Even more important to the distaff side, they can be rearranged from time to time. The three pieces can be put together against a long wall, or the speaker can be placed in a corner, with the other two used as end tables, set at opposite ends of a couch, or put side-by-side at various locations. Such changes involve new wiring jobs, but that is only a small concession to the urge to rearrange the furniture which comes upon most wives from time to time.

As this was to be a home-workshop project, the designs of the cabinets purposely were kept simple, but that was not the only reason. By choosing a clean, rectangular de-



Above: Separated, two cabinets serve as end tables, with the speaker opposite. Below: Arrangement for limited space

sign with no gingerbread, the basic cabinets could be made to harmonize readily with either modern or traditional furniture. We had the choice of using one of the new, light wood finishes with simple brasses and a modern fabric for the speaker front, or mahogany, walnut, or

maple, trimmed with conventional hardware to bring the cabinets into harmony with traditional decor. In case of a complete refurnishing of our living room, it would be comparatively simple to refinish the cabinets to match. The outcome of our scheming is shown on page 17.

Designing the Cabinets

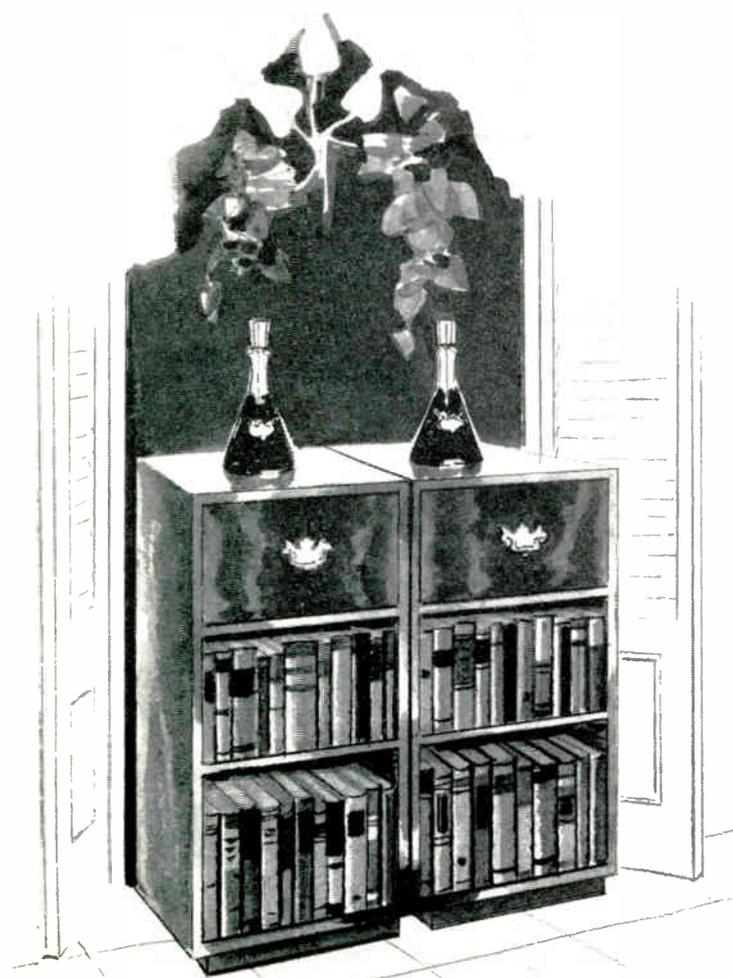
Since the knobs of both the tuner and amplifier had to be accessible, we decided to use a hinged cover on that cabinet, and to install these units on their backs, with the amplifier behind the tuner. A plywood panel was provided for mounting them, with a slot cut out for the tuning scale and holes for the knobs. This made stooping unnecessary, and kept everything in full view.

The record player was installed in a drawer, operated by slide hardware. This made it possible to place record albums on top of the cabinet, while operating the player. Below the player were two shelves, one deeper than the other, to hold both LP and EP record albums, or books.

When the drawings had been checked and re-checked for mistakes, they were turned over to a local cabinet-maker, since at the time there were no wood-working facilities in our apartment. But we hovered over every move he made. The carpenter entered into the spirit of the undertaking with his own suggestions. We abandoned the original idea of four separate legs for each piece and substituted solid, recessed bases, as being stronger and cheaper. We put in the fabric and grill on the speaker cabinet ourselves, and painted and finished the wood.

Because ours was a modern living room, we chose solid oak for the cabinets. They were painted an oyster white, most of which was rubbed off before it had dried, which

Concluded on page 63





On one Saturday evening each month, the Morrisons entertain their guests with carefully-planned musical programs

THE HI-FI CONCERT SOCIETIES

Reports on Two Different Plans for Sharing the Enjoyment of Recorded Music

WHEN we first established this series of Hi-Fi Concert Society programs, it was for the purpose of stimulating group listening to records carefully selected in advance. We have received the most interesting mail in response to this idea and to the programs already published. Two letters are particularly interesting.

The first one comes from Miss Blossom Winkler Cohon, Fair Lawn, New Jersey. She wrote: We have been struggling with the problems of group-listening for four or five years. Ours is a heterogenous group, comprising ten regular couples, plus one or two others, who meet the first Saturday of each month. Of these twenty people, three are professional musicians, several more are active, informed amateurs, and more than half are musically naïve. The one thing we have in common is the desire to enjoy music in a group.

For the first three years, there was no planned programming. The records were chosen according to the extent or limit of the host's collection, a plan that was not altogether satisfactory.

On two occasions last year, we invited friends to give pre-Town Hall recitals for the group, and this injection of live music sparked a new enthusiasm that led to a complete reorganization under the firmly-conceived notion that our enjoyment of music could only be enhanced by some real knowledge of it. We battled hard and long over

the method of building our programs, and finally decided to take up the composers in roughly chronological order. Since each couple was to present an evening program by one composer, we prepared the following questions for their use in researching for their particular program:

1. Look up the political and social background of the times as they may have influenced the life, livelihood, and music of the composer.
2. Look up some of the composer's important contemporaries, to set him into a familiar frame of reference.
3. Prepare a brief biography of the composer.
4. Note the types of music he wrote (opera, symphony, chamber music, vocal music, etc.) with special emphasis on his most notable contributions.
5. Find out about the materials available to the composer: instruments; size of orchestra; secular and sacred music; status of form, structure, and spirit of music as the composer found it; and the contribution or elaboration he made upon them.
6. Prepare to discuss briefly the general form of your recorded selections.

We suggested reference books, and listed all records in our possession according to composers. Then we divided our ten meetings into composer groups from pre-Bach to Brahms, and assigned a meeting to each couple. We can

Concluded on page 62

July-August 1954

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

Mendelssohn, Schumann, and Liszt

9th Concert, 1954

ANITA de MARS, Musical Director

TO BE HEARD AT HOME

1. **Mendelssohn**—Incidental Music to a Midsummer Night's Dream—Toscanini and the NBC Symphony. **Victor LM 1221**
2. **Schumann**—Quartet in A Minor, Opus 41, No. 1. Curtis String Quartet. **Westminster WL 5166**
3. **Liszt**—Hungarian Rhapsody No. 6—Arthur Fiedler and Boston Pops Orchestra. **Victor LRM 7003**

ABOUT THE PROGRAM

THREE Romantic composers and a musical work from each of them for a perfect summer concert — Mendelssohn born in 1809, Schumann in 1810, and Liszt in 1811. Truly contemporaries in their time. Of Schumann and Liszt we have read stories and seen movies. But Mendelssohn has been much less publicized. His birth in the year of Haydn's death seemed to usher in that amazing group of nineteenth century composers whose music fills so many hours of our listening time today: Wagner, Verdi, Gounod, Cesar Franck, Bruckner, Smetana, Goldmark, Rubinstein, Brahms, Saint-Saëns, Bizet, Bruch, Tchaikovsky, Dvorak, Grieg, Rimsky-Korsakov, Fauré, Widor — all born within the thirty-eight short years of Mendelssohn's life.

Felix Mendelssohn was a short man — only five feet six. He had a beautiful face — dark, bright, animated — and above it his black thick hair waved back from his forehead. His large dark brown eyes were alive and smoldering. He was a fine pianist, a good organist, and he liked to play the viola. He was a master of musical form. He loved Bach and Beethoven and patterned his work after theirs. In his lifetime he wrote an unbelievable quantity of music, as though he realized that his time was short and he had much to do. Some of his music was consequently short-lived, but he wrote immortals that will be with us always: *Elijah*, *Fingal's Cave*,

On Wings of Song, *Midsummer Night's Dream*, much organ music and many piano works. A great artist once said: "If it is conceivable that the music of Mendelssohn can die, then ALL music can die."

We are particularly indebted to Mendelssohn for his revival of the music of Johann Sebastian Bach. Against great opposition, Mendelssohn insisted upon performing Bach's *Passion According to St. Matthew* which had not been done since Bach's death 79 years before. The performance had to be repeated twice, and interest in Bach's music became a movement which Mendelssohn inspired for years.

In London in the summer of 1829, Mendelssohn conducted the first English performance of his own *Overture to A Midsummer Night's Dream*.

Another summer, another composer — Robert Schumann finished his *Quartet in A Minor*, the first of three quartets in Opus 41 which he wrote in exactly 31 days in 1842.

A third summer and a third composer when Theodore Thomas conducted the first performance in America of an orchestral version of Liszt's *Hungarian Rhapsody No. 6* in New York in 1875. Liszt was then 64 years old and both Schumann and Mendelssohn had gone on to perhaps a better world.

ABOUT THE RECORDS

1. The inspiration for Mendelssohn's music was Shakespeare's play of the same name, *A Midsummer Night's Dream*.

Mendelssohn was only seventeen when he wrote the overture, and twenty years later he completed the incidental music to the entire play at the request of the King of Prussia. In the original music there are thirteen parts, but Toscanini and the NBC Symphony have recorded six of them on this disk: *Overture*, *Scherzo*, *Wedding March*, *Intermezzo*, *Nocturne*, and *Finale*. Delightful music by a great interpreter. Soprano Edna Phillips and a women's chorus join the orchestra in the *Finale*. On the other side of LM 1221 Toscanini and the orchestra have recorded Debussy's *La Mer*.

2. Originally, music to be played in the home rather than in the theater or church was known as chamber music. Today it has come to mean music for a moderate-size room with not more than one player to each part. In the playing of chamber music there must exist between the players a deep affinity, a "one for all and all for one" kind of feeling that brings forth a smoothness of performance and an elegance in the music which is the secret of its charm. On this Westminster LP the Curtis String Quartet has obviously enjoyed the Schumann thoroughly.

3. Here's another of the twenty Liszt *Rhapsodies*. Arthur Fiedler and the Boston Pops Orchestra play it in lively fashion that brings this program to a conclusion in a very gay and happy manner.

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

Two-Piano Concert

10th Concert, 1954

ANITA de MARS, Musical Director

TO BE HEARD AT HOME

1. **Rachmaninoff**—Suite No. 2 for Two Pianos, Op. 17—Vronsky and Babin. **Col. ML 4379**
2. **Arensky**—Waltz from Suite No. 1 for Two Pianos, Op. 15—Vronsky and Babin. **Col. ML 4157**
3. **Stravinsky**—Concerto for Two Solo Pianos—Vronsky and Babin. **Col. ML 4157**
4. **Debussy**—Fetes—Morley and Gearhart. **Col. ML 2197**
5. **De Falla**—Ritual Fire Dance—Whittemore and Lowe. **Vic. LRM 7010**
6. **Moussorgsky**—Coronation Scene from Boris Goudonoff—Whittemore and Lowe. **Vic. 49-0405**

ABOUT THE PROGRAM

THERE is no more thrilling ensemble than the combination of two grand pianos with their interchange of vibrations and the amazing effects that can be produced through the unique handling of the pedals. When the attack and release of each key, pedal, and phrase of each player is timed exactly, the effect is that of one great piano played by a superhuman pianist!

Such a pair was the first two-piano team I remember — Lee Pattison and Guy Maier. Tonight's program is dedicated to them. Pattison began life in Grand Rapids, Michigan, attended the New England Conservatory where he met Maier. They both studied later with Artur Schnabel and, in 1916, they gave a two-piano recital at Jordan Hall in Boston.

For fourteen years they toured the country until their farewell concert in 1930. Pattison taught music and composition at Sarah Lawrence College, at the Glenn Dillard Gunn School in Chicago, and at Juilliard in New York. He was head of New York's WPA music project until the Metropolitan Opera invited him to direct their spring season in 1937.

We are sorry to be unable to find any of their actual playing on LPs. Some enterprising company should try to restore some of their old records. Perhaps you have some to add to this

program, just for old times' sake rather than for the quality of the recording.

ABOUT THE RECORDS

1. This *Suite* of Rachmaninoff's was originally written for two pianos and the work has an intrinsic charm that belongs to the composer rather than to the arranger. There are four movements: *Introduction*, *Waltz*, *Romance*, and *Tarantella*. This is the second of two suites Rachmaninoff wrote in 1893-'01.

On the other side of this disk is *Suite No. 1*, also delightful. If you like piano music, you should add this LP to your library.

2 and 3. Another Vronsky and Babin LP with two sides of excellent playing. On one side is a group of six bands of two-piano music from which band 3 — the *Waltz* from Arensky's *Suite* — was selected for this program. The other five are: *Dance of the Tumblers* by Rimsky-Korsakov, *Russian Village* by Babin, *Cradle Song* from *Sadko* by Rimsky-Korsakov, *Circus Polka*, and *Tango*, by Stravinsky. For No. 3 of this program, turn to the other side for the Stravinsky *Concerto*. Stravinsky is one of the few composers who wrote concertos without orchestral parts. Here we have the concerto form played by two solo instruments.

4. Debussy's *Fêtes* is a magnificent work for two pianos — brilliant, ex-

citing, full of dynamics and nuance. To some listeners it may lack the orchestral colors, but the two pianos more than compensate for it. Debussy wrote *Three Nocturnes*, of which *Fêtes* is the second. There are five other bands of two-piano pieces on this disk — music by Poulenc, Fauré, Ravel, Offenbach, and Tailleferre. All are good, and on the other side is Gershwin's *American in Paris*, *April in Paris*, and *Parlez-moi d'Amour*, all recorded by Morley and Gearhart.

5. Whittemore and Lowe have recorded this banging, crashing, tumultuous music by De Falla, the Spanish composer. He wrote it for orchestra originally, then transcribed it for piano, and here it is for two pianos. Also on this disk is Enesco's *Roumanian Rhapsody*. The *Ritual Fire Dance* shares one side with *Dance Macabre* by Saint-Saëns. On the other side of this disk is Enesco's *Roumanian Rhapsody No. 1 in A Major*, Op. 11, arranged for two pianos by Whittemore.

6. To program the *Coronation Scene* from "Boris Goudonoff" for two pianos, there is only one choice, a 45 recorded by Whittemore and Lowe. It covers one side and runs about three minutes. Side B is the *Polka* from the ballet, *The Age of Gold*, by Shostakovich. It only runs three minutes and can be added to the program if you wish.

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

All-Gershwin Program

11th Concert, 1954

ANITA de MARS, Musical Director

TO BE HEARD AT HOME

1. **Gershwin**—Rhapsody in Blue—Oscar Levant, piano, Philadelphia Orchestra with Eugene Ormandy. **Col. ML 4026**
2. **Gershwin**—Three Preludes—Oscar Levant, piano. **Col. MM 508**
3. **Gershwin**—An American in Paris—RCA Victor Orchestra with Leonard Bernstein. **Vic. LM 1031**
4. **Gershwin**—Embraceable You, Bidin' My Time, I Got Rhythm—Mary Martin. **Col. ML 4475**
5. **Gershwin**—Porgy and Bess (Symphonic Picture)—Minneapolis Symphony Orchestra with Anatol Dorati. **Mercury MG 50016**

ABOUT THE PROGRAM

THIS is a strictly American program in honor of George Gershwin whose untimely death in the summer of 1937 removed one of our most promising composers just two years after he had written what seems to be a great American opera, *Porgy and Bess*.

Gershwin's first job, at age sixteen, was in a music publishing company, and his professional life as a composer began there with his song, *I Was So Young, You Were So Beautiful*, which showed up in "Good Morning, Judge"—a musical comedy of 1919. In the years that followed, he wrote the music that none of us will ever forget: *Lady, Be Good, Tip Toes, Song of the Flame, Oh, Kay, Strike Up the Band, Funny Face, Of Thee I Sing, Girl Crazy*.

But Gershwin had more serious ideas about composing, despite the excellence of his work in the lighter vein. So in 1924, when Paul Whiteman commissioned him to write something especially for his orchestra concert at Aeolian Hall in New York, Gershwin wrote *The Rhapsody in Blue*, really a symphonic jazz concerto for piano and orchestra.

Because Gershwin could not write for orchestra, Whiteman's pianist, Ferde Grofé, did the arranging for that first concert at which Gershwin played the piano part. Later, however, he

studied orchestration and, in 1928, he wrote *An American in Paris*, and in 1931 a *Second Rhapsody*.

His crowning achievement in serious vein was the musical setting to Heyward's play, "Porgy."

The Theatre Guild's production of "Porgy and Bess" in 1935 introduced an indigenous opera that earned for its composer the Bispham Medal, an award given to an American composer for an opera in English, by the American Opera Society of Chicago.

Perhaps in George Gershwin this country had its very own opera composer. Certainly in my opinion no other American operatic attempts here have equalled the artistry of *Porgy and Bess*. This evening's program presents only a small portion of the wealth of familiar music he left with us.

ABOUT THE RECORDS

1. In my catalogue I counted 14 LP's of the *Rhapsody* complete, 10 more of abridged arrangements, and 3 others of excerpts! That is testimony enough for the popularity of this very familiar first symphonic work of Gershwin's. I chose the Columbia LP by Oscar Levant and the Philadelphia Orchestra because I think Levant has a particular feeling for Gershwin.

You may not agree with me. You may have purchased one of the others. If you have, by all means use it! They

are all good! On the back of this LP is the New York Philharmonic Symphony's playing of *An American in Paris* with Artur Rodzinsky conducting.

2. True to my Levant prejudice, I programmed Gershwin's *Three Preludes* which he recorded for Columbia. These are real Gershwin—rhythm and melody. The first and third are *allegro*, the second *andante*.

3. This records Gershwin's idea of how an American feels in Paris! You can hear the street noises, the confusions, and so on. Leonard Bernstein and the orchestra do a good job of it. On the other side of the disk is Aaron Copland's *Billy the Kid*.

4. Here are three old favorites from Gershwin's show "Girl Crazy," written in 1930. Mary Martin does them in her own inimitable way—and don't ask me to define what I mean!

5. Anatol Dorati and the Minneapolis Symphony offer a symphonic picture of the "Porgy and Bess" music. The conductor is good, so is the orchestra, and so is the LP. On the other side of the disk is Morton Gould's *Spirituals for Orchestra*. If you prefer to close this Gershwin program with the complete opera performance, Columbia has made a three-disk set, SL-162.

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

Brahms and Chopin

12th Concert, 1954

ANITA de MARS, Musical Director

TO BE HEARD AT HOME

1. **Brahms**—Piano Trio in A Major—Franz Holletschek, piano, William Huebner, violin, Richard Harand, cello. **Westminster WL 5058**
2. **Chopin**—Fantasy in F Minor, Op. 49—Yves Nat, piano. **Haydn Society HSL 97**
3. **Brahms**—Serenade No. 1 in D Major, Op. 11—Bamberg Symphony Orchestra with Robert Heger. **Mercury MG 10076**
4. **Chopin**—Sonata No. 2 in B Flat Minor, Op. 35—Yves Nat, piano. **Haydn Society HSL 97**
5. **Brahms**—Quartet No. 2 in A Major, Op. 26—Erich Itor Kahn, piano, Giorgio Ciompi, violin, Raphael Hillyer, viola, Benar Heifetz, cello. **Mercury MG 10090**
6. **Chopin**—Barcarolle for Piano in F Sharp Major, Op. 60—Yves Nat, piano. **Haydn Society HSL 97**
7. **Brahms**—Alto Rhapsody, Op. 53—Marion Anderson, soprano, Robert Shaw Chorale of Men's Voices, and the RCA Symphony Orchestra with Fritz Reiner. **Victor LM 1146**

ABOUT THE PROGRAM

As a thumb nail sketch of the great Johannes Brahms, it could be said that he was the son of a double bass player, studied violin, cello, piano, and composition in his early years, became a virtuoso pianist, and was pronounced a genius by Robert Schumann when he was twenty years old.

As his gift for composition grew, he became more interested in performing his own music than in becoming a great pianist.

Gradually his composing filled his life, and music poured from him: volumes of magnificent songs, chamber music, piano music, church music, and finally the four symphonies. I have arranged his part of tonight's program chronologically, beginning with an early work which was discovered and published after his death; a serenade written when he was 24; a quartet four years later; and the *Alto Rhapsody* when he was 36.

In contrast to Brahms who wrote in all forms, Frederic Chopin excelled in only one — music for the piano. He wrote in other forms, to be sure, but his songs, chamber music, and orchestral works do not compare with the magnificence of his piano repertory.

Chopin's great interest in life was music, especially music for the piano. He thought of the piano as a noble instrument, not as a poor substitute for

the orchestra. He wrote for it as no other composer ever has, and his peculiar technique, which brought about many changes in the use of the pedal, has greatly affected the development of piano music since his time. Today every pianist looks upon the Chopin repertory as a *must* in his artistic achievement.

ABOUT THE RECORDS

1. This Brahms *Piano Trio* was found in 1924 among the manuscripts left to the Cologne University by Dr. Erich Prieger of Bonn. Brahms critics at that time identified it as an early work which Brahms had not published. Its four movements fill both sides of the Westminster LP which was made in Austria.

2, 4, 6. When I received this Haydn Society LP of Chopin's music, the pianist's name was not familiar to me. After playing his record, I realized that the loss was mine in not knowing him. The only pianist I can compare Yves Nat to is Horowitz. More than that I cannot say of any pianist.

Not much seems to be written about Mr. Nat except that he was born in France in 1890, became a child prodigy, and won first prize in 1906 at the Paris Conservatory. Debussy launched him on a world tour in which he played under many famous conductors. In 1934, the pianist gave up his career to compose and teach.

In 1952 friends prevailed upon him to record masterworks for the piano, and this Haydn Society LP is one of the results. The Chopin played by Yves Nat will inspire you to buy all the records he makes.

3. The *Serenade No. 1 in D Major*, written in 1857 for eight instruments, was later scored for full orchestra, as it is played on this Mercury LP. Both sides must be played, as the first two movements are on side 1 and the other four on side 2.

5. Raphael Hillyer, the brilliant young violist of the Juilliard String Quartet, has joined the Albaneri Trio to record this charming *Quartet in A Major*. This LP and another of the trios of Fauré and Ravel are the recording debut of the Albaneri Trio.

7. Goethe's poem "Harz-eis im Winter" was the inspiration for this great choral and orchestral work of Brahms, its theme the loneliness of a wanderer sorrowing for his lost love. Marion Anderson has become the best known interpreter of this work, and the combination of artists on this disk makes it a valuable addition to your library.

Side 2 offers Mahler's *Kindertotenlieder*, a cycle of five songs, sung by Marion Anderson with the San Francisco Symphony Orchestra and Pierre Monteux.

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

All-Debussy Program

13th Concert, 1954

ANITA de MARS, Musical Director

TO BE HEARD AT HOME

1. **Debussy**—*La Mer*—NBC Symphony Orchestra with Arturo Toscanini. **Vic. LM 1221**
2. **Debussy**—*Three Images for Orchestra*—San Francisco Symphony with Pierre Monteux. **Vic. LM 1197**
3. **Debussy**—*Prelude to an Afternoon of a Faun*—Symphony Orchestra with Leopold Stokowski. **Vic. LM 1154**
4. **Debussy**—*Clair de lune*—Symphony Orchestra with Stokowski. **Vic. LM 1154**
5. **Debussy**—*Nocturnes*—Symphony Orchestra with Stokowski and The Robert Shaw Chorale of Women's Voices. **Vic. LM 1154**

ABOUT THE PROGRAM

CLAUDE DEBUSSY was the first of what we call Impressionist group, which preceded our present moderns. What is an impressionist? You have only to hear *La Mer*, for instance, to know what Debussy felt for the sea with its surging and uproar and deadly calm. Or to hear *Nuages* with its sound picture of the clouds floating by. Or to hear any other music of his, for all of it expresses what he felt as he contemplated the subject of each composition. Be sure you bear in mind the title of each work as you listen to this program. The excitement of Debussy, even in his calm moments, is indescribable.

He was born within sight of Paris, and he died in Paris as the German Big Berthas were bombing the city in 1918. Between those two events, Debussy struggled against the world for his proper place. His family did not consider his music too important. His father planned a naval career for him.

But Claude managed to get a musical education. He had a hard time of it at school, as most geniuses do, because he did not fit into the accepted pattern. His harmonies were all strange, his rhythms not the expected ones. His feeling for the strange harmonies upon which he based his writing was not looked upon with favor by his instructors in composition.

His experience with *Pelléas et Mélisande* was typical of the general atti-

tude. It was produced for the first time at the Opéra-Comique in 1902, with Mary Garden in the role of Mélisande. Maurice Maeterlinck, the Belgian dramatist, poet, and essayist wrote of it as "a work which is strange and hostile to me . . . and I can only wish its immediate and emphatic failure." However, the opera was an immediate success and finally Debussy got some of the recognition he deserved. The next big work was *La Mer*, the first composition on this program.

Strange to say, Debussy knew little of the sea, yet you will hear the sea surging through your living room as you play this record. He had never been to Spain, yet his *Ibéria* is a perfect picture of the Spanish scene. Composer De Falla said Debussy's music was more Spanish than that of many Spanish composers!

There was a time when Debussy's music was considered very dissonant, but in the light of today's contemporaries who produce cacophony, he is melodious and harmonically simple to hear!

ABOUT THE RECORDS

1. This Victor LP is not a new one. Today it has an added value in that the artists playing on it will not record again together. It is a Red Seal Victor with side 1 devoted to the three parts of *La Mer: De l'Aube à Midi sur la Mer; Jeux des Vagues; Dialogue du Vent et de la Mer.*

On the other side is Mendelssohn's *Incidental Music to A Midsummer Night's Dream.*

2. The notes on this LP jacket are very interesting. Written by Alfred Frankenstein, they are well worth reading. Side 1 carries the three movements of *Ibéria*, the biggest work of the three *Images*. On side 2 are *Gigues* and *Rondes de Printemps*. Play both sides.

3. What music listener has not heard *Prelude to the Afternoon of a Faun*? Debussy originally planned two other parts for this work: *Prelude, Interlude, and Paraphrase Finale pour l'Après-midi d'un Faune*, inspired by a poem of Mallarmé. But after he had written the first part, he felt that he had expressed all there was to say, that it was complete.

4. *Clair de lune* was one of Debussy's piano compositions originally. The orchestration on this LP is one of Stokowski's arrangements.

5. On the other side of the same LP is the Stokowski-Shaw interpretation of Debussy's three well-known nocturnes, *Nuages, Fêtes, and Sirènes*. Clouds, Festivals, and Sirens are each beautifully painted in music by the master impressionist.

On the Two-Piano Concert in this series you will find a two-piano arrangement of *Fêtes*. Compare them as you listen.

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

All-Tschaikovsky Program

14th Concert, 1954

ANITA de MARS, Musical Director

TO BE HEARD AT HOME

- | | |
|--|---|
| <p>1. Tschaikovsky—Festival Overture to 1812, Op. 49—Boston Pops Orchestra with Arthur Fiedler.
Vic. LM 1134</p> <p>2. Tschaikovsky—Nutcracker Suite—Kostelanetz Orchestra.
Col. ML 4151</p> <p>3. Tschaikovsky—None But the Lonely Heart—Robert Shaw and the Victor Chorale. Vic. LM 96</p> <p>4. Tschaikovsky—Swan Lake Ballet—Act III—London</p> | <p>Symphony Orchestra with Fistoulari.
London LL 565-566</p> <p>5. Tschaikovsky—Andante Cantabile from Quartet No. 1 in D Major, Op. 11—Kostelanetz Orchestra.
Col. ML 4151</p> <p>6. Tschaikovsky—Sleeping Beauty Ballet—Op. 66—Royal Opera House Orchestra with Constant Lambert.
Col. ML 4136</p> |
|--|---|

ABOUT THE PROGRAM

THE PROBLEM in building a program of Tschaikovsky's music is one of making choices constantly. So many records, so many orchestras, conductors, and arrangements! And a wealth of familiar music. One single program cannot possibly do justice to all of it. Therefore, this has been planned as a program of pleasing music for summer enjoyment — no beautiful symphony, no thrilling piano concerto!

Tschaikovsky began to compose at the age of ten, but that is not surprising. Greatness is born, not made, and it manifests itself early. In Tschaikovsky's fifty-three years, he wrote an overwhelming quantity of the kind of music that everyone loves. The simplicity of it caused certain musical intelligentsia to hold a low opinion of him as a composer. But the test of achievement is time, and the wealth of recorded material available testifies to the demand of the American public for his lovely music.

A great American, Andrew Carnegie, brought Tschaikovsky to the United States to conduct his own works at the opening of Carnegie Hall on May 5, 1891. Carnegie was a vociferous man, a positive personality if ever there was one, and he thought Tschaikovsky was "the king of music!" He feted him at his home like royalty. Tschaikovsky, who avoided close contact with mankind whenever possible, was deeply unhappy and hurried home as soon as he could.

Upon his return, he began the composition of his famous *Sixth Symphony*,

the *Pathétique*, into which, it is said, he poured all his life's sorrow and grief. In 1893 he conducted its first performance at St. Petersburg.

The lukewarm reception the audience gave it no doubt contributed to the composer's breakdown and death a week later. The crowning irony of Tschaikovsky's career, however, was the overwhelming enthusiasm the same audience gave the *Pathétique* three weeks later in the same hall, played by the same orchestra with another conductor. Who knows that Tschaikovsky might not have lived far beyond his 53 years if his last symphony had been proclaimed at its first performance.

However, a great capacity for happiness and joy must have existed within him or he could not have written the music on this evening's Hi-Fi Concert.

ABOUT THE RECORDS

1. The *Festival Overture of 1812*, on side 2 of this LP, starts this program off with a bang! It is played in the typically gay manner of the Boston Pops Orchestra.

2. There are something like twenty-one LP's of this work! I have chosen the Kostelanetz record, which has the complete *Nutcracker Suite* on one side. This is my personal preference, but you have a choice of other orchestras and conductors. The other side of this record is used for our fifth selection.

3. *None But the Lonely Heart* is one of a set of six songs in Opus 6, written in 1869. The melody has been arranged for solo organ, cello, piano, and various

sizes of orchestra. The performance by the Shaw Chorale, with solo voices and chorus, fits admirably into this particular program. Also on side 1 the Chorale has recorded these old favorites: *Sweet and Low*, *In the Gloaming*, and *The Rosary*. On side 2 are such other standard favorites as *Through the Years*, Schubert's *Ave Maria*, the Welsh carol *All Through the Night*, and Brahms' *Lullaby*.

4. This *Swan Lake Ballet*, recorded by London, is the complete work arranged on four sides of two LP's. Bands separate the acts only. The music is continuous through each of them. I suggest you use Act III for this program. It begins on side 3 and ends on side 4. It is possible that you may get so intrigued with *Swan Lake* that you won't want to leave it!

5. The *Andante Cantabile* was originally written for four strings in a quartet, but it has been recorded as a violin solo, a viola solo, and in various orchestral forms, one of which you hear tonight on this Kostelanetz LP. Also on this record is an orchestral version of *None but the Lonely Heart*, *Melodie*, *Sleeping Beauty Waltz*, and *Barcarolle (June)* from *The Seasons*.

6. From Covent Garden in London, Constant Lambert and the orchestra have made this Columbia disk, and it is a lovely one, with the six movements of *Sleeping Beauty* on one side, played with charm and artistry. The City of Birmingham orchestra has recorded Gounod's *Ballet Music from Faust* on the other side.

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

A Program for Children

15th Concert, 1954

BEN DEUTSCHMAN, Guest Director

TO BE HEARD AT HOME

1. **Rossini**—Overture to William Tell—Toscanini and the NBC Orchestra. **Victor LRY 9000**
2. **Schumann**—Scenes of Childhood—Walter Gieseking at the piano. Band 3, Blind Mans Buff. **MGM ML4540**
3. **The King's Trumpet**—Childrens Record Guild. **CRG 5040**
4. **Moussorgsky**—Pictures at an Exhibition—(The Gate at Kiev)—Kubelik and the Chicago Symphony Orchestra. **Mercury MG50000**
5. **Ludwig Von Beethoven**—His Life, Times and Music; written by Bernard Lebow; Narrated by David Randolph. (Band 1 and 2). **Period PCS 3**
6. **Circus Parade**—Merle Evans, Ringling Brothers & Barnum and Bailey Band (Circus Bee March). **Capitol L1313**

ABOUT THE PROGRAM

Music is a wonderful way of telling a story. Many men who wrote music (composers) used this way of telling stories because they felt that music would be the one way to talk to children who speak different languages, and live in various lands all over the world. Other composers used music to describe places and things they have seen. In this program, some of these composers are going to visit you through their music. While they are playing, you can go along with them in the Magic Land of Make Believe, and as you take part in their stories, you can see the places they have visited.

ABOUT THE RECORDS

1. Mr. Rossini, our first composer, had heard the story of William Tell many times. He knew all about the great hero of the people of Switzerland and how he fought against the evil Count Gessler. One day, he decided to write a play all about William Tell. He then put all the action to music, so that the actors not only played their parts, just as you do in a school play, but they also sang them. A play like that is called an *opera*. First, he wrote some musical program notes in the form of an *overture* for the orchestra to play before the curtain went up. In this piece he told

part of the story musically. Today you are going to hear these program notes. Listen carefully and you will hear the soldiers riding to battle on their galloping horses, a great storm on the lake, birds singing after the storm, and many other things your own imagination will find in the music.

2. Robert Schumann was in love with a beautiful girl named Clara Wieck (*Veek*). He often told her how wonderful she was by writing pretty piano music just for her. One time Clara told Robert that he reminded her of a child, so Robert made believe that he was a little boy again, and wrote a lot of little pieces that told all about the things little boys like to do and see. He called these pieces *Scenes of Childhood*. Now Mr. Gieseking, who is a great pianist, will play one of these pieces that describes a group of children playing Blind Man's Buff.

3. Every boy and girl has heard a bugle and has listened to the trumpets as the school band came marching down the street. But did you know that the first trumpet was made from the horn of a Billy Goat? That's true. It was called a ram's horn. Here is a story about all the different kinds of trumpets and the music they make, from the ram's horn of many thousands of years ago, up to

the silver trumpet such as Johnny plays in the band today.

4. Mr. Moussorgsky (*Moz-or-sky*) was a great Russian music writer. One time he saw a picture painted by a friend of his named Victor Hartmann. Victor had painted a picture of a great gate that stood at the entrance of a city called Kiev (*Kee-er*). Mr. Moussorgsky (*remember not to pronounce the g*) said: "That is so wonderful a picture that I must describe it to every one in music." As you listen to this description, see if you can imagine what a great and wonderful gate they had in Kiev.

5. Beethoven is one of the best known writers of what grown-ups call "classical music." Mr. Lebow has written a story about the famous Beethoven, and Mr. David Randolph will tell you the story. Mr. Randolph gathered some fine musicians to help him, and they will play some of Beethoven's music for you.

6. Now it's almost time to close this program, so let's all get up for a big stretch. While you're up, how about a game of Make Believe? Make believe you are visiting the circus, and let's march around to music of the real Ringling Brothers & Barnum and Bailey Band. Here we go!

THE HI-FI CONCERT SOCIETY

PRESENTS the MUSIC-at-HOME PROGRAM SERIES:

A Real Jazz Session

16th Concert, 1954

FRED REYNOLDS, Guest Director

TO BE HEARD AT HOME

1. **Traditional Jazz, Vol. 3**—Gene Mayl and his band. **Audiophile AP-18**
2. **Matt Dennis Plays and Sings** Matt Dennis—the Matt Dennis trio. **Trend TL 1500**
3. **Dixieland Concert** Played at the Walker Art Center—Doc Evans' Dixieland Band. **Soma MG-100**
4. **Palace of Varieties**—London Music Hall Performers. **London LLP 297**
5. **Bob Scobey's Frisco band, Vol. 3**—Good Time Jazz. **GTJ L22**
6. **Erroll Garner.** **Columbia CL 535**
7. **Ted Heath at the London Palladium**—Ted Heath and his Orchestra. **London 11 802**

ABOUT THE PROGRAM

"STRUTTIN' with Some Barbecue" might be an appropriate title for this program. At least, I can recommend the combination of a barbecue and a stack of sizzling platters.

Actually, I'm rather fond of the open air idea. Most of us are cemented indoors too much of the time, anyhow. Such being the plan, you must invite your neighbors, for the evening is bound to be one of much cheer and loudness. Surely you can work your hi-fi speakers to the outside, so there can be music under the stars. For dancing, and you can always dance to good jazz, there are bare feet and green grass. For food and refreshment . . . well, you know what will best suit the occasion and your guests.

ABOUT THE RECORDS

1. And away we go, to unabashed Dixieland jazz in the exciting, colorful, tub-thumping style of old New Orleans. Mayl's is a good band, that produces a "sound" not unlike the ancient Clarence Williams' Kings of Jazz group on the early Columbia black label records, vintage 1930. The numbers range from *Bill Bailey*, *Won't You Please Come Home to Red River Valley*, and the fidelity of the recording is simply magnificent, especially *Sweet Georgia Brown*, where you can clearly hear the keys on Joe Darensbourg's clarinet rattling during his extended and sparkling solo.

2. A corking hunk of entertainment by

composer-singer pianist, Matt Dennis. The entire program was designed to be the same as you would hear upon visiting Matt at any of his supper club engagements. Dennis plays piano and sings ten of his own tunes, good tunes, too, like *Violets for Your Furs*, *Will You Still be Mine*, *Everything Happens to Me*, and *Let's Get Away From It All*. Mark Barnet is the drummer man, and Gene Englund thumps happily away on the bass. A pert miss, Virginia Maxey, sings *When You Love a Fella*, and joins Dennis on *We Belong Together*. While all of this can hardly be termed jazz in the strict sense of the word, it is music—fine, pleasant, unhackneyed music, too.

3. A thoroughly compelling LP by the ebullient Minneapolis cornetist, who can be as great as he wants to be. For this session, he was a true champion. His cohorts, while relatively unknown, obviously were warmed by Doc's enthusiasm, and the Dixieland is largely ensemble, taken at a full-blown pace to some very tasty head arrangements. As with any clambake of this kind, there are included such old warhorses as *Muskrat Ramble*, *Jazz Me Blues*, and *South Rampart Street Parade*.

4. This is as happy as a ride on a roller-coaster, as bright as the Fourth of July, and as British as Piccadilly Circus. So maybe you'll love it as much as I do. *Palace of Varieties* is a wonderfully colorful vaudeville cavalcade of old time British performers doing buoyant

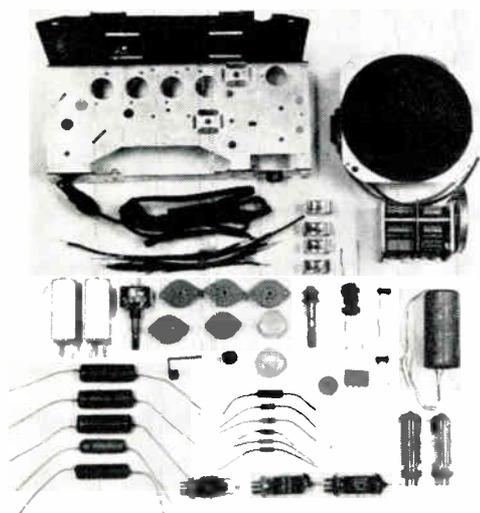
and melodious favorites of ever so long ago. The old numbers include *Hold Your Hand Out*, *Naughty Boy*, *The Old Brigade*, *Boiled Beef and Carrots*, *The Honeysuckle and the Bee*, *I Do Like to be Beside the Seaside*, *Daisy Bell*, *Beer*, *Glorious Beer*, and others of that warmly nostalgic family.

5. There is something completely honest about Bob Scobey's band. It's enthusiasm is matched only by its robustness and righteousness. Scobey's horn and Wally Rose's barroom piano are especially effective, and Clancy Hayes is clearly the most underrated vocalist in America today. His style is that of the true minstrel, combining a rich, sincere warmth with a properly rocking beat and superb phrasing.

6. Erroll Garner, pianist, is all artist. There is a rhythmic poetry to his improvisations. Sometimes it almost seems as though the chords are sweeping rain, falling from the piano. Backed deftly by Wyatt Ruther on bass and Fats Heard on drums, Garner swings through six excellent numbers, playing as he feels them without any time limitation.

7. This package consists of portions of the 89th London Palladium Sunday concert by Ted Heath and his large aggregation. It's all rather exciting and fine, and the recording itself is brilliant. It is a very good band, modern in its concept, precise and dynamic in its presentation, eloquent in its versatility.

HI-FI EQUIPMENT IS MUCH CHEAPER THAN YOU MAY THINK!



Here are all the components and hardware for an AC-DC table-model AM receiver

WHEN you spend money, whether it's for a pair of socks or a house in the country, the thing that counts is not so much the price you pay as it is the value you get for your dollars. Every once in a while, letters from MUSIC AT HOME readers voice bitter complaints at the cost of hi-fi equipment. They view with considerable alarm the price of \$250 for an FM-AM tuner, preamplifier, and 25-watt amplifier as compared to AC-DC model AM sets, complete with cabinet and speakers, which are available at not more than \$49.95.

The inference is that hi-fi equipment is grossly over-priced, and that the equipment manufacturers are taking unfair advantage of the audio enthusiasts' desire for top-quality performance. If that is true, it is a serious matter. But if it isn't, the facts should be made known for the information of people who buy hi-fi equipment, and in fairness to the companies that are producing it.

So, because seeing is believing, we obtained a complete set of parts for a conventional AC-DC table radio. Then we borrowed all the parts that go into a Fisher Radio FM-AM receiver with a built-in preamp, and a 25-watt amplifier. The parts were then photographed, and illustrations for these pages were made to the same scale as accurately as possible.

No one would question the real value represented by the table model, the components of which are shown at the top of this page. As for the parts of the tuner-preamp-amplifier — by the time photographer William Leftwich finished arranging them as they appear on the page opposite, and he tried to get up after kneeling on the floor for

almost an hour, he offered the comment that "An outfit like this ought to cost ten times as much as the little table radio set."

Just in the matter of fixed condensers and resistors, the AM set has a total of 16, compared to 170 in the other equipment. Every single one of the 170 condensers and resistors performs an essential function in the tuner, pre-amp, or amplifier. And consider that 340 leads must be arranged and soldered to connect just these components!

Two big elements of cost in an amplifier are the power transformer and the output transformer. An AC-DC set has neither, as you can see from the photograph. Note also the various stamped chassis parts on the page opposite, compared to the single, small chassis above.

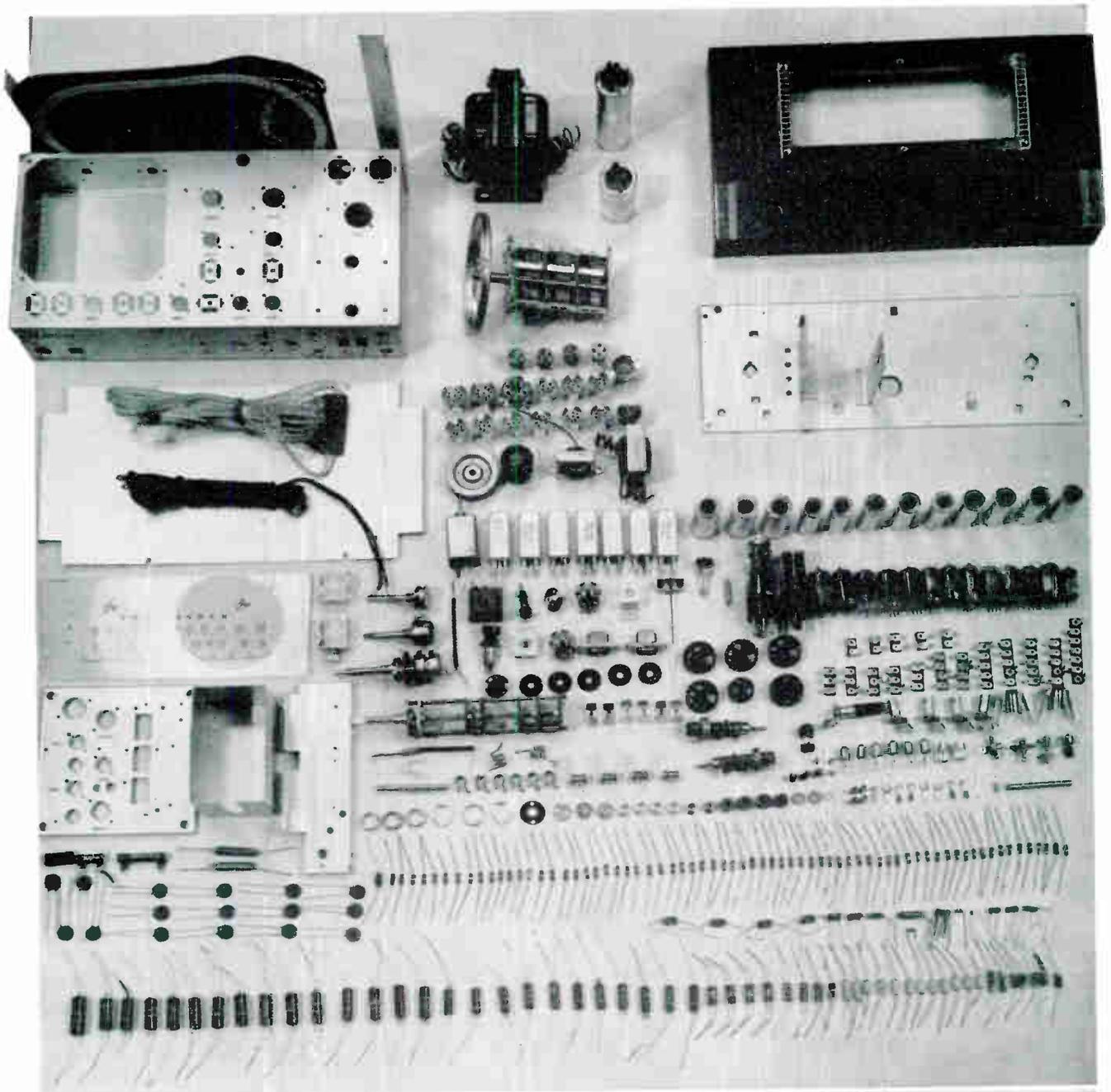
The hi-fi equipment has a number of additional circuits that are not provided in simple AM sets. These include FM tuning; extra amplification for a magnetic phonograph pickup; record equalizing; bass and treble controls; loudness control; extra inputs and a selector switch; broad AM tuning and automatic frequency control on FM; a 6-section tuning condenser; dial and signal lights; a tuning eye; high-power, high-quality audio amplification; and various other auxiliary features such as extra AC outlets and a fuse in the AC line.

A very large item of manufacturing cost is the labor charge for inspecting the great number of components, alignment of the tuning circuits, and final inspection. So much time is required for this work that it amounts to considerable more than the cost of all the parts for the AC-DC receiver!

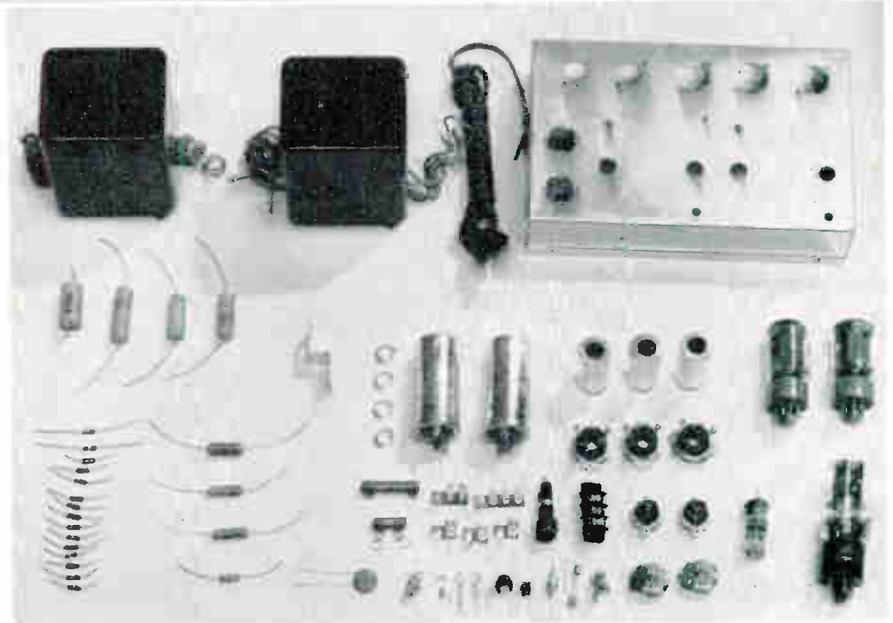
Finally, it must be borne in mind that small AC-DC radio sets are designed as single-function appliances. That is, when the switch is turned on, the tuning and volume adjusted, and sounds come from the loudspeaker, the set is doing all that is expected of it.

The hi-fi equipment, however, is designed as the central part of a complete entertainment system, and all controls and connections are included for playing records, tape recording and playback, the use of a microphone, and for the audio channel of a TV receiver. Moreover, while the output of the AC-DC set, usually less than 1 watt, is adequate to drive a 3 or 4-in. speaker, the 25-watt amplifier illustrated is capable of driving a complete speaker system at a level much higher than is ever required for home listening.

The foregoing comparisons cover only the obvious factors which make up the prices of simple radio sets and hi-fi units, but they serve to show clearly that neither type is over-priced, and that the difference does not lie in extravagant profit, but in the cost of providing added features to meet the requirements of critical listeners.



These two illustrations show all the components and parts for a Fisher FM-AM tuner and preamp above, and for a 25-watt power amplifier below. One tube is missing in the upper picture. Reproduced to the same scale as the picture on the opposite page. This explains graphically the difference in price between a conventional AC-DC radio and a hi-fi FM-AM tuner and preamp, with a high-quality power amplifier



It's one thing for stations to establish and maintain high program standards, but selling time on those stations is something else. The story of fourteen stations that are doing both successfully and how they do it is told by the president of Good Music Broadcasters — RAYMOND S. GREEN



You Should Know about the “Good Music Broadcasters”

and what they are doing for the special benefit of the hi-fi enthusiasts

THE growing interest in good music by radio has been fostered largely through the organized effort of that special group of broadcasters whose specific concern is this type of programming. The broadcasters who have persisted in maintaining fine-music stations adhere to the fundamental principles of American radio in their belief that the medium of good music offers not only a service to the rising level of American aesthetic taste, but also a means, via the advertising dollar, of making available the best in musical culture for the home. Now, this aim is being furthered by the cooperative efforts of the stations comprising Good Music Broadcasters, Inc.

Why GMB Was Necessary

Back in 1949, while nursing the growing pains of WFLN, Philadelphia's good-music station, we soon learned that a localized station devoted exclusively to such programming could carry out its policies successfully in its immediate radius but, alone, was not influential enough to attract national advertisers. One must consider that the fine-music station is restricted both by the selective nature of its own policies, and by the conflicts between those policies and conventional radio commercials.

In those early years, 1949 and 1950, a number of lucrative national and regional accounts had to be rejected because of the sponsors' refusal to conform to the station's commercial policy. I recall one typical example:

A salesman brought in a signed contract with a national coal company which had its own recorded commercial, a spot announcement of the common singing-type in the popular pattern. I had to contact the New York advertising agency to explain why we couldn't use such a commercial bracketed between Bach and Beethoven. The agency recognized immediately that an association mingling fine music with singing commercials would arouse the resentment of the audience rather than gain admiration for its client. However, the client went to another radio station because the transcription had already been made. It would have been too troublesome and too expensive to change his approach at that point.

Repetitions of the coal company incident eventually made one thing clear to me. The individual good-music stations needed the proverbial strength that comes through unity. With this in mind and with the blessing of Mr. Lawrence M. C. Smith, the president of WFLN, I approached WQXR New York, KFAC Los Angeles, and WGMS Washington. These broadcasters, all of whom had successful localized operations, agreed with us at WFLN that

there existed a problem which called for cooperative action. WFLN and WQXR took the lead in forming Good Music Broadcasters, Inc. By the beginning of 1952, GMB had grown to include 14 stations in the major cities over the entire nation.

The New Demand for Good Music

It is true that the primary conception of Good Music Broadcasters was to undertake a purely commercial venture that would attract national advertisers to support the programming of good music. Conventional radio stations and the networks had always considered fine music a poor commercial medium. Moreover, the transition from a soap opera to real opera is out of character for them. Of course, they do carry a few featured programs, but these are exceptions to their regular fare.

The primary economic purpose of Good Music Broadcasters has undergone a great change in scope. As the record industry kept growing, it helped to expand the appreciation of fine music.

Furthermore, a healthy impetus was added by the advent of television. Naturally, radio had to change. Television serves dramatics, sports, variety, and comedy; but as for music, television has little to offer other than opera. The tremendous cost of television shows makes the presentation of musical forms financially impractical. As a result, radio has become more important than ever in the musical field.

FM Audiences Are Growing Bigger

Musicians are not actors, and they are most convincing when they speak through their instruments. Essentially, music is for the ear, not for the eye. It is not a visual art. One goes to a concert to listen. Today, many more people are turning to radio for good music. Audience Analysts, Inc., a market research organization, completed a study of radio audiences in the Philadelphia area in October, 1953. Their report shows that 65.2% of the people in the area listen to their radio as much or more than they did a year ago. The report includes the statement: "That 15.2% indicated more radio listening than a year ago is evidence that radio continues to command a growing audience." This study shows that a large part of the longer-listening radio audience is being captured by good music programming.

Audience Analysts discovered that WFLN has a regular audience of 121,250 radio homes in the Philadelphia area. According to this survey, this exclusively good-music station has an overall weekly listening audience of 270,000 homes, (*Continued on page 50*)

REVIEW of FM-AM TUNERS

WITHIN the last few months, so many new FM-AM tuners have been brought out that 36 models are now being produced by 19 manufacturers. Of these, three are binaural types, with separate tuning controls for FM and AM, and switch controls for receiving programs on AM or FM or both simultaneously. There are also six FM-only models.

Design details vary greatly. Some provide only the tuning circuits and a detector and cathode follower output. Others include preamplifier circuits and elaborate connections and controls for auxiliary equipment. A few are complete with audio amplifiers, requiring only the addition of an antenna and speaker. Prices range from about \$60 to more than \$300.

Each tuner illustrated here is capable of delivering genuine FM performance, with full noise limiting on signals of adequate strength. The minimum signal input required for full limiting varies with different models, of course. The tendency to drift, an annoying characteristic of earlier FM sets, has been virtually eliminated. Practically all the tuners employ Armstrong FM circuits.

The details given for each model are intended to provide the information necessary to select the features required in any particular hi-fi installation. Additional data can be obtained from the manufacturers.

An excellent feature that has been almost universally adopted is the provision of one or two 115-volt outlets connected to the power switch on the front panel. These are for plugging in an amplifier and turntable or changer. Thus, when the set is switched off, the auxiliary equipment is turned off also, and there is no chance that the amplifier might be on during the night, or the phonograph motor left running.

Quite a number of models have tuning eyes, a very useful feature on FM to assure accurate tuning, and a few tuning meters. The REL tuner is the only one provided with a signal strength meter, and a switch to regulate the RF input to prevent overloading.

Practically all models have cathode follower output circuits, as well as automatic frequency control (AFC) on FM, with a cutout switch to disable the AFC when it is desired to tune in a weak station at a spot on the dial adjacent to a powerful, unwanted station. A further development is the variable adjustment of AFC action, instead of the plain on-off control switch.

When plans were first made for publishing this Review, it was our intention to show both front and rear views of each tuner. However, the number of models so far exceeded our expectations that space limitations permitted us to show only one view.

FM-ONLY MODELS



Browning Laboratories, Inc.—Model RV-32
Winchester, Mass.

CONTROLS: Tuning, volume, AFC selector
FACILITIES: Two 115-volt outlets at rear of chassis, cathode follower, output for recorder
TUBES: Five 6AU6, two 12AT7, one 6J6, one 6AL5, 6AL7 tuning eye, and one 5Y3 rectifier
NOTES: Front panel mahogany or blonde, matching cabinets available



Pilot Radio Corp.—Model FM-607
3706 36th St., Long Island City 1, N. Y.

CONTROLS: Tuning, volume, AFC and phonograph selector
FACILITIES: One 115-volt outlet, cathode follower output
TUBES: 6BA6 RF, 6U8 osc., 6BA6 1st IF, 6AU6 2nd IF, 6AB4 AFC, 12AU7 amp. & cath. fol., 6AL5 ratio detector, 6X4 rectifier
NOTES: Available in walnut cabinet. Chassis 10½ ins. wide, 7¾ high, 7¼ deep behind panel



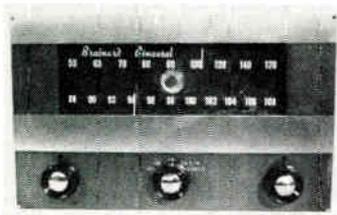
Radio Craftsmen, Inc.—Model C900
4401 N. Ravenswood Ave., Chicago 40, Ill.

CONTROLS: Tuning, volume, AFC selector
FACILITIES: Cathode follower output
TUBES: 6BK7A RF, 6BK7A mixer & AFC, 6BK7A osc. & react. mod., three 6CB6 IF, 6AU6 1st limiter, 6CB6 2nd limiter, 12AU7 amp. & cath. fol., 5Y3GT rectifier, two IN64 FM det.
NOTES: IF 20.6 mc. Chassis 13½ ins. wide, 7¾ high, 8¾ deep



Radio Engineering Laboratories, Inc.—Model 646C
36-40 37th St., Long Island City 1, N. Y.

CONTROLS: Tuning, RF gain, volume
FACILITIES: Cathode follower, 2 volts to high impedance, .2 volt to 600 ohms, one 115-volt outlet, antenna terminals for 300 or 72-ohm line, signal strength meter, tuning meter
TUBES: 6BK7A RF, 6V6 osc. mixer, five 6BH6 IF, three 6BH6 prelimiters, 6BH6 1st limiter, 6AH6 2nd limiter, 12AU7 amp., 12AU7 cath. fol., 5Y3GT rectifier, ten germanium diodes
NOTES: IF frequency 10.7 mc. Chassis 15½ ins. wide, 5¾ high, 12½ deep. Available in pierced metal cabinet or on 19-in. rack panel



Master Electronics Co.—Brainard Model T-200
8586-90 Santa Monica Blvd., Los Angeles 46

CONTROLS: Separate FM and AM tuning, output selector for FM, AM, or both
FACILITIES: Separate audio outputs from FM and AM for binaural reproduction
TUBES: One 6BE6, three 6BA6, one 6BQ7, one 6CB6, one 6AU6, one 6AL5, one 12AX7, one 6AF6, one 1N34, one 6X4.
NOTES: AFC is provided. Chassis 12 ins. wide, 7 high, 10 deep



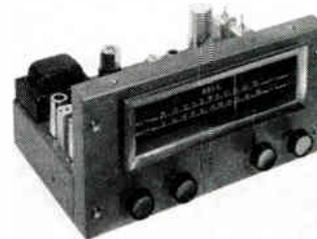
Browning Laboratories, Inc.—Model RJ-49
Winchester, Mass.

CONTROLS: Separate FM and AM tuning, selector for FM, FM-AC, AM, FM-AM
FACILITIES: Two 115-volt outlets, separate outputs for recording FM and AM
TUBES: Two 12AT7, one 6J6, four 6AU6, two 6AL5, one 6BA6, one 6BD6, one 6BE6, one 6C4, one 12AU7, 6AL7 tuning eye, 5Y3 rectifier
NOTES: Mahogany or blonde panel, matching cabinets available



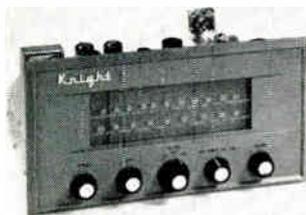
National Co., Inc.—Model Criterion
61 Sherman St., Malden, Mass.

CONTROLS: Separate FM and AM tuning and volume, selector for binaural, AM, FM, FM squelch circuit
FACILITIES: Cathode follower, 115-volt outlet, separate outputs from FM and AM for binaural reproduction. Plug-in preamplifier-tone control unit available.
TUBES: One 6BQ7, one 6X8, three 6BA6, one 6BE6, one 6AU6, one 6AV6, two 12AX7, two 6BN6, one 6AL5, 5Y3GT rectifier
NOTES: Available in metal cabinet. Chassis 16¾ ins. wide, 7 high



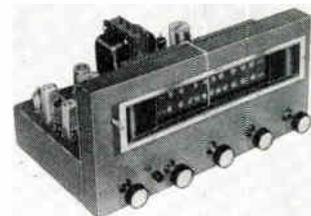
Bell Sound Systems, Inc.—Model 2210
555 Marion Road, Columbus 7, Ohio

CONTROLS: Tuning, volume, FM-AM selector, variable AFC
FACILITIES: Two 2-volt cathode follower outputs, one through volume control and one through detector without volume control
TUBES: 6CB6 RF, 12AT7 mixer, 12AT7 osc. & AFC, two 6CB6 IF, 6AU6 1st limiter, 6AU6 2nd limiter, 6AL5 FM det., 6AV6 AM det. & AVC, 12AX7 cath. fol., 6X5GT rectifier
NOTES: IF on FM 10.7 mc, on AM 455 kc



Allied Radio Corp.—Model 721
100 N. Western Ave., Chicago 80

CONTROLS: Tuning, volume, bass control, treble control, equalizer, selector for 2 inputs, FM, and AM
FACILITIES: Preamplifier, connections for crystal or magnetic pickup, two 115-volt outlets
TUBES: Three 6BA6, two 6BE6, one 6AU6, one 6AL5, one 6C4, one 6AV6, one 12AT7, one 12AX7, two 6V6GT, 5Y3GT rectifier
NOTES: Chassis 13½ ins. wide, 7¾ high, 10 deep



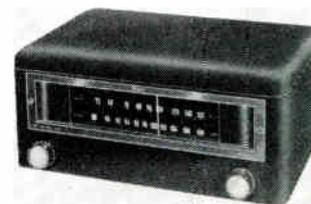
David Bogen Co., Inc.—Model R750
29 Ninth Ave., New York 14, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, AFC cutout, selector for phono, AM, AM-broad, FM, spare input
FACILITIES: Preamplifier with variable control for magnetic pickups, crystal pickup switch, output for tape recorder
TUBES: One 6BK7A, one 6AB4, four 12AT7, two 6BA6, one 6BE6, three 6AU6, one 6AL5, one 6X4
NOTES: Chassis 14½ ins. wide, 7½ high, 9¾ deep



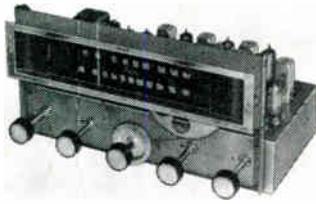
Altec Lansing Corp.—Model 303C
9356 Santa Monica Blvd., Beverly Hills, Calif.

CONTROLS: Tuning, volume, bass control, treble control, equalizer, selector for FM, FM-AFC, AM, phono, spare input
FACILITIES: Preamplifier, cathode follower output, 115-volt outlet
TUBES: Four 6BA6, one 6BE6, two 6AL5, one 6BQ7A, one 12AT7, one 6AU6, one 6AB4, one 12AU7, one 12AX7, 6X4 rectifier, 6U5 or 6G5 tuning eye
NOTES: Metal cabinet, 15½ ins. wide, 8¾ high, 9¾ deep



David Bogen Co., Inc.—Model R640G
29 Ninth Ave., New York 14, N. Y.

CONTROLS: Tuning, selector for AM, FM, FM-AFC cutout
TUBES: One 6CB6, three 6BA6, one 6AB4, one 6BE6, one 6AU6, two 6AL5, one 12AT7, one 6X4
NOTES: Available in metal cabinet. Chassis 13¾ ins. wide, 6 high, 7½ deep



David Bogen Co., Inc.—Model R300-1

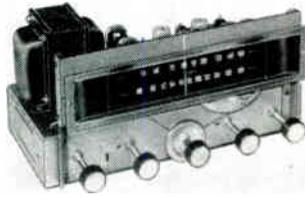
29 Ninth Ave., New York 14, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, selector for phono, AM, FM, TV

FACILITIES: Preamplifier, output for tape recorder

TUBES: Two 12AT7, one 6BE6, one 6BA6, three 6AU6, one 6AL5, one 12AU7, one 6X4

NOTES: AFC is provided. Chassis 13½ ins. wide, 7 high, 8 deep



David Bogen Co., Inc.—Model RR500-1

29 Ninth Ave., New York 14, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, selector for phono, AM, FM, TV

FACILITIES: Preamplifier, 10-watt amplifier, one 115-volt outlet

TUBES: Three 12AT7, one 6BE6, one 6BA6, one 6AU6, one 6AL5, one 6AT6, two 6V6GT, one 5Y3GT

NOTES: Chassis 14 ins. wide, 7 high, 8 deep



Browning Laboratories, Inc.—Model RJ-43M

Winchester, Mass.

CONTROLS: Bandswitch, tuning

FACILITIES: Volume control on chassis, tape recorder and cathode follower outputs, two 115-volt outlets

TUBES: Two 12AT7, one 6I6, four 6AU6, two 6AL5, one 6BA6, one 6BD6, one 6BE6, one 12AU7, 6AL7 tuning eye, 5Y3 rectifier

NOTES: Front panel mahogany or blonde, matching cabinets available



Fisher Radio Corp.—Model 70-RT

21-21 Forty-fourth Drive, Long Island City 1, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, loudness, selector for AM-broad, AM-sharp, FM, FM-AFC, AES, Ortho, LP, NARTB, TV

FACILITIES: Preamplifier, cathode follower, with extra output for tape recorder, two 115-volt outlets, antenna terminals for 300 or 72-ohm line, adjustable AFC

TUBES: Two 6BQ7A, one 6CB6, one 6BE6, three 6BA6, two 6AU6, one 6AL5, one 12AU7, one 12AX7, one 6AV6, 5Y3 rectifier, 6U5 tuning eye

NOTES: Chassis 14¼ ins. wide, 8½ high, 9¼ deep



Fisher Radio Corp.—Model 50-R

21-21 Forty-fourth Drive, Long Island City 1, N. Y.

CONTROLS: Tuning, volume, selector for AM-broad, AM-sharp, FM, FM-AFC, phono, TV

FACILITIES: Cathode follower, two 115-volt outlets, antenna terminals for 300 or 72-ohm line, adjustable AFC, logging scale on tuning dial

TUBES: Two 6BQ7A, one 6CB6, one 6BE6, three 6BA6, two 6AU6, two 6AL5, one 12AU7, 5Y3 rectifier, 6U5 tuning eye

NOTES: Chassis 14¼ ins. wide, 8½ high, 9¼ deep



Freed Electronics & Controls Corp.—Model 717

200 Hudson St., New York 13, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, selector for FM, AM, 78, LP, AES, spare input

FACILITIES: Preamplifier, connection for crystal pickup, output for tape recorder, 10-watt amplifier

TUBES: 6CB6 RF, 6U8 conv. & osc., 6U8 IF & AFC, 6AU6 FM IF, 6AU6 limiter & preamp., 6T8 disc. & AM det., AVC & 1st amp., 12AX7 phase inverter, two 6V6GT amp., 5Y3 rectifier, 6U5 tuning eye

NOTES: Chassis 13¾ ins. wide, 8 high, 9¾ deep



Freed Electronics & Controls Corp.—Model 750

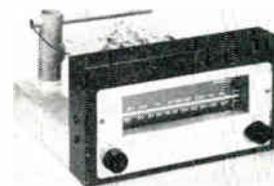
200 Hudson St., New York 13, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, selector for FM, AM, 78, LP, AES, spare input

FACILITIES: Preamplifier, connection for crystal pickup, cathode follower, output for tape recorder, 115-volt outlet

TUBES: 6CB6 RF, 6U8 conv. & osc., 6U8 IF & AFC, 6AU6 FM IF, 6AU6 limiter & preamp., 6T8 disc. & AM det., AVC & 1st amp., 12AX7 cath. fol., 5Y3GT rectifier, 6U5 tuning eye

NOTES: Chassis 13¾ ins. wide, 8 high, 9¾ deep



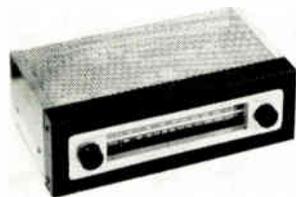
Harman-Kardon, Inc.—Model A200

52 W. Houston St., New York 12, N. Y.

CONTROLS: Tuning-AFC cutout, selector for AM, FM, phono

TUBES: Two 12AT7, one 6BE6, one 6BA6, two 6AU6, one 6AL5, selenium rectifier

NOTES: Chassis 9½ ins. wide, 5¼ high, 8 deep



Harman-Kardon, Inc.—Model A-300

52 W. Houston St., New York 12, N. Y.

CONTROLS: Tuning-AFC cutout, selector for AM, FM-AFC, FM

TUBES: One 6BK7A, one 12AT7, one 6AB4, one 6BE6, one 6BA6, one 6AL5, three 6AU6, one 6AL7, one 12AU7, 6X4 rectifier

NOTES: Chassis 12½ ins. wide, 4 high, 7¼ deep



Harman-Kardon, Inc.—Model D-1000

52 W. Houston St., New York 12, N. Y.

CONTROLS: Tuning-AFC cutout, volume, bass control, treble control, loudness control, selector for AM, FM, LP, RIAA, EUR, spare input

FACILITIES: Preamp, two spare inputs, output for tape recorder, 115-volt outlet, 20-watt amplifier

TUBES: 6U8 RF amp. & FM mixer, 12AT7 osc. & AFC, 6BE6 AM conv., 6BA6 IF, 6AU6 IF limiter-amp. & AM det., 6AU6 FM limiter, 6AL5 disc., 6AB4 tone control amp., 12AT7 amp. & phase splitter, 12AU7 driver, two 5881 amp., 6X4 low voltage rectifier, 5V4 high voltage rectifier

NOTES: Chassis 13¾ ins. wide, 7 high, 11¼ deep



Newcomb Audio Products Co., Inc.—Model 200

6824 Lexington Ave., Hollywood 38, Calif.

CONTROLS: Tuning, selector for FM, FM-AFC, AM, AM-broad, spare input

FACILITIES: Cathode follower output, 115-volt outlet, chassis controls for volume, AFC, AM sensitivity, hum balance, antenna terminals for 300 or 72-ohm line

TUBES: One 6BK7A, one 6U8, three 6BA6, two 6AU6, one 6BJ7, two 6C4, one 6BE6, one 12AX7, one 6E5, 6X4 rectifier



Pilot Radio Corp.—Model AF-723

3706 36th St., Long Island City 1, N. Y.

CONTROLS: Tuning, volume, tone, AFC, selector for AM, FM, phono, spare input

FACILITIES: Cathode follower output

TUBES: 6BA6 RF, 6U8 osc. & mixer, 6BA6 1st IF, 6AU6 2nd IF & AM det., 6AL5 ratio det., 12AU7 amp. & cath. fol., 6AB4, AFC, 6X5GT rectifier

NOTES: Chassis 14¼ ins. wide, 7½ high, 8½ deep behind front panel



Pilot Radio Corp.—Model AF-824

3706 36th St., Long Island City 1, N. Y.

CONTROLS: Tuning, volume, bass control, treble control, AFC, equalizer for phono, selector for AM, FM, phono, spare input

FACILITIES: Preamp, cathode follower, three magnetic pickup inputs, switch for crystal pickup

TUBES: 6BA6 RF, 6U8 osc. & mixer, 6BA6 1st IF, 6AU6 2nd IF & AM det., 6AL5 ratio det., 6AB4 AFC, 12AX7 preamp., 12AT7 tone amp., 12AU7 audio & det. output & cath. fol., 6X5GT rectifier

NOTES: Chassis 14¾ ins. wide, 7½ high, 8¾ deep



Pilot Radio Corp.—Model AF-860

3706 36th St., Long Island City 1, N. Y.

CONTROLS: Tuning, volume, bass, treble, AFC, two for phono equalization, selector for FM, AM, AM-broad, phono, tape, spare input

FACILITIES: Preamp, variable inputs for magnetic pickups, switch for crystal, cathode follower, tuning meter, two 115-volt outlets

TUBES: 6BA6 RF, 6U8 osc. & conv., 6BA6 1st IF, 6BA6 2nd IF, 6AU6 1st limiter & AM det., 6AU6 2nd FM limiter, 6AL5 FM disc., 12AT7 AFC amp. & react., 12AX7 preamp., 12AT7 tone amp., 12AU7 audio & det. output & cath. fol., 5Y3GT rectifier

NOTES: Chassis 14¼ ins. wide, 7½ high, 9 deep



Radio Craftsmen, Inc.—Model 10

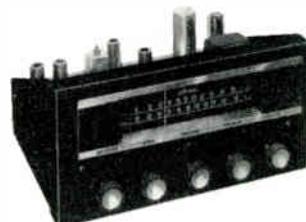
4401 N. Ravenswood Ave., Chicago 40, Ill.

CONTROLS: Tuning, volume, bass control, treble control, selector for FM, AM, phono, TV

FACILITIES: Preamp, cathode follower, tape recorder output, antenna terminals for 300 or 72-ohm line

TUBES: 6CB6 RF, 12AT7 mixer, 12AT7 osc. & AFC, two 6CB6 IF, two 6AU6 limiters, 6AL5 FM det., 6AV6 AM det. & amp., 12AX7 amp., 12AX7 preamp., 6X5GT rectifier

NOTES: FM IF 10.7 mc. Chassis 13½ ins. wide, 7 high, 9½ deep



Radio Craftsmen, Inc.—Model C800A

4401 N. Ravenswood Ave., Chicago 40, Ill.

CONTROLS: Tuning, volume, bass control, treble control, selector for FM, FM-AFC, AM, TV, phono-LP, AES, EUR, spare input

FACILITIES: Preamp, cathode follower, tape recorder output, three magnetic pickup inputs, two 115-volt outlets

TUBES: 6CB6 RF, 6BJ6 AM RF, 12AT7 mixer, 12AT7 osc. & AFC, 6BJ6 IF, two 6AU6 IF, two 6AU6 limiters, 6AL5 FM det., 6AV6 AM det. & amp., 12AX7 cath. fol., 12AX7 preamp., 6AL7GT tuning eye, 5Y3GT rectifier

NOTES: Chassis 13¾ ins. wide, 7¼ high, 10¼ high



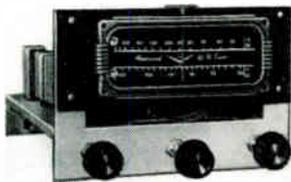
Radio Corp. of America—Model SVT-1
Camden, N. J.

CONTROLS: Tuning, volume, bass control, treble control, selector for FM, FM-AFC, AM, tape, LP, Ortho, 78, TV
FACILITIES: Preamplifier, cathode follower, tape recorder output, antenna terminals for 300 or 72-ohm line
TUBES: 6CB6 RF, 6BJ6 AM RF, 12AT7 mixer, 12AT7 osc. & AFC, 6BJ6 IF, two 6AU6 IF, two 6AU6 FM limiters, 6AL5 FM det., 6AV6 AM det. & amp., 12AX7 cath. fol., 12AX7 preamp., 5Y3GT rectifier
NOTES: FM IF 10.7 mc. Chassis 13 $\frac{3}{8}$ ins. wide, 7 $\frac{1}{4}$ high, 10 $\frac{3}{4}$ deep



Radio Corp. of America—Model ST-1
Camden, N. J.

CONTROLS: Tuning, volume, selector for FM, AM
FACILITIES: Cathode follower, antenna terminal for 300 or 72-ohm line
TUBES: 6CB6 RF, 12AT7 mixer, 12AT7 osc. & AFC, two 6CB6 IF, two 6AU6 limiters, 6AL5 FM disc., 6AV6 AM det. & AVC, 12AU7 amp. & cath. fol., 6X5GT rectifier
NOTES: FM IF 10.7 mc. Chassis 13 $\frac{1}{2}$ ins. wide, 7 high, 10 deep



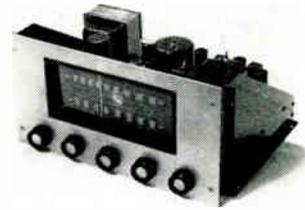
Radio Shock Corp.—Model V-12
167 Washington St., Boston 8, Mass.

CONTROLS: Tuning, selector for FM, AM
FACILITIES: Cathode follower
TUBES: 6CB6 RF amp., 6BE6 mixer, 6J6 osc., 6AU6 1st FM IF, 6AU6 2nd FM IF, 6AU6 1st limiter, 6AU6 2nd limiter, 6AL5 FM det., 6C4 cath. fol., 6BA6 RF, 6BE6 conv., 6BA6 1st AM IF, 1N34 crystal AM det.
NOTES: FM IF 10.7 mc. Chassis 8 $\frac{1}{4}$ ins. wide, 5 $\frac{3}{8}$ high, 7 $\frac{7}{8}$ deep



Regency div., I.D.E.A., Inc.—Model AF-250
7900 Pendleton Pike, Indianapolis 26, Ind.

CONTROLS: Tuning, selector for AM, FM
FACILITIES: Cathode follower
TUBES: 6BK7A casc. RF, 6BC5 mixer, 6BK7A osc. & AFC, two 6BJ6 FM IF, two 6AU6 limiters, 6AL5 disc., 6BJ6 RF, 6BE6 conv., two 6BD6 AM IF, 6AL5 2nd det. & AVC, 12AU7 amp. & cath. fol., 5Y3GT rectifier
NOTES: Available in cabinet. Chassis 15 $\frac{1}{8}$ ins. wide, 7 $\frac{1}{4}$ high, 9 deep



Sargent-Rayment Co.—Model SR51-B
1401 Middle Harbor Road, Oakland 20, Calif.

CONTROLS: Tuning, volume, bass control, treble control, selector for FM, phono, TV, AM
FACILITIES: Output for recording, 115-volt outlet, input for plug-in preamp
TUBES: Three 6BA6, one 6J6, one 6AL5, one 6BE6, one 6SA7, one 6SF7, one 6SK7, one 6SN7, one 5Y3 rect., one 6E5
NOTES: FM IF 10.7 mc. Chassis 14 $\frac{1}{2}$ ins. wide, 6 $\frac{3}{4}$ high, 11 $\frac{1}{2}$ deep.



Sargent-Rayment Co.—Model SR68
1401 Middle Harbor Road, Oakland 20, Calif.

CONTROLS: Tuning, selector for AM, AM-broad, phono, FM, FM-AFC, spare input
FACILITIES: One 115-volt outlet, input for plug-in preamplifier, preamplifier-tone control unit available
TUBES: Four 6BA6, one 6BE6, two 6AU6, one 6AL5, one 12AT7, one 6SA7, one 6SK7, one 6SF7, two 6SN7, 5Y3 rectifier, 6E5 tuning eye
NOTES: FM IF 10.7 mc. Chassis 15 ins. wide, 6 $\frac{1}{4}$ high, 12 deep



Stromberg-Carlson Co.—Model SR-401
Rochester, N. Y.

CONTROLS: Tuning, volume, AFC, selector for AM, AM-broad, FM
FACILITIES: Antenna terminals for 300 or 72-ohm line, two 115-volt outlets
TUBES: 6BA6 AM RF, 6BE6 AM conv., 6CB6 FM RF, 6AU6 FM mixer, 12AT7 FM osc. & AFC, 6BA6 1st IF, 6BA6 2nd IF, 6AU6 FM limiter, 6AL5 ratio det., 12AU7 AM det.-amp., 5Y3GT rectifier, 6AL7 tuning eye
NOTES: FM IF 10.7 mc. Chassis 11 $\frac{1}{4}$ ins. wide, 6 $\frac{1}{2}$ high, 11 deep behind panel



Stromberg-Carlson Co.—Model SR-405
Rochester, N. Y.

CONTROLS: Tuning, loudness, bass control, treble control, selector for crystal phono, FR magnetic phono, AES magnetic phono, FM-AFC, FM, AM-broad AM, TV, magnetic recorder, microphone
FACILITIES: Antenna terminals for 300 or 72-ohm line, 115-volt outlet, 10-watt amplifier
TUBES: One 5U4G, one 6AL5, one 6AL7, two 6AU6, three 6BA6, one 6BE6, one 6CB6, two 6F6, two 12AT7, one 12AU7, one 12AX7
NOTES: FM IF 10.7 mc. Chassis 13 ins. wide, 8 high, 12 deep behind panel

IMPORTANCE of RECORDS

Record libraries should not be made up of museum pieces, but of music that can be enjoyed for its own sake. Here are suggestions for those who are starting collections

By DAVID HALL

This is the second and concluding part of David Hall's discussion of the growing interest in records, its effect upon the musical world, and the changing habits and attitudes of people who enjoy music. Part 1 appeared in the May-June issue.

UNQUESTIONABLY the most rigorous test that can be applied to any music or musical performance is that of repeated hearing over an extended period of time. The experience of living with music on records has shown instance after instance where a superb rendition of Gershwin's *Summertime* or of Johann Strauss's *Emperor Waltz* will stand up better than many a more pretentious, serious musical work. By the same token, this same process can eliminate much that is second-rate from one's area of active listening, whether it be from the pen of an unknown contemporary or a celebrated "name" composer of the past or present.

While this listening method has much to recommend it as a rule of thumb, there are many problems which arise for the listener as a result of the state of development of his musical taste, or because of certain definite pre-conceived preferences which he may have. There are those who cannot endure Beethoven and Brahms, but who thrive on Bach and Mozart. Likewise, there are works in the musical literature which allow of only the slimmest comprehension on an intuitive level, and whose true significance can only be appreciated fully by one with an understanding of the tools of composition and the manner in which they are used.

Bach's *Musical Offering* and Bartók's *Sonata for Two Pianos and Percussion* are notable examples in point. The enjoyment of music, like the enjoyment of life itself, is a matter of effective and creative co-ordination of intuition and intellect. Much of the "music appreciation" that has been so emphasized in American educational circles over the past few generations has revolved around the "museum" approach to musical literature, and the fact that art-music is still treated as something "to be understood" rather than enjoyed for its own sake.

To our way of thinking, the literature of long-playing records has now reached the point where any individual with the inclination (plus the ability to employ a little planned budgeting for the purpose) can make a fresh approach to music based

on his own personal reaction to each work or each performance heard, regardless of the name or fame of the composer or performing artist involved. It is contended that this is the beginning of a meaningful exploration of music, for nothing makes a more indelible impression on the mind and heart than that which has been discovered by oneself.

It is entirely natural and inevitable in the course of musical exploration that a listener will come upon works which, on first, second, or third hearing, will seem incomprehensible, dull, or downright repellent. The response to this kind of situation lies neither in outright rejection nor in beating one's head against a stone wall. Often some reading about the composer and his times, followed by additional hearings, will establish a line of aesthetic communication. In general it is safe to say that music which evokes a strong reaction for or against it will yield more fruitful dividends in terms of continued listening than that which leaves one unmoved.

About the Selection of Records

Save for the better-known operatic, art-song, and choral masterpieces of the past 200 years, public taste for concert music in the 1950's is attuned primarily to instrumental music, and in particular to that kind of instrumental music which serves as an effective vehicle for the virtuoso soloist and for the virtuoso symphony orchestra and conductor. As often as not, interest in hearing a concert music performance on or off records is conditioned by the knowledge that the soloist may be Heifetz or Horowitz, the conductor Toscanini or Beecham, or the orchestra the Philadelphia Orchestra or the Amsterdam Concertgebouw.

Most lately, in the field of recorded music, the public is influenced to a considerable extent by the anticipated brilliance and realism of the recorded sound as represented by such commercial catchwords as RCA-Victor's New Orthophonic, London's *ffrr*, Mercury's *Living Presence*, Westminster's *Natural Balance*, or Capitol's *FDS*. In short, many listeners are ensnared to a greater or lesser degree by the magic of sheer spectacular sound in terms of frequency range, dynamic range, and color.

In any home, a library of recordings, like a collection of books, a series of fine prints or paintings, or well-designed furniture represents a major investment over a period of years. The recordings and the music contained therein must be lived with

from year to year. Thus it is important for the serious and budget-minded record collector to guard against succumbing to high pressure salesmanship or to his own snap judgements. Here are a few basic suggestions drawn from the writer's observations and personal experience:

1. Be sure that your audio equipment is capable of performance that will do full justice to the capabilities of the new records you plan to buy.

2. If you are just starting a record library in a serious way, begin on familiar ground with music or with performances by artists who have special and lasting appeal for you. From this point of departure, work your way gradually and systematically in the direction of musical repertoire and artists new to you. Vary your musical banquet by sampling different types of music — ballet, chamber music, concertos, organ or piano works, art-song, opera, and sacred choral music. Don't restrict your samplings to any one historical era. You'll find many a pleasant surprise among the works of the 16th century Italians, to say nothing of the 20th century Danes.

3. Don't reject a recorded performance just because the featured conductor or artist lacks the renown of a Toscanini or Heifetz. You'll be amazed to find many superb musicians in all fields of performance who measure up to the very best of the international celebrities, but who have not been or will not allow themselves to be exploited to the extent of their more renowned colleagues.

4. Make it a point to acquire each month the listings of new record releases; then check these against the reviews of two or more competent record critics. However, in sampling the new recordings that seem most interesting, let your own ears and your own taste be the final judge.

5. Where possible, hear new recordings in your own home under familiar listening conditions. Make it a point to know which radio stations in your area feature recordings of concert music on their programs.

6. Store your records in a cool place, as free as possible from dust, and in an upright position packed snugly but not tightly. Nowadays, many serious collectors play each new record just once, to record the music on tape. Only if a tape is damaged do they play a record a second time. This, of course, is the ideal way to enjoy the repeated playing of music on records and still keep each record in its original, perfect condition.

MODERN COMPOSERS YOU SHOULD KNOW



Information of particular interest to the more advanced record collectors

By OLIVER DANIEL

IT IS VERY LIKELY that you are taking Cowell with your coffee and Bartók with your beer, quite without realizing it. Furthermore, these and other modern composers are probably being served up to you in a sort of hash or, to be more elegant, in a paella, ragout, or stew spiced with vicarious dashes of adventure, romance, mystery, or horror. This is most certainly true if you are a teviewer, for the background music supplied for most of the live dramatic shows is drawn almost entirely from newly recorded works of contemporary composers.

While everyone along the line in such productions is given his bit of credit, the composer, be he great or small, is not mentioned. Surely his contribution is as vital as the furrier who supplied a stole, the cosmetician who daubed some powder and set a curl, or the actor who has little more to do than utter a gag line such as "tennis anyone." The writer, the director, the producer, all have their credit lines. But the composer or composers? Never a word!

One reason given for the omission of the composers' names is that it takes too much space on the screen. Another is that changes are frequently made at the last minute, or that there are just too many of them. But if complete credits were given, you might be surprised to discover how much Hindemith, Bartók, Copland, Cowell, Riegger, and Thomson you have been hearing.

Consider a few current programs such as Studio One, The Medallion Theater, The Robert Montgomery Show, and others. When the excellent CBS Studio One presented "Thunder on Sycamore Street," a moving story of intolerance in a New England town, the music was drawn entirely from a single work by Alan Hovhaness, his *First Concerto for Orchestra*. The background music for another Studio One production was taken entirely from the works of Poulenc, while on another occasion Howard Hanson was the uncredited composer. A telecast of "Along Came a Spider" on Studio One used Roger Goeb's *Third Symphony*, and fragments by Sowerby, Dello Joio, and Sessions.

A less likely spot on which to find contemporary music, at least one might expect it to be, is the TV production of Red

Brown and the Rocket Rangers, yet on one of its programs the following composers were represented: Thomson, Respighi, Roussel, Barber, Miaskowsky, Tchaikowsky, and Vaughn-Williams. On NBC's Big Show, we find fragments by Prokofiev, Honegger, Vaughn-Williams, Rubbra, Schoenberg, MacDowell, Debussy, Stravinsky, and Chausson in a single program. A rather elaborate array of unpaid and uncredited talent! The music becomes so submerged in the production and the personalities of actors on some programs that we scarcely realize it is there.

Since TV depends almost solely on recorded music for its backgrounds and cues, contemporary music is the most logical link, offering association both free and new. The constant use of this music is acquainting both the younger generation and the oldsters as well with new sounds and combinations. It is a powerful factor in making modern music known to music lovers, and most listeners have become so familiar with it that the element of shock has almost departed. Perhaps the most important aspect of this flood of music over TV and radio is the elimination of the resistance factor toward new sounds and expression. The *new* does not seem *strange*, even when it is stripped of the visual-dramatic paraphernalia of television.

Least aware of this astonishing development are the orchestra managers and some conductors more conscious of the box office than of their responsibility to music lovers. While they may maintain some continuing hold over the old guard, they have lost or are losing a new generation of serious music lovers. For their aesthetic nourishment, the new generation has turned to records and to such radio programs as the CBS Twentieth Concert Hall, or to the FM Stations which spin out classical records by the stack. But even more significantly, the listeners are becoming collectors of these recordings.

In fact, collectors and hi-fi fans often turn to the producers of TV shows for assistance in building their libraries. When the Ford Foundation program "Omnibus" used Henry Cowell's *Symphony No. 5* as background music, letters poured in by the thousands asking information about it, and the record was sold in great numbers, despite the difficulty of obtaining it, since it could be bought only by subscription

through the American Recording Society. Despite this flurry of interest, no American conductor has performed the work since its premier in 1950. The hi-fi enthusiasts have been more astute; they have sought out this and other Cowell records, considering them collectors' items.

THE TASTE for new music, like that for olives or oysters, is increasing, and today we are producing in this Country some of the most significant music being composed. American composers, for the first time in the history of music, are becoming important world figures.

Although their work is remarkably varied, they have to some extent grouped themselves into several categories: some belong to well-established cults with Stravinsky or Schoenberg as titular dieties; some are imbued with concepts quite Oriental or near-eastern in origin; some have reverted to jazz or folk music for material sources; others hark back to the romantic tradition. There are, however, a number who have tried to evolve new sounds and new materials of music, and to find new languages of aural expression. Curiously, among the lesser-known we find some of the most vital music now being produced, and out of the vast number of new compositions being recorded there are indeed some *musts* to be included in every representative collection.

Let's start with the granddaddy of the American modernists, Charles Ives. There is a fragmentary work of his called *The Unanswered Question* that stands out amid contemporary works as a rare little gem. It is a mere 4 minutes and 10 seconds long, and was written back in 1908. It is a work in which the plurality of ideas emerges with the unerring rectitude of landscape. Strings in simple concordance sustain an almost droning, hymnic sound, while woodwinds and a solo trumpet speak their respective pieces in utter independence. Here, as in other orchestral works by Ives, one group is pitted against the others. In the Polymusic recording, as a point of technical interest, the elements were recorded separately and fused together in a final, composite recording. This work, this vignette, is found in company with three other Ives works for orchestra on one side and chamber work on the other. Current LP record lists includes Ives' *Second and*

Third Symphonies, his *Three Places in New England* (indifferently performed), two piano sonatas, and songs.

Among the best known figures in the American scene we find Aaron Copland and Virgil Thomson. Both have stamped their music with qualities unquestionably American, either by design or accident. Americana is the hallmark of Copland's *Billy the Kid*; his *Appalachian Spring*, based on touchingly beautiful indigenous Shaker melodies; and *The Red Pony* — this last splendidly recorded by Thomas Scherman. On the reverse side of this Decca disc is another Americana must, Virgil Thomson's *Acadian Songs and Dances from The Louisiana Story*. While not having as sumptuous a sound as that produced by the Philadelphia Orchestra's Columbia recording, it is much more sympathetically performed. Delightful too is Sherman's performance of *The Plow That Broke the Plains*.

On Columbia's splendid series of Contemporary Chamber Works, Virgil Thomson's *Stabat Mater* and *Capital, Capitals* have appeared, backed by Lou Harrison's superbly beautiful *Suit: for Cello and Harp*, together with an indifferent *Suite for Strings* by the same composer. But among all Thomson's works, none seems more beautifully effective than the three pieces which were recently recorded (but as yet unreleased) by the Philadelphia Orchestra for Columbia: *Wheat Field at Noon*, *The Seine at Night*, and *Sea Piece with Birds*. For these three, Virgil Thomson deserves a laurel leaf from all music lovers.

Among the big three, or big five, or big any-number-you-select, Roy Harris must be included. The curious temporary neglect of his work has ended, and again he is featured not only as a major composer on symphonic programs, but in record catalogues as well. He was represented by a score of works on the old 78's, but by too few works on LP's. Now he is catching up quickly. His *Third Symphony*, recorded by Howard Hanson for Mercury, is one of the most important symphonic works produced in America. It is a work of powerful individuality and unusual cohesive strength. It evolves with logic, with a sense of unfoldment that belongs to growing things; not to the weed or flower this work, but rather to some gigantic redwood tree. More recordings are in progress. Harris is an important composer, a name to jot on your memo pad as you set out to buy new recordings.

Unlike Harris, composer Samuel Barber has suffered no neglect by record aficionados. His *Adagio for Strings*, is fast finding its way into the affections of music lovers along with the old favorites, those beloved encore pieces, such as the *Melody in F*, the *Minuet in G*, Rubenstein's *Romance* and perhaps the first movement of Beethoven's *Moonlight Sonata*. This neither praises nor blames the work. It is in itself a superbly attractive piece, though quite eclectic. But how many composers turn out works that can justify the term *beloved*? Representing

Barber at his best we have his early *Essay for Orchestra*, his *Capricorn Concerto* (splendidly performed by the Saitenberg Little Symphony), a vivid performance of his *School for Scandal Overture* conducted by Howard Hanson, and his *Sonata for Piano* recorded by Horowitz. In addition to these works, two symphonies have been recorded as LP's, the *First* poorly, and *Second* excellently.

Again in the realm of the better known composers we find the name William Schumann. Almost everyone refers to him as "Bill," except the students of the Juilliard School of Music who, with proper homage, refer to him as "Doctor." Schumann was at one time a student of Roy Harris, and though it may be inaccurate to say that he imbued his work with a sense of expansion and spaciousness due to this tangency with Harris, he has nevertheless given to his music a broad and sweeping quality that stamps it as important. He is a splendid craftsman.

Also among the most skilled workmen of music we have Douglas Moore whose *Second Symphony* has been recorded by the American Recording Society. He is scantily represented in the recording catalogues for the moment, but his opera *The Devil and Daniel Webster* is scheduled for immediate recording. A *Quintet for Clarinet and Strings* is his only other work appearing in the catalogues.

WHILE all the foregoing have become well known as composers for their music alone, there are some who have become more famous for their antics, or at least their seemingly extra-musical activities, than for their strictly legitimate musical accomplishments.

Consider, for example, George Antheil's airplane propellers; Henry Cowell's tone clusters; Varèse and his general noise making; John Cage and his prepared pianos, pots, and pans; Otto Luening's tapesichording; and Lou Harrison's automobile brake drums and plumbers' pipes. All such have tended to obscure the vital contribution each has made.

Antheil is a perfect example. He has been called the bad-boy of music. A sillier line can hardly be imagined. His *Ballet Mechanique*, which set critics swaying on their fatty tissues back in the twenties, turned out to be a deftly constructed work, ahead of its time of course, but not too different from works of Henry Cowell, Lou Harrison and Peggy Glanville-Hicks. But Antheil has done some works that are far better than the reputation any of them has achieved. By the process of elimination, his music stays in the running with most record fanciers long past the time they have tired of other and more highly-touted compositions.

Among those who have tried to evolve new means of expression, we must consider French-born Edgar Varèse. As early as 1921, Varèse titillated the New York scene with his bold experiments and inventive

procedures. He was one of the first to abolish the distinction between sounds usually classed as noise and those regarded as music. He preceded by three decades the "musique concrète" boys in Paris who are constructing music of such recorded sounds as trains, traffic, street sounds, and an endless variety of noises, first taped and then snipped and superimposed to form musical compositions. Our American equivalents, whom we might call "tapesichordists" are principally John Cage, who follows somewhat the French pattern, and the two Columbia University experimenters, Otto Luening and Vladimir Ussachevsky. But Varèse literally raised the roofs back in the twenties. Gongs, drums, cymbals, police sirens, road drills — everything that can be whacked and sounded — added to the cacophony. When Leopold Stokowski performed Varèse with the Philadelphia Orchestra, there was rebellion among the good ladies on the board and the subscriber list because they took comfort in their classics. And they have been sufficiently articulate to keep Varèse and others in the background for many years. This strong, vital, and intensely creative music, which made Stravinsky seem as acceptable as Whistler's mother, has been rediscovered, but not by the symphony subscribers as such. Varèse has become a favorite of the hi-fi enthusiasts who play the superb EMS record of his *Ionisation* to test their audio equipment. He seems entirely in place in a world of tweeters and woofers!

Quite independently, Henry Cowell began experiments of his own. It was not a matter of revolt against existing systems that drove him to his first innovations, but rather because he needed new ways to express his ideas. Tone clusters, masses of sound that reverberated and roared; spine-tingling shrieks that were produced by drawing the hands along the piano wires — these caused more merriment, at first, than appreciation.

The story of Cowell's innovations has been familiar to every music student, and his influence on many composers who have adapted his tone clusters — Bartók, Schoenberg, and Riegger among them — has been striking, although few concert-goers have actually known many of his works. Thanks to LP's, Cowell's music is available. Circle has issued a fine record of his piano music, including one of the most imaginative piano pieces in all music literature, called *The Banshee*, packaged with a miniature disk containing Cowell's own program notes. Mercury has just issued his *Symphony No. 4* conducted by Howard Hanson, and the American Recording Society has released his *Symphony No. 5*. Unavailable are his sonorous and strong *Hymns and Fuguing Tunes* for strings, and other of his orchestral works.

One which startled audiences a few decades ago employed a thunderstick which was swung about the performer's head in a manner strongly resembling a helicopter propeller, and providing a roar

not unrelated. At one concert, Cowell recalls that the blade became detached and nearly decapitated someone in the audience. Needless to say, the work has not been performed of late.

One of Cowell's disciples, John Cage, has gone many steps further and tinkered with the piano, adding bits of wire, nuts, bolts, rubber erasers, pieces of wood, and other "kitchen" equipment. A set of *Sonatas and Interludes for Prepared Piano* has been recorded by Dial Records. They have a curious tranquilizing effect that evokes Chinese wind chimes or the fabled Aeolian harp. Should one want to perform these works, one must prepare the piano or, to use Mr. Cage's quaint term, "screw" it, taking from two to eight hours, and requiring jar rubbers, carriage bolts, block of plastic, wood screws, two rulers (six and eight inches), and a piano-tuner or screwdriver, adding up to about fifteen pounds of equipment in all. Also recorded is Cage's *Quartet for Strings*, which, if one can sink into a state of Oriental contemplation, may have merit.

Like Cage, Lou Harrison has used quite remarkable combinations to achieve his startling results. In the early 1940's, Harrison wrote a series of *Canticles for Percussion Orchestra*. In addition to all the usual percussion instruments, he requires such non-musical additions as plumbers' pipes, automobile brake drums, and an empty whisky case. It is true that such instruments are quite unorthodox, but so were such things as temple bells, gongs, rattles, and rasps in the orchestras of Mozart's time. And though the physical elements may seem out of place, the music is entirely appealing. Quite oriental in feeling is Lou Harrison's *Suite for Solo Piano and Solo Violin with Orchestra* which has been recorded by Leopold Stokowski and his orchestra for Victor, with Maro and Anahid Ajemian as soloists. It is to be released shortly by RCA Victor, and collectors should watch for it. Two other Harrison recordings are available: on Columbia, a *Suite for Cello and Harp* and a *Suite for Strings*. Esoteric has made available a delicately evocative score of incidental music for William Butler Yeats' dance drama *The Only Jealousy of Emer*.

Imbued with an oriental feeling — near-eastern or Armenian to be precise — is the music of Alan Hovhaness. Combining the music of the near East with music of the early plain-song tradition, Hovhaness has developed some of the most easy-to-listen-to contemporary music. One of its most striking qualities is its unquestioned sincerity. It is not music that begins with a theory and ends with music, but rather it is music that naively starts with inspiration and emerges with a flavorful simplicity. No folk tunes of any sort are used, and the near-Eastern savor is a matter of basic style which Hovhaness learned through his contact with the Armenian church. Born just outside of Boston of mixed Armenian and Scotch parentage, his blending of

eastern and western elements in natural fashion is understandable.

Virgil Thomson once described his music as "a long spool of beautifully designed wallpaper" which unrolls before the eye of the listener. Several new recordings of Hovhaness have been released including the *Concerto for Orchestra*, subtitled *Arevakal*, conducted by Howard Hanson and issued by Mercury, and *Suite for Harpsichord, Flute, Oboe, and Cello* recorded

OLIVER DANIEL and the MODERN COMPOSERS

For a number of years Oliver Daniel, whose picture appears on page 37, has been the producer-director of musical programs at CBS in New York. A man with a deep interest in American music and American composers, he is the "major factotum" of the American Composers Alliance whose roster shows the names of a great many of today's promising and prominent composers.

Thus Mr. Daniel is in a position to present this authoritative discussion of modern composers, the nature and significance of their work, and the acceptance of their efforts by music lovers and record collectors. Following is a list of the composers mentioned in this article, in the order that their names appear. Check the list to see how many of them you know, and how many are already represented in your record library:

Charles Ives	Lou Harrison
Aaron Copland	Alan Hovhaness
Virgil Thomson	Roger Sessions
Roy Harris	Wallingford Riegger
Samuel Barber	Norman Dello Joio
William Schumann	Roger Goeb
George Antheil	Elliott Carter
Edgar Varese	Ulysses Kay
Henry Cowell	Ben Weber
John Cage	Howard Swanson

by New Editions, played by Sylvia Marlowe and the Harpsichord Quartet. This fascinating record also contains a longish *Toccata* by John Lessard, a delightful *Sonata* by Virgil Thomson, and another of less interest by Italian-born Vittorio Rieti. Recorded a few years back is the LP issued by Dial which includes not only Hovhaness' *Piano Concerto*, but several other characteristic works as well. It is already a collectors' item.

TURNING to a different type of composer, we must consider two of the most powerful, vital, and striking of our contemporaries. They are Roger Sessions and

Wallingford Riegger. Riegger's early music is conventional in the Germanic-romantic vein but, dating from the early twenties, it became atonal. It is not that he follows Schoenberg but rather that he arrived at similar conclusions and procedures in a different manner. No unorthodox instruments need be employed, but many of his works still have a bite that sets them in a class apart. While more aggressive personalities have managed to have their works performed, Riegger has quietly continued to compose. Record collectors are beginning to discover him, for several of his works have been released recently, and more will be soon. Among the principal works to come are the *Symphony No. 3* recorded by Columbia, and two others recorded in Berlin by the splendid RIAS Orchestra for Remington. They are the *Rhapsody*, and *Music for Orchestra*. Available now is the brilliant *New Dance*, recorded by Mercury along with Hovhaness' *Concerto for Orchestra* on one side, and Cowell's *Symphony No. 4* on the other; as well as his *Quartet No. 2, Op. 43* issued by Columbia. Still unrecorded are three Riegger works that recording companies should grab. They are his *Study in Sonority*, *Dichotomy*, and *Music for Brass Choir*.

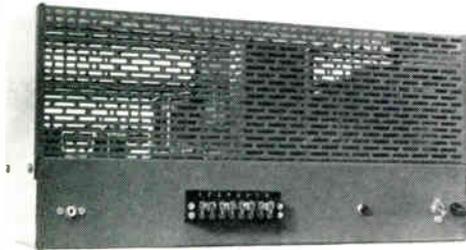
Roger Sessions is more of a Stravinskian. Several of his works are splendidly recorded, among them *The Black Maskers* by the American Recording Society; by Columbia, his *Symphony No. 2* with Mitropoulos and the New York Philharmonic, and *Duo for Violin and Piano*.

Of the younger generation of composers, there are several who bear watching. Their names may be new to record collectors who have not heard their works in concerts, although all have received quite impressive performances. These are Norman Dello Joio, Roger Goeb, Elliott Carter, Ulysses Kay, and Ben Weber. A *Concerto for Harp and Orchestra* by Dello Joio is one of the most agreeable works for this combination in all contemporary literature. Elliott Carter, whose name is just beginning to appear in record catalogues, is introduced by his vigorous *Holiday Overture* recorded by Remington. His *Cello Sonata* and *Piano Sonata* have been recorded by the American Recording Society in admirable performances. Carter Harmon in *The New York Times* wrote: "One of the C's (Copland, Carter, and Cowell) whose star is rising is Elliott Carter . . . Mr. Carter is not a derivative composer. His music seems not only entirely his own, but also uncompromisingly hewn from fresh timber. It gives little sensuous pleasure, but speaks with strength and leaves the listener with the sense of an important experience."

And that tireless performer of modern music, Leopold Stokowski, has recorded for RCA Victor symphonies by Roger Goeb and Ben Weber. Both are important works of our time. The recordings are stunning, and the works satisfyingly original. Goeb

(Concluded on page 61)

Hi-Fi Projects for the DRAWING TABLE WORKSHOP • No. 1



THE INSTALLATION of a fine audio system represents a major accomplishment and a source of great satisfaction to those possessed of a home workshop and the skill to use the tools. It means a lot when a man can say: "That beautiful music is coming from a system I built myself!" Many of our readers, however, have told us that, while lack of space or experience prevents them doing the whole job themselves, they would like to tackle some part of the construction so that their handiwork will at least be represented in the finished installation. And they ask: "What do you suggest that I can undertake to do myself, with reasonable assurance of success?"

To provide answers to such questions, we have set up at our publication office what we call our Drawing Table Workshop. That's exactly what it is: a drawing table equipped with a small machinist's vise, and a collection of simple tools which includes screwdrivers of various sizes, pliers and wire cutters, and an electric soldering iron.

The plan is to present a series of projects which can be

completed by anyone who can duplicate those minimum facilities, and who has, or will undertake to acquire, the skill to use them. From time to time, we may add an item or two of equipment, but the projects to be presented in this series will be limited to those that can be completed with definite assurance of success without the need of sending out distress calls for expert assistance.

ACCORDINGLY, we selected the UTC 20-watt amplifier, a model MLE, as Project No. 1. It employs what UTC calls the Linear Standard circuit, newly developed by Joe Diamond and designed in kit form by Jules Knapp.

For those concerned with technical details, it should be explained that this amplifier employs 3 negative feedback loops, each of 12 db, together with a stabilizing circuit intended to overcome audible distortion due to super-audible oscillations causing positive feedback, and to impulse distortion at very low frequencies. The use of printed-circuit wiring is also a function of the performance.

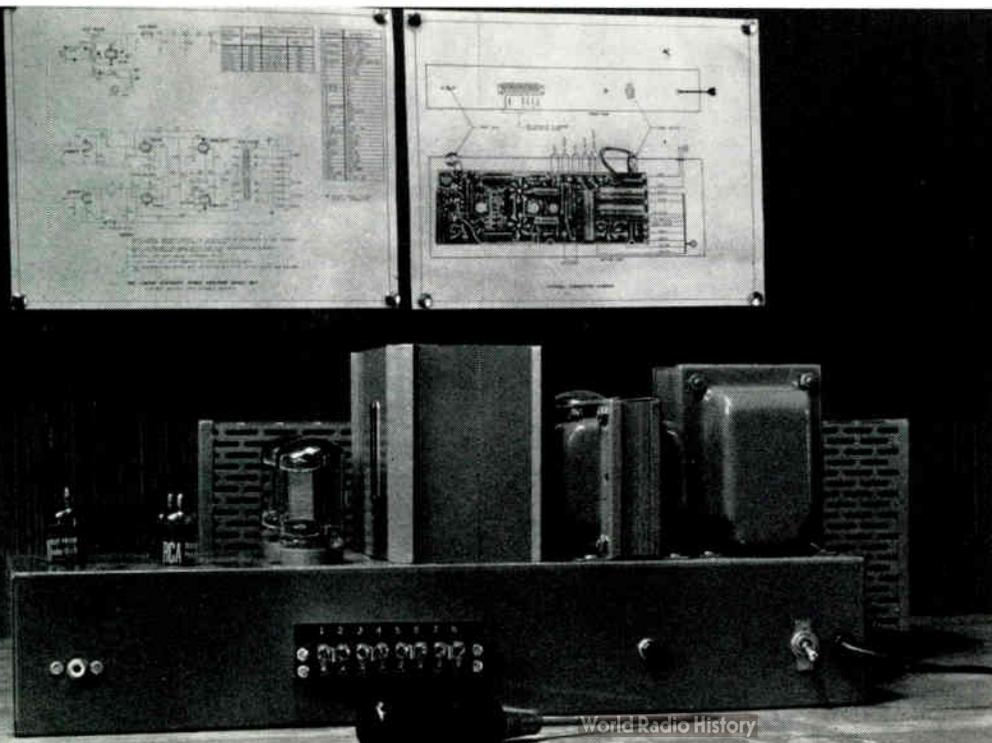


Fig. 1. The UTC Linear Standard amplifier kit was chosen as the first in this series of projects because it requires only the use of a screwdriver. Rated at 20 watts, it can be fed from any tuner, tape recorder, or crystal phonograph pickup, or from the preamplifier used with a magnetic pickup. A novice who has never tackled a job like this before can complete this amplifier, without hurrying, in less than one hour's time

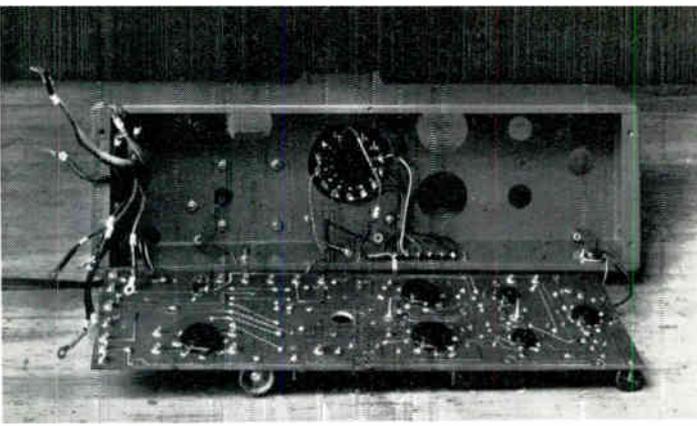


Fig. 2. Top of the mounting plate, with the tubes removed. Part of the printed-circuit wiring is carried on this side

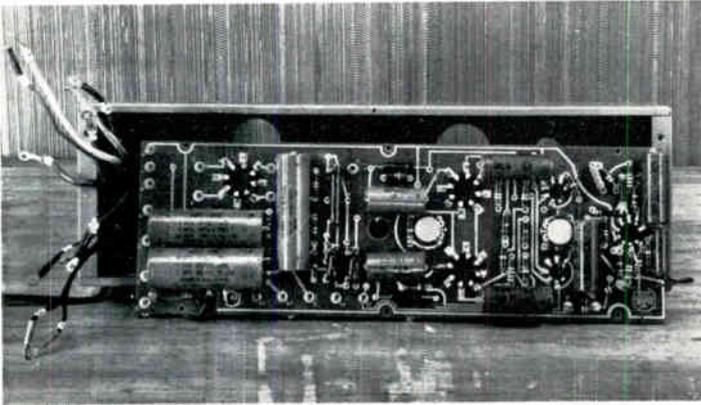


Fig. 3 above. Under side of the mounting plate. Fig. 5, below. In this view, all the wires have been connected to the terminals

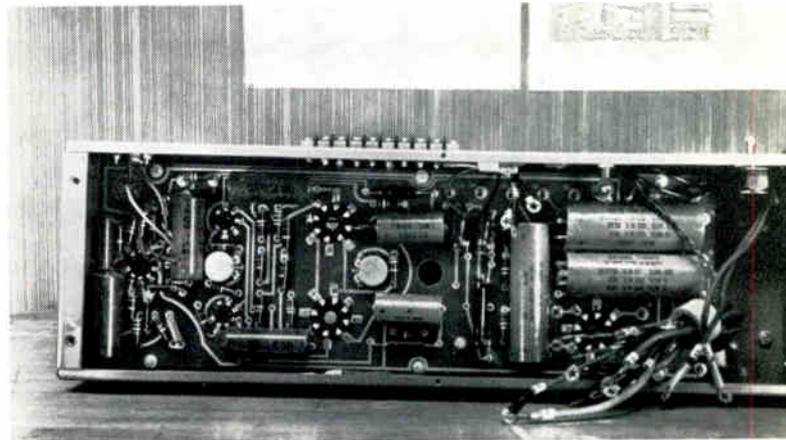
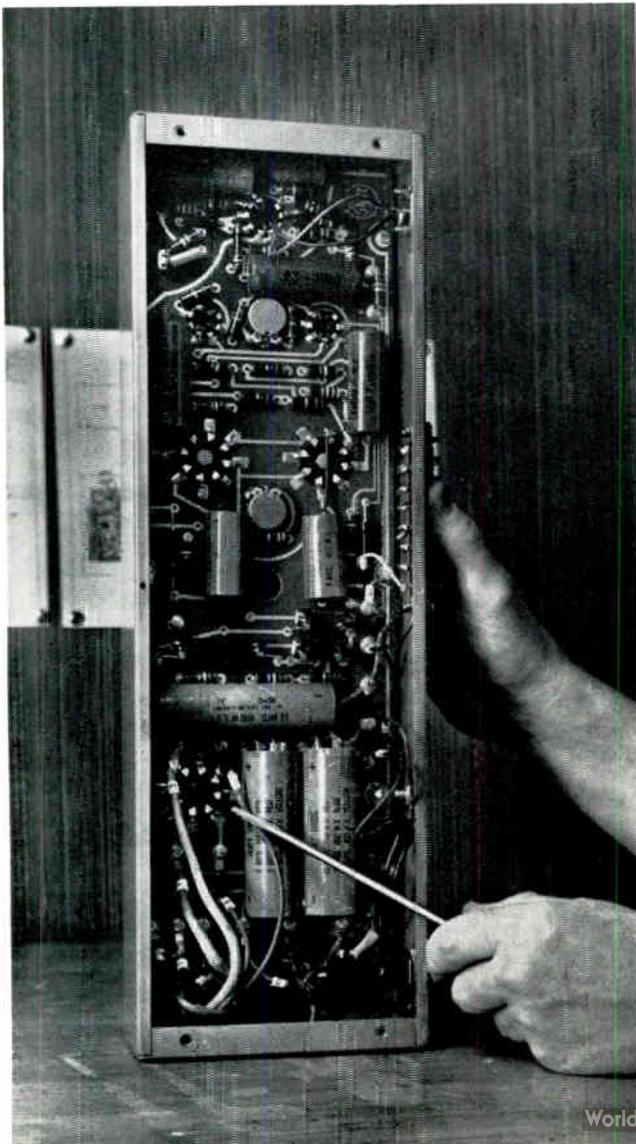


Fig. 4. Appearance of the chassis before the lugs on the numbered wires have been connected to the respective terminals

fiers and using the same circuit diagram may get very different audio results just because one lead is a little extra long or a bit short, or because two wires that should be separated are run close together.

But with printed-circuit wiring, once the arrangement of the connections has been worked out, every instrument is the same, and nothing can be changed that would affect the performance.

You will see, however, that there are 19 wires, each fitted with a terminal lug, that have not been connected. These are non-critical connections you must complete. When the pilot run of these amplifiers was completed at the UTC factory, some of the units (Concluded on page 56)

The assembly of the Linear Standard amplifier is an excellent choice as an initial project because it is virtually impossible to go wrong with this undertaking. When you first open the carton, you will get the impression that it is a finished instrument. The only evidence to the contrary is a small envelope of machine screws.

Your first impulse will be to remove the cover, by taking out two screws at each end. Then you will see the unit as it appears in Fig. 1. All the parts are mounted, and even the tubes are inserted in their respective sockets. Next you will want to remove the four large and two small screws that hold the bottom plate. If you are curious, you'll want to go further and explore the inside construction, as we did. The result of taking off the base panel is shown in Figs. 2 and 3. To do that, we first had to remove the tubes from the sockets. As you'll see, all the inside components are assembled and the connections from the round transformer terminal board are all made.

As for the condensers, resistors, and sockets, they are already connected by printed-circuit wiring on the top and bottom of the mounting plate, both sides of which can be seen in Figs. 2 and 3. The purpose of this is not just to do the wiring for you. There is another reason: The performance of an amplifier can be affected seriously by the way the wires are run. Two people wiring identical ampli-



At Newton, Mass., phonograph records help fifth graders to learn songs

of that oh, so interesting, challenging, and baffling pre-teen to early-teen age group. But before the child can be taught, there is much to be learned by teachers, parents, and parent-teacher groups.

In fact, the writing of this discussion was prompted by an event that brought into focus the need for a careful examination and, in many cases, a complete revision of music-teaching methods. The Parent-Teachers Association in a small town was holding an auction to raise money to buy records for the school. One mother asked another what records would be purchased. The second mother didn't know, so they asked the teacher. The teacher said, "I don't know, but I'll ask the man who runs the record shop. He has a lot of 78's and he's selling them at half price."

There, in that brief conversation, you have the summary of a problem which parents and teachers are just beginning to meet, although in too many schools teachers are making only stop-gap efforts, and parents are shrugging their shoulders with a prayerful hope that maturity will somehow take care of the situation.

To create a starting point, let us restate an age-old axiom: "real education is inspiration." In the case of music, we have found that inspiration requires participation.

For example, a child is not concerned with a television program of orchestral music in which the camera is shifted to show the actions of the conductor, the hands of the pianist, and the fingering of the first violin. Those details have nothing in common with the child's associations.

HOW to USE and SELECT SUITABLE RECORDS for SCHOOL CHILDREN

By BEN DEUTSCHMAN

THE INCREASING interest on the part of parents in hi-fi music reproduction at home is having a direct effect on music teachers and the teaching of music in the schools. It must be admitted that some teachers are only equipped with college courses in music appreciation which have been described aptly as "an emotional vacation in a mental vacuum." The students of such teachers are those who get high marks in music if they can remember the birthdays of Bach, Beethoven, and Brahms, and can spell Liszt without transposing the last two letters.

This, the writer submits, has nothing to do with music or the appreciation of it, a view in which parents who would inspire in their children a genuine love of music will surely concur.

Here, then, is the problem of teaching *music* in the school, and of correlated listening at home for children

BEN DEUTSCHMAN has been music teacher to private pupils and in public schools. Now, as Director of Educational Recordings, Greystone Corporation, and Associate Editor of Audio Visual Guide, he is active in various music education organizations throughout the United States.

Thus, to parents who want to start their children on the path to appreciation of the beauty of music and the inspiration it provides, it may seem that the children themselves offer the greatest resistance but, in reality, it is not so.

Children resist our efforts to give them the benefits of musical experience they should have only because of our lack of method, or because we use the wrong approach.

One case in point is that of the schools in Newton, Mass., where James Remley is the music supervisor. There, where music is correlated with the everyday studies and lives of the children, a generation is growing up to make music at home a necessary part of well-rounded living. The children are taught music through auditory participation. They take part in musical playlets, which associate music with their age-group activities, and they participate in pageantry based on their studies of American history. Music is also taught in correlation with art. The students compose songs about other students and the teachers. Each child finds some way to use music as a part of his experience of living.



A fifth grade class at Newton, Mass., under the supervision of James Remley, made this mural of American folklore taken from their song books

Participation Requires Sincerity

Unfortunately that kind of sincere, healthy participation is not universal. In too many schools, participation is keyed specifically to perfection of performance, representing an effort of the music supervisor to enhance his own reputation, rather than to provide effective instruction for the children.

Such situations are characterized by high school orchestra programs that include Beethoven symphonies, and Tchaikovsky's ballet music. Close inspection generally discloses that, when such concerts are given, the orchestra is "loaded" with teachers or local professional musicians playing in the important seats.

For the children, this is of doubtful value. The experience of playing music that is beyond their technical and interpretive powers is pure strain. And to the listeners, it is merely music that they have heard before by better orchestras, and so the performance suffers by comparison. Only the inexperienced and insensitive ear will fail to compare the playing of Moussorgsky's *Pictures at an Exhibition* by the South Somewhere High School orchestra with the Mercury recording of this composition by the Chicago Orchestra under the masterful baton of Rafael Kubelik. The supervisor responsible for such music miseducation is usually a talent scout for so-called talented children. And much harm is done by that attitude.

Obviously, all children do not have the same degree of talent. Therefore, if teachers and parents can inspire the children to perform, inherent and latent talent can be developed much more effectively than by the crude process of elimination. What public school teacher can erect arbitrary standards and say that this child can love music, but this one can't? Even if there were true aptitude tests for music, they would be useless because the child who has been inspired to enjoy music and who is encouraged in that enjoyment will get far more from this art than the one who has mechanical skill but no interest. So much for participation through performing. Let us look into listening programs, identified as music appreciation.

Successful Teaching Methods

There are "music appreciation" courses in great variety. Some of the recent programs are quite successful, but many of them are found to be either memory contests or, to use one teacher's expression, courses in "music depreciation."

Let's look at some aspects of the good ones. In North Carolina, Dr. Arnold Hoffman has made interest in music a part of the entire school curriculum. Music is not considered merely a subject for study, but as a subject to be correlated with school activities and home life. Here we find children listening and singing with a purpose. Not just to achieve perfection in performance, but for the

purpose of understanding it, and as a means of widening intellectual horizons. Here children learn that the folk songs of America belong to them as a living and joyous heritage, a part of the history, the development, and the growth of their very own community. They discover that Beethoven and Brahms, Gershwin and Bartók have given them a new dimension for the expression of emotion and beauty. They are interested in knowing where Mozart was born because he has become a friend who has given them music that they enjoy. They remember melodies because they have learned to use them as an outlet for their feelings — not because Haydn wrote them. *This is music appreciation* in a very real and significant sense.

Audio Equipment for School Use

Of great importance are the tools used by these teachers, and those which are being provided by parents for use at home, to further their children's appreciation of music. In the schools, there is a phenomenal expansion in the use of phonographs. A short yesterday ago, most schools had one old phonograph parked in the hall, upstairs, with two or three march records used for dismissal or fire drill. Today more and more schools either have a central public address system, or are providing phonographs as items of standard school room equipment. With the advent of LP records, a vast source of music has become available, and



Student orchestra and players at Canton, Ohio, perform "Carmen" as part of Miss Vivian Newacheck's program to encourage interest in opera

And there are Pat Poster's auditorium sessions in Detroit. Here the children soak up music as a sponge absorbs water. That is not because music is a required subject, but because Miss Poster has captured for them the inspiration by which music is heard to tell stories, paint pictures, express feelings and even to create standards of conduct. Now, what is the secret that this sorceress uses to fire the imagination of the children? Well, it seems to be the association of music with the lives of the individual children. Never, in Miss Poster's classes, is music listening done in the abstract. It is always related to *you*, in the here and now.

These are but random observations made over the length and breadth of our Country. In a growing number of schools, we are happy to say, teachers are coming to understand the significance of "auditory participation" in which the ears are used as transmitters to the emotions and intellect.

many schools are buying and using them in great numbers.

To be sure, some schools have rather large libraries of 78's that are gathering dust, and there are public address systems, bought by principals who had more enthusiasm than judgment, which are in very deplorable condition, but now educators are becoming discriminating and better-informed buyers. Phonographs are being supplemented with film strip projectors and even movie projectors. Recently, for example, two marvelous film strips have been made to accompany the playing of Dukas' *Sorcerer's Apprentice* and the Tchaikovsky *Nutcracker Suite*.

While the facilities are used with varying degrees of success in different schools, there is one thing universally apparent: These are all "teaching aids". The phonograph, the projector, and the film strip are *aids*, not *replacements* for teachers. Where teachers think of these things as something to make teaching less work, they fail miserably,

(Continued on page 59)



Left: With the addition of a record-player, this combination is admirably suited to use at college, and it is easy to carry back and forth

controls will be adequate in combination with a crystal pickup. A magnetic pickup is something of an extravagance under conditions where the phonograph is liable to get rough treatment. And if the records played will be largely of the short-lived pop variety, a sapphire stylus will probably serve the purpose. On the other hand, it is worth while to have a diamond put in a crystal pickup if it is to be used for good LP's.

An FM-AM tuner adds a lot of flexibility to an audio system. For compactness, convenience, and economy, a tuner which includes a preamp with its controls and a 10-watt amplifier is recommended. Shown above is the Allied Radio Knight model, and below a new Harman-Kardon design. This one-package arrangement makes the equipment easy to set up, and simplifies the wiring. Using the clock control, the cord from the speaker is plugged into a 115-volt AC outlet. The tuner is plugged into the outlet at the rear of the speaker case. Then the tuner can be switched on and off at the front panel control, or by the clock. Only additional wiring necessary is the connection from the record-player and the FM antenna.

HI-FI IS GOING TO COLLEGE

Equipment for Dormitories and Frat Houses Should Be Simple and Rugged

THIS SUMMER, thousands and thousands of college men are going to assemble audio equipment to take back with them in the fall. For the most part, it will be simple and compact, but capable of delivering performance far superior to the table phonographs which, in high school days, seemed entirely adequate.

Some of these installations will be comprised of a record-player, amplifier, and speaker, but many will include an FM-AM radio, particularly if they are to be used at a college where there is an FM campus broadcast station. In that case, FM reception is practically a must.

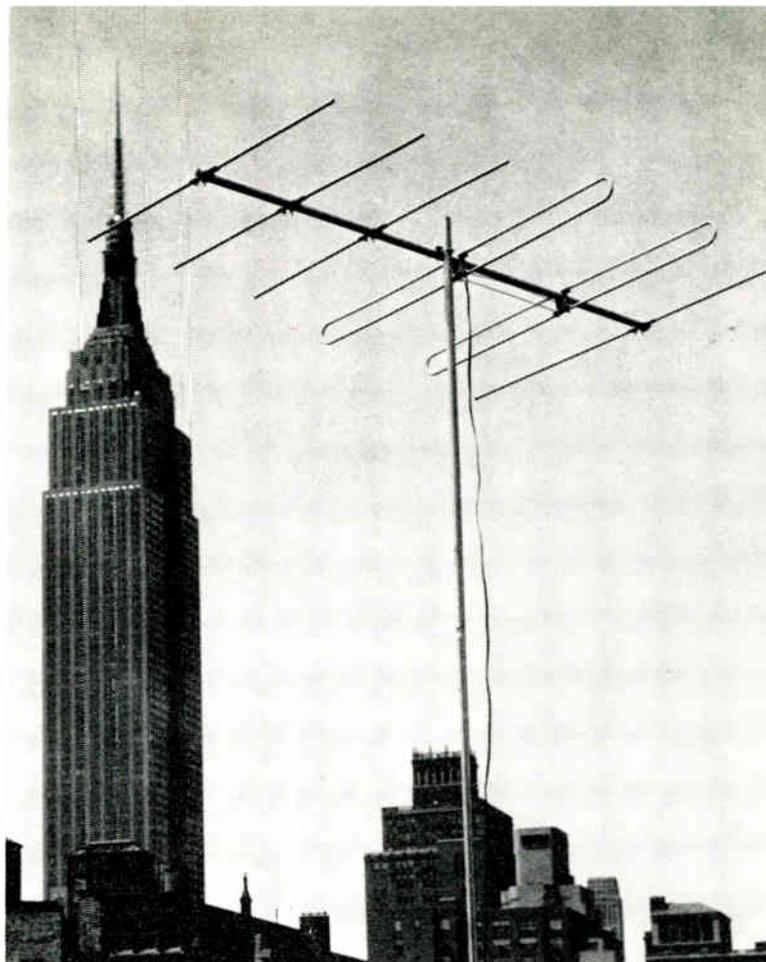
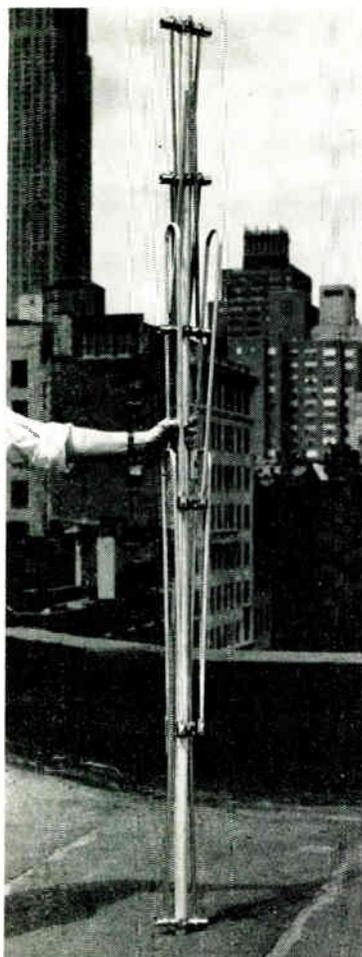
By way of offering suggestions, two types are illustrated here. Both are planned around the University Companion speaker, because its design is particularly suited to this kind of use. Fitted with the detachable wrought iron legs, as shown, it is an attractive and useful piece of furniture. Or, minus the legs, it can be put on the top shelf of a bookcase, since the case is only 24 ins. wide by 12 ins. high. Also, this speaker is easy to ship or to carry in a car, for the legs fit into a small, flat carton.

The electric clock, mounted between the low-range and high-range speakers, can be set to turn the system on, or to turn it off. College men may find the turn-on feature more useful, unless there is a dormitory curfew on radios and phonographs! The small knob on the center panel at the lower right is a balance control connected between the two speakers.

If the equipment is to be used only for records, a 10-watt amplifier or preamp-amplifier and a turntable or changer will complete the system. An amplifier with tone

Below: This FM-AM tuner includes a preamplifier and 10-watt amplifier. Connections and controls are provided for a phonograph and tape recorder. The electric clock on the loudspeaker cabinet turns the system on or off





Left: The Taco Yagi comes all assembled and folded up like this. Above: Here it is with the elements swung out and secured in place by tightening the wing nuts. Note where the twin-lead is connected. Maximum pickup is to the left.

YOU NEED an ANTENNA for FM

THESE are still people who say, and quite sincerely, that they don't like the quality of wide-range audio reproduction. And they are offended if you say: "That is because you are conditioned to hearing reproduction without the upper frequencies, and with an unnatural, rain-barrel bass."

Similarly, others insist that they get *perfect* reception on their AM sets, and it must be recognized that the person who is thoroughly satisfied with AM is greatly disturbed by being told: "You have become so conditioned to static, background noise, interstation interference, and fading that you're not conscious of them, but if you listened to FM for a week, you'd never be satisfied with AM again."

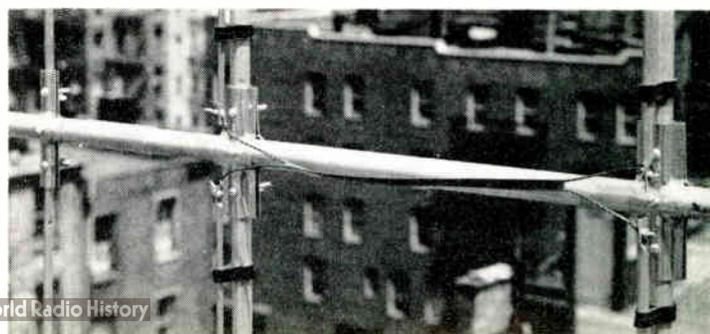
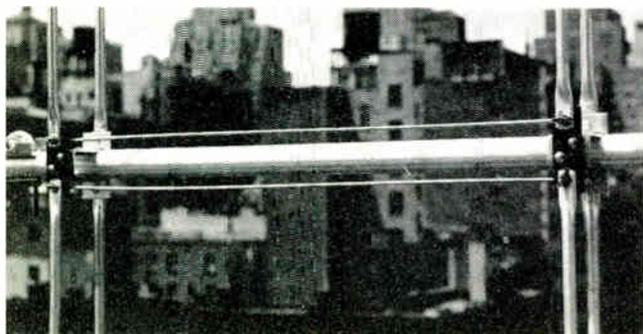
This article on FM antennas was not written to offend anyone, but only to help those who want better radio reception. So, if you are completely satisfied with your present reception, please don't read the text that follows.

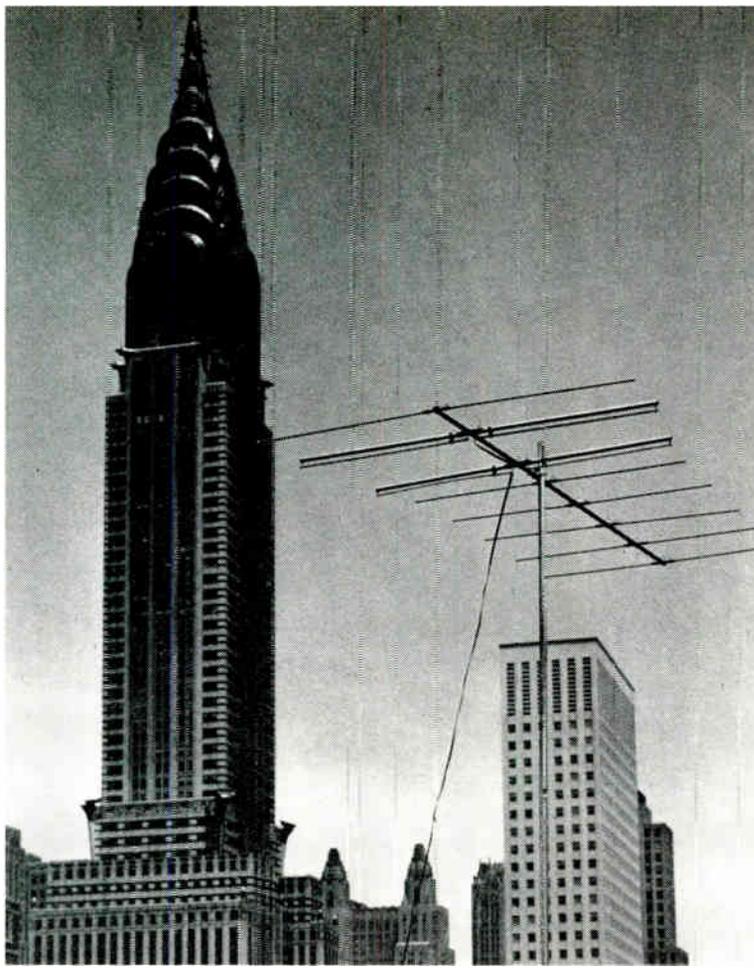
But if you are the kind of a hi-fi enthusiast who judges reproduction from radio, records, and tape against top-quality standards, you should find this discussion of FM antennas and FM reception both interesting and useful.

First, then, let us set up our standards of radio reception, whether on AM or FM. The program material is controlled by the broadcast stations, but we can say that, to be acceptable, radio reception:

1. Must be completely free of background noise and static interference, so that there is complete silence between programs and announcements. (That corresponds to record reproduction without needle-scratch or clicks.)
2. Must be completely free of fading, day or night.
3. Must be completely free of interstation interference.
4. Must be, in short, comparable in dependability to the use of phonograph records. For purposes of this discussion, radio reception that meets these four requirements

Closeup views showing details of the dipole mountings and connections of the Taco antenna, left, and the LaPointe antenna at the right





The La Pointe Yagi is delivered as shown at the right, requiring only a few minutes to open up and clamp the rods in place. It is shown at the left mounted on a simple mast of three 5-ft. telescoping steel tubes. Maximum pickup is towards background

will be considered as "solid." If it does not, it will be considered substandard and, therefore, not acceptable.

On this basis, most AM reception is ruled out. In metropolitan areas, that is due to background noise and man-made static. Some locations may be "electrically quiet," but they are exceptional, even with very strong AM signals. At greater distances from AM transmitters, the background noise comes up and, after dark, the fading and interstation interference begins.

Perhaps you want to ask at this point: "What does all this have to do with FM antennas?" Actually, the quality of FM reception is very directly related to antennas, and here's the explanation:

Signals from AM stations travel over great distances at night. Due to atmospheric conditions, signals from a low-power station may be reflected by the upper atmosphere in such a way that they can be picked up at points hundreds or thousands of miles away. And if you receive even faint signals from a far off station, it will interfere with reception from a local station on the same frequency. As atmospheric conditions change, the distant station may be so strong as to override the local station at times.

Since the war, trouble from this type of fading and interference has become serious, due to crowding on AM frequencies. On some channels as many as 150 stations are operating in the U. S. A., plus others in Cuba and Mexico. Under these conditions, a built-in antenna of low efficiency is preferable for AM, so as to reduce the pickup of distant

stations. A highly efficient outdoor antenna would simply bring in still more unwanted, interfering stations!

The situation is entirely different on FM. Except under freak conditions, FM signals on the very high frequency (VHF) channels of 88 to 108 mc. do not carry much more than 200 miles, day or night. Thus, as long as FM stations on the same channel are a substantial distance apart, they can not interfere with one another. Or if two stations on the same channel are picked up on a good FM set, the stronger station will be heard, the weaker suppressed.

Since FM is not troubled by the interference that prevails on AM, there is no need of using a low-efficiency antenna. On the contrary, there are important reasons, whether you live in a city, the suburb, or in the country, for using a highly efficient FM antenna.

The primary reason is that, in order to obtain the "solid" quality of reception specified here, the receiver must be fed signals of at least a certain minimum strength. It is possible, of course, to get acceptable quality from a nearby station with just a short piece of wire for an antenna, but why be limited to one or two stations when a good antenna may give you a wide choice of programs?

Many people who buy expensive FM-AM tuners only use the AM band because, lacking an antenna for FM, they find FM reception unsatisfactory! The fault does not lie in FM broadcasting, or with the tuner, but in their failure to spend a few dollars extra for an FM antenna.

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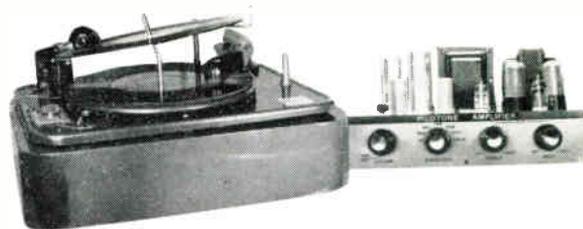
Step-by-step Plan for Hi-Fi Beginners

PART 3 — By MILTON B. SLEEPER

THE FIRST TWO parts of this series were devoted to the installation of an FM tuner, amplifier, and speaker, and to the addition of a tape recorder for the special purpose of recording FM broadcast programs. Now, to complete the beginner's hi-fi installation, a preamp-amplifier and record-changer are to be added.

Some readers have questioned the specification of an FM-only tuner because, where they live, they do not have adequate FM service. The simple answer to that is the use of an FM-AM tuner, at slightly higher cost. But from the point of view of simplicity and economy, the FM-only tuner is preferable in areas where network programs can be received on FM, along with those of independent stations which transmit both ways.

Also, the question has been raised as to the advisability of starting out with a simple amplifier that can be used only with a crystal pickup, instead of a preamp and amplifier suitable for a magnetic cartridge. This third and last part of the series covers that point. If your system is still in the planning stage, you can make your own choice as to whether you want to start with one type of amplifier or the other. In the first part, it was suggested



that beginners choose simple and inexpensive units at first, and make progressive improvements, but the exact plan is entirely a matter of personal preference.

One word of caution: That is, components from different manufacturers which perform the same functions are not necessarily interchangeable. In fact, many dealers will not guarantee satisfactory performance from a particular piece of equipment unless they have been given a list of associated items, and have approved the combination.

The Preamp-Amplifier

If you are going to use a magnetic pickup, you will have to use a preamplifier in addition to an amplifier. The voltage generated by a crystal pickup is sufficient to drive a standard amplifier to full output, but the magnetic type requires an intermediate stage of amplification. Hence the use of a preamplifier. There are various preamps that could be used to drive the Pilot amplifier shown in Part 1, but they are expensive designs, intended for more elaborate systems. For that reason, the Pilot model AA-903, combining a preamp and 10-watt power amplifier, is shown here. Also suitable are such units as the Brociner mark 12, the Brook model 22A, or the Scott 99.

Fig. 1 shows the AA-903 in a typical mounting, with additional views in Figs. 2 to 4. The input connections and adjustments can be seen in the enlarged view, Fig. 3. Pin jacks are provided for connecting the phonograph and radio at the left. Two others can be used for tape playback, a microphone, or TV sound.

On the chassis, Fig. 2, there are two controls. The HUM BALANCE adjustment is to eliminate any 60-cycle hum that may develop after the amplifier has been in use for some length of time. It is only necessary to turn the slotted shaft back and forth until the hum cannot be heard. The PHONO LOAD adjustment makes it possible to match the phono input to a magnetic pickup cartridge. Instructions with each cartridge show how many ohms it should work into, and the PHONO LOAD must be set accordingly.

A crystal or ceramic pickup should not be plugged into the PHONO jack, but into Aux I or Aux II. If, by chance, you have both magnetic and crystal pickups, you can cut in either one by means of the selector switch on the amplifier.

Loudspeaker terminals are on the rear of the chassis, Fig. 4. One lead should be connected to the 0 terminal, and the other to terminal 4 or 8 or 16, depending upon the speaker impedance.

There is a 115-volt AC outlet on the chassis. If you want the ON-OFF switch of the tuner to control the power for the entire system, the changer or turntable should be plugged into the amplifier, the amplifier into the outlet on the tuner, and the tuner into a power outlet. This arrangement is coming into wide use because, when the tuner is switched off, there is no chance that the other equipment will be running still.

† The preamp-amplifier RADIO input must be plugged into the AUDIO OUTPUT on the tuner. To make tape recordings off the air, it will still be necessary to remove the amplifier connection from the tuner, and plug the recorder into the AUDIO OUTPUT jack, as explained in Part 2. No connection should be made to the PHONO INPUT jack on the tuner, and the selector switch on the tuner should be left in the FM or AFC position at all times.

Use of the Equalizer Control

In addition to switching the input connections, the selector on the amplifier functions as a record equalizer. There are four



Fig. 1. An attractive way to install a tuner, preamp-amplifier, changer

equalizer positions marked LP, NAB, AES, and FOREIGN, and in all these positions the input jack for a magnetic pickup is connected. The equalizer circuits are not cut in for a crystal pickup, as it is not considered necessary.

Following are the manufacturer's recommendations for equalizer settings on this amplifier for different makes of records:

RECOMMENDED EQUALIZER SETTINGS

MAKE OF RECORD	RPM	EQUALIZER
Blue Note	33	AES
Capital	33, 45, 78	AES
Columbia	33, 45, 78	NAB
Concert Hall	33	LP
Coral	33, 78	AES
Decca	33, 45, 78	AES
Dial	33	LP
Haydn	33	LP
London	33	AES
Mercury	33, 45, 78	AES
MGM	33, 45, 78	NAB
Oceanic	33	NAB
Oxford	33	NAB
Polymusic	33	NAB
RCA Victor	33, 45, 78	AES
Remington	33	NAB
Renaissance	33	AES
Stradivari	33	NAB
Telefunken	78	FOR
Vanguard	33	LP
Vox	33	LP
Westminster	33	LP

Recording characteristics are not precisely standardized, however, and may vary even among records from one manufacturer. Thus it is advisable to try different settings of the equalizer for each record.

Notes on the Installation

A very convenient method of mounting the tuner and amplifier in combination with a Garrard record changer is shown in Fig. 1. This involves closing a section of one shelf to mount the amplifier, and another, just below, for the changer.

Contrary to the recommendation made in Part 1, the tuner is above the amplifier. If the units are mounted in the manner illustrated, the tuner will not be affected adversely by heat from the amplifier if ventilation for the amplifier is provided through the shelf above at the rear. The matter of ventilation is extremely important, and must be worked out carefully, to protect the amplifier from damage due to excessive temperature.

The escutcheon plate on the amplifier can be removed and mounted on the front of a wooden panel up to 3/8 in. thick without the need of extending the shafts of the controls. It is not necessary to fasten the chassis to the shelf, but this can be done by removing the rubber feet from the base plate, and using the wood screws and cupwashers provided with the unit.

You may want to mount the changer in a way that will not require the wooden base shown in Fig. 1. On the other hand, if you use the base, you can rearrange your equipment readily at any time. In the illustration, the base is carried on a board which pulls out, allowing the hinged door to drop down. When it is pushed back in place, the door hides the changer completely.

You may want all three units on the same level, or you may prefer to separate the tuner from the amplifier and changer. Here is one final word of caution on that point: While the tuner can be 20 ft. or more from the amplifier, the amplifier and changer must be close together, so that the lead from the pickup to the amplifier input will be as short as possible. Then, if you use a magnetic pickup, and you have an objectionable hum in the speaker, move the lead to the amplifier, and see if that reduces the hum. If not, move the amplifier or the changer until you find a position where the hum ceases.

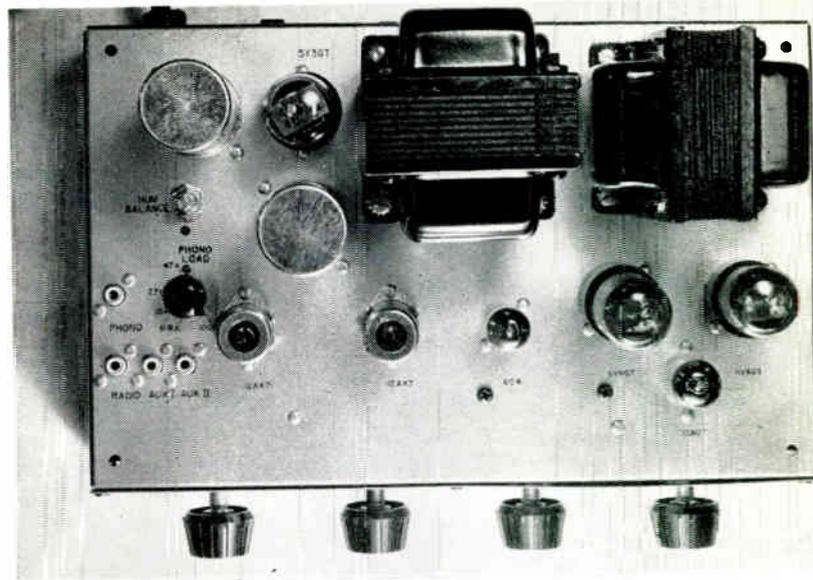


Fig. 2. Top view of the combination preamp and amplifier chassis. Dimensions are 12 ins. wide, 6 3/4 high, and 8 3/4 deep behind the front panel

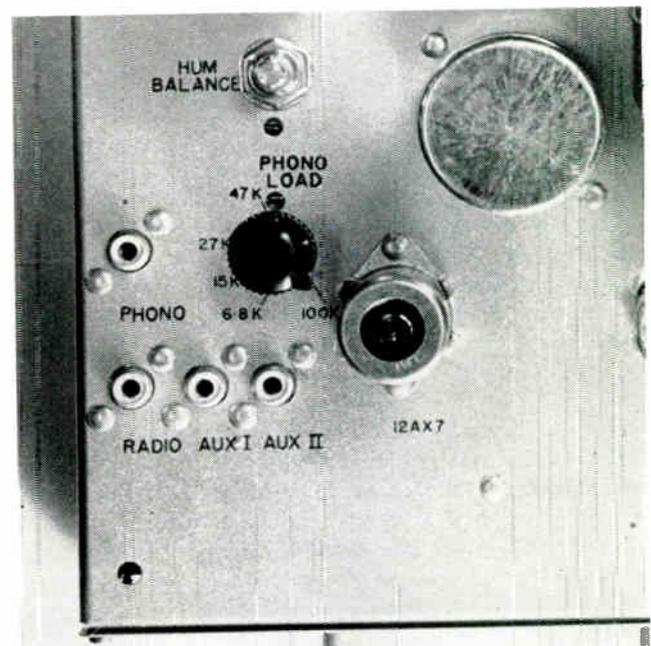
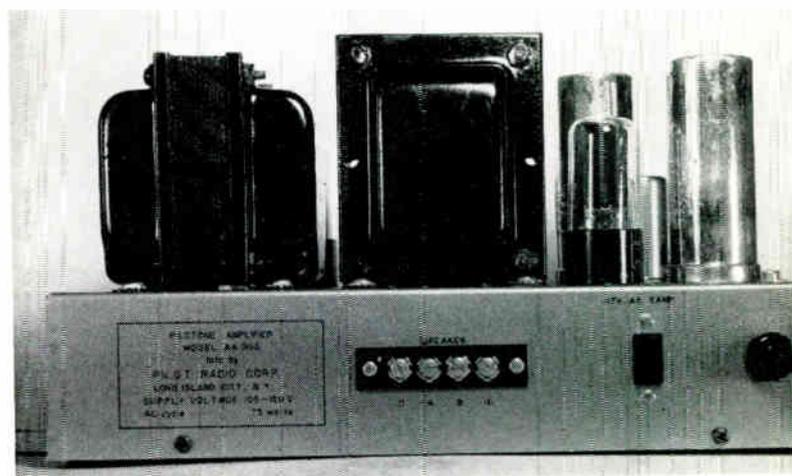


Fig. 3, above: Closeup of the input connections and the chassis adjustments. Fig. 4, below: Rear view showing speaker terminals and outlet



(Continued from page 30)

or 22.4% of the Philadelphia radio homes. Of the regular listeners to WFLN, 33.2% listen between 4 and 5 hours daily, and 23.8% listen from 6 to 8 hours on Sundays.

One of the most important facts revealed by Audience Analysts' survey is that FM radio ownership is definitely increasing. Today, 458,500 homes, or well over 40% of the radio homes in Philadelphia, have FM reception. This is more than double the national survey figures reported in 1951.

The same pattern of growth has been found in the other markets served by Good Music Broadcasters. New York shows 45% and Washington shows 50% FM ownership, with dealers reporting a steady increase in sales.

One of the finest related developments along with the growth of Good Music Broadcasters has been the improved liaison of ideas and the exchange of programs among the member stations. Although there have been good-music stations in operation for some time, the number has increased substantially since the advent of television. These stations have needed the exchange of ideas and programs provided by GMB. To conceive an over-all picture of how the stations are related as a group, one must consider each station as a form of musical digest which draws on the material of the other stations. In this process, general weaknesses among the stations are compared and are being overcome.

Another distinct advantage that GMB members have over any individually programmed stations has been in their ability to develop special features on a national scale. Notable among such national programs were those sponsored by Air France, "To France with Music"; MacMillan's "Musical Magazine"; RCA Victor's "Hi-Fidelity Show Case".

In addition, GMB has successfully effected an exchange of programs among the stations. Good Music Broadcasters has not organized as a physical network, although such programs as the Library of Congress concerts, the National Gallery of Art concerts, and the National Symphony Orchestra concerts were made available by their originating station, WGMS Washington, over Major Armstrong's 15,000-cycle line. Now some of those programs are carried by FM rebroadcasting.

Special programs on tape are a further means of exchange between the member stations. Presently, each of the stations is furnishing a half-hour taped program to KEAR San Francisco, to use in that station's celebration of its increase in power to 10,000 watts. This type of activity makes the growth of good music via radio a national movement of increased importance.

The latest tabulation of the total GMB audience indicates that the stations are reaching two million homes a week in fourteen areas. The most recent surveys show that 20% to 25% of all the homes in these areas can be added to the good-music audiences. A completely good-music type of operation is practical only where the population is large enough to make 20% of the radio homes a salable audience. Furthermore, development of listenership takes a considerable period of time.

Picture of GMB Listeners

How large will the good music radio audience be in the future? It is impossible to predict exactly. However, in considering the

recent trends and the current interest in good music in the schools, the concert halls, and particularly at home, we may safely predict a national audience of tremendous proportions. We must not overlook the effect on this general growth that has been brought about by the availability of hi-fi equipment and improved recording techniques.

The person who listens to good music is quite a composite figure. "Depth" surveys instituted on a continuing basis in our various good-music areas show that the average enthusiast listens to good music on the radio for 4 hours a day. The listener is as often a woman as a man. The median age is 34 years, with almost 50% of all the listeners falling in the 26 to 50-year-old group. He is often of an executive or semi-professional character, his vocation falling in the categories, in order, of engineer, executive, salesman, teacher, chemist, doctor, professor, retired, lawyer, accountant.

If he lives in a house, it's probably his own, because of all the listeners who do not live in apartment buildings, 90% own their own homes. His income is more than double the average, and his

education is far above average. Of all those older than 18, 52% are college graduates. Furthermore, this listener has definite reading habits, perusing Life, Time, Reader's Digest, Saturday Evening Post, New Yorker, Ladies Home Journal, National Geographic, and Better Homes and Gardens in that order of preference.

The good-music listener buys more non-fiction books than he does fiction. He manages to be quite a cosmopolite because he travels a good deal. He always owns a car; often he owns two. His travels frequently extend to foreign countries. When we multiply our typical good-music listener by the size of the audience, he becomes very important to commercial sponsors.

Policies and Problems of GMB Stations

Let us pause here to affirm our belief in the principle of American radio. All the growth of music listening has been made possible by the American advertising dollar. This growth would not have been possible under the limitations of any subsidized system of broadcasting.

Developing an interest in music through the support afforded by advertising places a great responsibility on the good-music broadcasters. Management must establish and maintain a programming policy which is not dictated by advertisers. Then, to preserve its policy, the station must be selective in its choice of advertisers. It cannot run the risk of being pressured to depart from its maintenance of good taste. The temptation for compromise is often presented in the demands of advertisers; but the station must set a level — a high one — and then insist on staying at that level if it is to hold its special audience.

This is a selective type of audience, not effectively reached by other forms of home entertainment. Programs must be more than artistic, or of high quality. To suit this audience, the broadcaster has to meet a fastidious demand for technical perfection. For this reason, the engineering department has a great responsibility for the quality of transmission. Furthermore, the increased use of hi-fidelity equipment has put a measuring stick in the hands of the audience to (Continued on page 52)

ROSTER OF THE GMB STATIONS

The fourteen GMB stations are listed here. FM frequencies are given in megacycles. Three AM-only stations have frequencies shown in kilocycles. With a good antenna and receiver, the FM stations can be picked up from distances of 50 to 100 miles or more.

Allentown, Pa.	WFMZ	100.7 mc.	Los Angeles, Calif.	KFAC	104.3 mc.
Baltimore, Md.	WITH-FM	104.3 mc.	New York, N. Y.	WQXR	96.3 mc.
Bridgeton, N. J.	WSNJ	98.9 mc.	Philadelphia, Pa.	WFLN	95.7 mc.
Cambirdge, Mass.	WXHR	96.9 mc.	St. Louis, Mo.	WEW	770 kc.
Chicago, Ill.	WEAW	105.1 mc.	San Diego, Calif.	KSON	1240 kc.
Dallas, Tex.	KIXL	104.5 mc.	San Francisco, Calif.	KEAR	1550 kc.
Hartford, Conn.	WDRC-FM	93.7 mc.	Washington, D. C.	WGMS	103.5 mc.

FIXED OR VARIABLE NETWORK

One or the other is required for top performance from two- or three-speaker systems. Whichever you prefer, G.A. offers the finest

To help you make sure that you select the correct networks for finest performance from your particular speaker system, the following information is presented on two and three-speaker types, using either G.A. fixed networks or the new G.A. Variable Audio Crossover Controls.

G.A. FIXED NETWORKS

High-Quality Performance: The circuit designs and components furnished for G.A. networks represent the very best audio engineering practice. They provide these essentials of true high-fidelity performance: 1) Selectivity giving 12 db droop per octave. 2) Losses are held to a minimum by the use of air cores and No. 16 wire. 3) Inductance values are extremely accurate, and coils are unconditionally guaranteed against shorted turns. 4) Individual level controls permit exact balancing of the speakers.

General Apparatus Company is probably the largest manufacturer of high-precision network inductors. G.A. quality control assures you of the finest performance, at prices which reflect economies due to quantity production.

Two-Speaker Systems: First, decide on the crossover frequency you want, and check the impedance of the *low-range* speaker.

Select the network you require from the Table, according to the impedance of the *low-range* speaker. It is not necessary that both speakers be of the same impedance, but one should not be more than twice the impedance of the other. With an Air-Coupler for the bass, a crossover of 175 cycles is generally used, or 350 cycles if the bass speaker is in a conventional cabinet.

Three-Speaker Systems: Two networks are required for three-speaker systems. Network A should have the same impedance as the bass speaker, and network B, the same impedance as the mid-range speaker. Usually 1,100 or 2,200 cycles is chosen for network B.

Impedance of low-frequency speaker	Crossover Frequency	Order by	Price 2 Coils Only	Price Complete*
16 ohms.....	4,400	No. 1A	\$ 5.75	\$ 9.50
	2,200	1	7.00	11.50
	1,100	2	7.00	12.00
	350	4	12.00	17.50
	175	5	20.00	24.00
8 ohms.....	2,200	6A	5.75	9.70
	1,100	6	7.00	12.00
	350	8	12.00	17.50
	175	9	20.00	24.00
	85	10	20.00	26.50
4 ohms.....	275	12	7.00	15.00
	175	13	12.00	19.00

* Complete networks include necessary capacitors and level controls. Be sure to indicate whether you want just the coils or the complete network.

Network Circuits: Complete information is supplied with each G.A. network. Connections are so simple that the components can be hooked up in a few minutes. If you are in doubt about the correct network for your particular system, send 10¢ for the G.A. Network Data Sheet.

G.A. V-A-C CONTROLS

The Variable Audio Crossover Control is an exclusive G.A. development. Types for two and three-speaker systems permit the adjustment of the crossover at any point between 90 and 1,100 cycles (Type A) or 900 to 11,000 cycles (Type B).

Thus it is possible to determine the optimum point, or points, *after your speaker system has been installed*. If, at any time, you want to experiment with other speakers, you can shift to any other crossover by merely resetting the calibrated control knob.

Completely Flexible Controls: The V-A-C is a tube-operated device, complete with its own power supply. In addition to the calibrated control knob, there are individual adjustments for setting the level of each speaker independently of the other. Over-all volume can be regulated from the preamplifier. Since the V-A-C has a possible gain of 5, power amplifiers can be operated at minimum distortion.

V-A-C Control for Two Speakers: The V-A-C can be used with any standard preamplifier and power amplifiers. Use an amplifier of 20 to 50 watts for the low-range, and 10 to 20 watts for the high-range. Order V-A-C Control Type A.

V-A-C Controls for Three Speakers: Using a combination of Type A and B Controls, with three speakers, the crossover points can be varied from 90 to 1,100 cycles, and from 900 to 11,000 cycles. The high-range amplifier should be of 5 to 10 watts.

This is the ideal speaker system, permitting unequalled flexibility of control, delivering the finest performance that money can buy. Order V-A-C Types A and B.

V-A-C Prices, Deliveries: The V-A-C is supplied in kit form, including all components, a handsomely-finished aluminum chassis 10 by 5½ by 3 ins. with all holes punched, one 6SN7GTA and one 5W4GT, and an instruction book. As far as possible, deliveries are made from stock. Price, Type A or Type B, \$39.95, plus 75¢ mailing.

V-A-C Instruction Book: The V-A-C Instruction Book is available at \$1.00 postpaid. You may deduct that amount later from the price of a V-A-C.

NEW AIR-COUPLER PRICES

Air-Coupler installations, now numbered in the thousands, are rated by the most critical audio enthusiasts as the finest enclosures for bass reproduction for 2-speaker and 3-speaker systems. Moreover, the Air-Coupler, with a high-quality 12-in. speaker, is the least expensive means of obtaining full bass reproduction down to 28 cycles.

Unequalled Bass Reproduction: Unlike conventional speakers, it is not necessary to turn up the volume in order to hear the full bass. With an Air-Coupler, you can turn down the volume to bare audibility and still hear the bass in true proportion. Dimensions of enclosure, 72 by 16 by 6 ins.

New, Lower Prices: Effective May 1st, the price of the knocked-down Air-Coupler, with the opening cut for a 12-in. speaker, is reduced to \$29.50, and the assembled Air-Coupler, ready for mounting the speaker, is reduced to \$39.50.

deMARS STYROCONE SPEAKERS

G.A. offers the deMars Styrocone Speaker with the guarantee that it will give more accurate reproduction than any other cabinet speaker or folded horn design selling under \$750. This is not an idle claim, but a guarantee based on actual A-B tests. It provides extended bass range, smooth performance in the middle range, and clean, clear treble quality.

The Styrocone Design: The remarkable accuracy of reproduction obtained from the deMars speaker is due to 1) the use of a vibrating surface 20 by 20 ins., equal to the cone area of five 12-in. speakers, 2) the concentric-coupling construction of the vibrating surface, and 3) use of four separate direct radiators for wide-angle distribution of high frequencies.

deMars Styrocone speakers are available in wall or corner cabinets, or the Styrocone speaker with 4 tweeters and network can be purchased unmounted. All cabinets are *solid* mahogany, finished in colors of red mahogany, walnut brown, or blond.

Prices of deMars Speakers: G.A. can make immediate shipment of deMars Styrocone speakers. The price for the wall or corner cabinet, in the finish you select, is \$450, subject to the guarantee above. The Styrocone speaker, networks, and 4 tweeters unmounted are \$250.

GENERAL APPARATUS COMPANY

219 MAIN STREET, SHEFFIELD, MASSACHUSETTS Tel.: 9-8475

July-August 1954

(Continued from page 30)

recognize and insist upon high standards of reproduction. The re-laying of programs by FM radio is making it possible for radio stations to give listeners substantially better quality that is provided by the telephone lines now in use.

Too much cannot be said of the influence and loyalty of the good-music audiences. In a recent brochure, station K FAC Los Angeles designates its audience as loyal "because these people can't find their kind of music anywhere else!"

The fine-music audience is probably the biggest single block of radio listeners, rich in purchasing power and the desire for the better things of life. Discriminating and rigid in its insistence on good taste and resentful of ballyhoo, it demands sensitive response to its wishes, and it responds generously in return.

John W. Griffin, executive secretary of the Record Industry Association of America, reports that record sales exceeded \$200 million in 1952, and that the important factor in the growing demand is classical records, accounting for 40% of total sales. He said, "The taste of Americans in the field of music has matured — a wholesome sign . . . because purchasers of classical records spend more money." These same enthusiasts want to hear the best music on radio, too.

A New Service to Radio Listeners

The good-music broadcasters are giving listeners at home the benefit of the greatest libraries of music available. Of great importance is the fact that this music is a powerful educational factor in developing the cultural habits of our nation.

The libraries of music presented by the good-music stations include specially-taped programs, such as the American Composer Series, complete operas, sonata cycles, composers' cycles, and various types of exchange programs with foreign countries. The latter includes programs from Tokyo, the Netherlands, British Broadcasting Company, France, Australia, Italy, and Scandinavia.

The whole nation is responding to hi-fi FM broadcasting. GMB is proving not only that better music and superior transmission of that music can be furnished by radio, but that public preference is turning toward this finer quality, in accordance with established American tradition. Unquestionably our nation is on the threshold of a new era of better radio program service. And the new interest which is being created by better programming is assurance that hi-fi radio is here to stay.

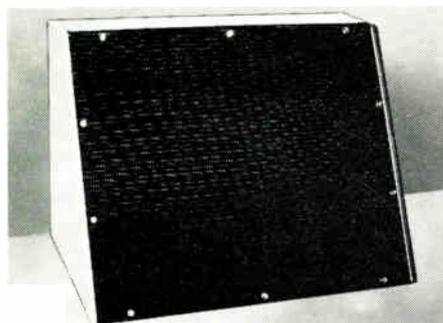


IDEAS for YOU

THE PURPOSE of this Department is to call attention to new products of interest to our readers. No attempt is made to rate performance of equipment shown, as that is not considered to be a proper function of this Magazine. Detailed specifications and descriptive literature can be obtained on request by writing the manufacturers. MUSIC AT HOME will appreciate your mentioning this Magazine.

FM Auto Radio

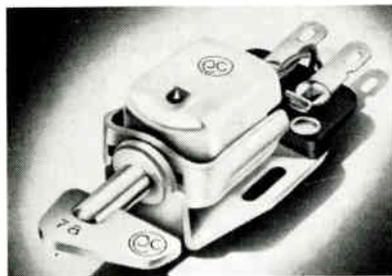
High sensitivity and freedom from fading on FM auto reception surprised broadcasters at their recent Chicago convention when the new Hastings set was on demonstration. After two years of development, these sets are now available as complete receivers, or as tuners to be used with the power supply, amplifier, and speaker of an AM set. *Hastings Products Co., 117 Newbury St., Boston, Mass.*



Outdoor Speaker Enclosures

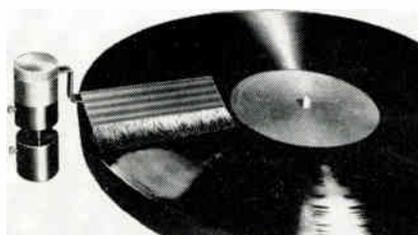
Three Stephens models have been an-

nounced, ranging in size from 16 ins. high, 18 wide, and 10 deep, housing a 12-in. Trusonic speaker, up to 20½ ins. high, 36 wide, and 17½ deep, fitted with any one of three 15-in. speaker models. Enclosures are designed for outdoor use. *Stephens Mfg. Co., 8538 Warner Dr., Culver City, Calif.*



Diamond-Saphire Turnover Pickup

An economy design is offered by Pickering with a diamond stylus for LP's and a sapphire for 78's. Idea is that the latter are used less frequently. Otherwise, this cartridge is similar to the model 260 double-diamond type. *Pickering & Co., Oceanside, Long Island, N. Y.*



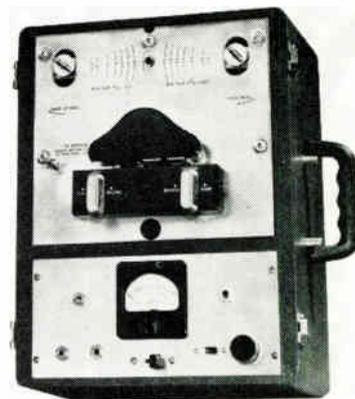
Record Brush

The base of this brush has an adhesive pad, so that it can be mounted without screws or holes. Height and angle can be preset, and the brush can be swung aside when records are changed. *Kral Products, 1704 Walnut St., Philadelphia.*



Wide-Range Dynamic Mike

Extended-range E-V design, model 666, rated at 30 to 15,000 cycles, is intended for critical requirements of broadcast studios, and for the use of hi-fi enthusiasts who are making top-quality tape recordings of vocal or instrumental music. Front-to-back ratio of 24 db reduces pick-up of ambient noise and unwanted reverberation. *Electro-Voice, Inc., Buchanan, Mich.*



Tape Machine

Model PMD-1 recorder and playback mechanism, and preamplifier with VU meter are

(Continued on page 57)

Music at Home

Directory of Hi-Fi Record & Equipment Dealers

To keep this Directory up-to-date, it is revised for each issue of MUSIC at HOME and, in order to make it as complete as possible, new names are added as soon as they are reported and checked

ALASKA

Bethel
Charlie's Radio Shop, Box 1717
Fairbanks
Arctic Radio & Record Shop, 520 2nd Ave.

ARIZONA

Bisbee
The Music Box, Box 340
Phoenix
Elco Elec. Comm. Co., 202 E. Filmore St.

CALIFORNIA

Berkeley
The Audio Shop, 2497 Telegraph Hill
Berkeley Custom Electronics, 2302 Roosevelt U. C. Corner, 2350 Telegraph Ave.
Beverly Hills
Crawfords of Beverly Hills, 456 N. Rodeo Dr.
Burbank
Valley Electronic Supply Co., 1302 W. Magnolia
Glendale
The Bartholomews Music, 522 N. Brand Blvd.
Hollywood
Hollywood Electronics, 7460 Melrose Ave.
Pacific Radio Exchange, 1407 Cahvenga Blvd.
Precision Electronics, 7518 Melrose Ave.
Radio Recorders Equip. Co., 7007 Melrose Ave.
Rhapsody Record Shop, 1723 N. Highland Ave.
Long Beach
Custom Sound, 3687 Atlantic Ave.
Penny-Owsley Music Co., 4334 Atlantic Ave.
Scott Radio Supply, Inc., 266 Alamitos Ave.
Los Angeles
Arco Electronics, Inc., 103 W. Vermont Ave.
Figart's Sound Un-Ltd., 6320 Commodore Sloat Gateway to Music, 3089 Wilshire Blvd.
Henry Radio Co., 11240 W. Olympic Blvd.
Kierulff Sound Corp., 820 W. Olympic Blvd.
Magnetic Recorders Co., 7120 Melrose Ave.
Recorders Distributing Co., 7115 Melrose Ave.
Shelley Radic Co., Inc., 2008 Westwood Blvd.
Universal Radio Sup. Co., 1729 S. Los Angeles
Weingarten Electronics, 7556 Melrose
Menlo Park
High Fidelity Unlimited, 935 El Camino Real
Oakland
Elmar Electronics, Inc., 140 11th St.
Olin S. Grove, 2904 Telegraph Ave.
E. C. Wenger Co., 1450 Harrison St.
Pasadena
Dow Radio, Inc., 1759 E. Colorado St.
High-Fidelity House, 536 S. Fair Oaks
The Turntable, 457 E. Green St.
Sacramento
The Sound Shoppe, Inc., 1910 16th St.
Tower Record Mart, 1518 Broadway
San Diego
Breier Sound Center, 3781 Fifth Ave.
San Francisco
Hal Cox Custom Music, 2598 Lombard St.
Eber Electronics, 160 10th St.
The Hi-Fi Shop, 3525 California St.
San Francisco Radio & Sup., 1282 Market St.
Television Radio Supply Co., 408 Market St.
West Coast Radio & Elec., 409 Market St.
Zack Radio Supply Co., 1424 Market St.
San Jose
T. J. Guiffre Co., 34 N. 3rd St.
Paramount Sound Co., 343 W. San Carlos
Peninsula Telev. & Radio Sup., 881 S. 1st St.
San Pedro
Bower's Music, 810 S. Gaffey
San Rafael
Catania Sound, 1607 4th St.
Marin Music Co., 1331 4th
Santa Barbara
The Gramophone Shop, 9 E. Canon Perdido
Thermal
Custom Classics, 82-321 Ave. 56

Van Nuys
House of Sight & Sound, 14513 Victory Blvd.
Whittier
Lovell's Radio-TV Section, 175 N. Greenleaf

COLORADO

Denver
Chas. E. Wells Music Co., 1629 California St.
Grand Junction
Clark-Steen Music Co.

CONNECTICUT

Danbury
Heims Music Store, Inc., 268 Main St.
Danielson
Oliver's Music & Appliance, 31 Main St.
Hartford
Nathan Margolis Shop, 28 High St.
Moses Radic Electric Co., 54 Flower St.
New Haven
Dale Electronics Distr., 150 James St.
David Dean Smith, Inc., 262 Elm St.
New London
Aikens Electric Supply Co., 428 Bank St.
Westport
Music Systems of Westport, Inc., Post Road
Reed Sound Studios, Boston Post Road

NOTICE TO DEALERS

Listings in this Directory are available without charge to hi-fi record and equipment dealers as a service to our readers. If you operate a hi-fi record or equipment store, and do not find your company listed, please write to the Directory Editor, MUSIC at HOME Magazine, 207 E. 37th Street, New York City 16. Information for qualifying for a listing in this Directory will be sent to you at once.

DELAWARE

Wilmington
Radio Elec. Serv. Co. of Pa., 3rd & Tatnall
Wilmington Elec. Spec. Co., 405 Delaware Ave.

DISTRICT OF COLUMBIA

Washington
Discount Record Shop, 1327 Conn. Ave., NW
Electronic Wholesalers, 2345 Sherman Ave., NW
Hollywood Record Shop, 1706 Columbia Rd., NW
Shrader Mfg. Co., Inc., 2803 M St., NW
Sun Parts Distr., 520 10th St., NW

FLORIDA

Coral Gables
Hi-Fi Sound Hdqtrs., 1809 Ponce de Leon Blvd.
Daytona
Moore-Bivens Co., Inc., 220 Seabreeze Blvd.
Jacksonville
Southeast Audio Co., 930 W. Adams St.
Melbourne
McHose Electronics, New Haven Ave.
Miami
Flagler Radio Co., Inc., 1068 W. Flagler St.
St. Petersburg
Better Listening Studio, 24 Beach Dr. North
Hi-Fi Music Shop, 6821 Central Ave.
Sarasota
Radio Center, 302 S. Orange Ave.

GEORGIA

Atlanta
Baker Fidelity Corp., 1429 Peachtree St., NE
High Fidelity SSS, 606 Peachtree St., NE

Augusta
Prestwood Electronic Co., 1445 Greene St.

ILLINOIS

Champaign
The New Sound, 35 E. Springfield Ave.
Chicago

World's Largest Stocks of High-Fidelity Music Systems and Components ALLIED RADIO

C O R P O R A T I O N
100 N. WESTERN AVE. · CHICAGO 80, ILL.

Arpio Sales, Inc., 4305 N. Lincoln Ave.
Audio Arts Assoc., 1323 S. Michigan Ave.
Audio Workshop, Inc., 725 S. LaSalle St.
Chicago Electronics Distr., 420 E. 87th St.
Columbia Sound Engineers, 2702 W. Diversey
Crittenton's TV & App., 4740 N. Broadway
De Haan Camera Co., 1655 W. 79th St.
Lowe's Radio Co., 1233 E. 55th St.
The Lukko Sales Corp., 5024 Irving Park Blvd.
Marquette Records, 3215 W. 63rd St.
Newark Electric Co., 223 W. Madison
Voice & Vision, 53 E. Walton St.

INDIANA

Columbus
Ernie's Record Shop, 910 25th St.
Indianapolis
Graham Elec. Supply, Inc., 102 S. Penna St.
Lafayette
Golden Ear, 610 Main St.
Muncie
Seward B. Price, 105 Rose Court

IOWA

Council Bluffs
World Radio Laboratories, West Broadway

KANSAS

Kansas City
Morrell Electronics, 820 Roswell Ave.
Wichita
The Bennett Music House, 206 E. Douglas

KENTUCKY

Louisville
Lewis Radio & Sound, 266 W. Liberty Ave.

LOUISIANA

Baton Rouge
Louisiana Radio & Telev., 1645 Plank Rd.
Ogden Park Record Shop, 618 N. 3rd St.
Lake Charles
Zypien's Record Shop & Music Center
New Orleans
Custom Electronics, 813 Chartres St.

MAINE

Portland
Bartlett Radio Co., 625 Congress St.

MARYLAND

Annapolis
Albright's, Custom Music Dept., 78 Maryland Ave.
Baltimore
American Distri. Co., 1200 N. Fulton Ave.
Custom Music Systems, 2326 N. Charles St.
General Radio Service, 3 S. Howard St.
Music House, 5855 York Rd.

Radio Elec. Serv. Co., 5 N. Howard St.
Wholesale Radio Parts Co., 308 W. Redwood St.

MASSACHUSETTS

Boston
DeMambo Radio Supply Co.,
1095 Commonwealth
The Listening Post, 161 Newbury St.
Mosher Music Co., 181 Tremont St.

FREE 224-PAGE CATALOG

LARGEST STOCKS in the EAST

Cook and Audiophile Records, Too

RADIO SHACK CORP.

167 Washington St., Boston 8, Mass.

Radio Wire Telev. Inc., 110 Federal St.
Yankee Electronics, 257 Huntington Ave.
Cambridge
Sheldon Distr. Co., 800 Massachusetts Ave.
Lunenburg



FM RECEIVING ANTENNAS

Standard and
Special Designs

WHOLESALE SUPPLY CO.
Lunenburg, Mass.

Melrose
Melody Ranch Music Shoppes
New Bedford
E. A. Ross & Co., 1663 Purchase St.
Pittsfield
Pittsfield Radio Co., 41 West St.
Springfield
Freedman Custom Audio Lab., 1225 Main St.
Regent Sales, Inc., 236 Chestnut St.
Soundco Electronic Supply Co., 47 Dwight St.
Taunton
David B. Dean & Co., 85 Cohasset St.
Waltham
Dorrington Press, 233 Riverview Ave.

MICHIGAN

Ann Arbor
Purchase Radio Supply, 605 Church St.
Birmingham
MacCullen & Dean, 409 E. Maple Ave.
Dearborn
Cherry Hill Radio, 111 N. Waverly
Detroit
Audio House, Inc., 19771 Conan
Bruno Appliance, 17151 Harper Ave.
Buddy's TV & App. Inc., 6616 Van Dyke
Classic Record & Card Shop, 9908 Gratiot
Communicating Systems Co., 16261 Hartwell Ave.
Denby Radio & Appliance, 12020 Morang Dr.
Fraye Appliance Center, 25950 W. McNichols
The Glen Music Shop, 14127 Gratiot
Good Housekeeping Shops, 1250 Library
Grinnel Brothers, 1515 Woodward Ave.
Grunewald & Sons, 14617 Harper Ave.
Haco Distributing Co., 9730 Burnette
Happy Home Appliance, 12548 Livernois Ave.
Hartman Auto Supply, 7150 W. Vernor
Hi-Fi Studios, 8300 Fenkell
The J. L. Hudson Co., 1206 Woodward Ave.
K. L. A. Labs., Inc., 7422 Woodward Ave.
Knight Distributing Co., 8300 Fenkell Ave.
London Records, 15822 Grand River
Modern Record Shop, 15356 Livernois
C. A. Nutting Co., 6420 E. Jefferson
Pecar Electronics, 10729 Morang
Reno Radio Co., 1314 Broadway
Sihler's Radio Shop, 15822 Grand River
Sly's Appliance Shop, 7601 Michigan Ave.
Smokey's Radio & TV Sales,
1016 W. Seven Mile Rd.
Tondryk's, 11352 Jos. Campau
Tondryk's, 5630 Michigan
Uptown Radio Co., 16021 Woodward

Ferndale
Erickson's Electronics, 23525 Woodward
Flint
Jensen, Inc., 501 N. Saginaw St.
Lansing
Tape Recording Industries, 3335 E. Michigan
Laurium
Northwest Radio of Mich., 435 Tamarack St.
Livonia
Hi-Fi Records & Systems, 31685 Plymouth
Mt. Clemens
Rosso Stores, 61 N. Walnut St.
Pontiac
Gallagher Music Co., 18 E. Huron Ave.
Port Huron
Price Appliance, Inc., 525 Water
St. Clair Chores
Price Appliance, 22406 E. Nine Mile Rd.
Sault Ste. Marie
John P. LeBlanc, 321 E. Spruce St.
Utica
Bejar Music, 7600 Auburn Rd.

MINNESOTA

Minneapolis
Anderson's Gifts & Records, 44 W. 66th
Lew Bonn Co., 1211 LaSalle Ave.
Disc & Needle Record Shops, 1439 W. Lake
Electronic Center, Inc., 107 3rd Ave. N.
St. Paul
Fine Cameras & Records, 2060 Ford Pkwy.
Gopher Electronics Co., 370 Minnesota St.

MISSOURI

Independence
Don Cook's Electronic Equip.,
1020 W. Truman Rd.
Kansas City
Barnard's, 4724 Broadway

NEBRASKA

Omaha
Moss Recording Studios, 1910 California St.

NEW JERSEY

Camden
Radio Electric Serv. Co., 513-15 Cooper St.
East Orange
Creative Audio Associates, 150 S. Harrison St.
Custom Music Systems, 225 N. 18th St.
International Distr. Co., 185 Central Ave.
Montclair
Perdue Radio Co., 8 S. Park St.
Morristown
M & M Telev. Co., Inc., 7 Maple Ave.
Newark
Federated Purchaser, Inc., 114 Hudson St.
Hudson Radio Co., 35 William St.
Radio Wire Telev., Inc., 24 Central Ave.
Paramus
Music Age, Inc., Route 4
Paterson
TV & Electronics Co., 152 Paterson St.
Plainfield
Union Television Parts Co., 403 Watchung Ave.
Princeton
Princeton Listening Post, 164 Nassau St.
Trenton
People's Radio, 558 N. Clinton Ave.

NEW MEXICO

Albuquerque
Sound Engineering & Equip.,
601½ Yale Blvd. SE

NEW YORK

Albany
Bell-Tone Sound Corp., 11 N. Pearl St.
Astoria
Howard Music Co., 31-89 Steinway St.
Binghamton
Audio Service Co., 145 State St.
Brooklyn
Brooklyn Hi-Fi Sound Center, 2128 Caton Ave.
Green Radio Distr., 472 Sutter Ave.

Buffalo
Frontier Electronics Inc., 1503 Main St.
Radio Equipment Corp., 147-151 Genesee St.
Glens Falls
Ray Distributing Co., 284 Glen St.
Hempstead
Island Radio Distributor, Inc., 412 Fulton Ave.
Standard Parts Corp., 277 N. Franklin
Jamaica
Peerless Radio Dist., Inc., 92-32 Merrick Rd.
Long Island City
Electronic Supply Corp., 4108 Greenpoint Ave.
New York
Arrow Electronics, 65 Cortland St.
Asco Sound Corp., 115 W. 45th St.
Bennett Radio, 565 3rd Ave.
Bryce Appliance & Record Shop,
110 W. 40th St.
Dorosin Distributing Corp., 149 W. 13th St.
Electronic Workshop Sales, 26 W. 8th St.
Federated Purchaser, Inc., 66 Dey St.
Carl Fischer, Inc., 165 W. 57 St.
Goody Audio, 235 W. 49th St.
Grand Central Radio, 124 E. 44th St.

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The best place to see, hear, and buy the newest and finest in hi-fi equipment. Out-of-towners—make Harvey Radio your audio headquarters. One block from Times Square.

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Haynes-Griffin Ltd., 420 Madison Ave.
Heins & Bolet Co., 68 Cortlandt St.
Hudson Radio Co., 48 W. 48th St.
Hudson Radio Co., 212 Fulton St.
Int'l Audio & Record Exchange, 1101 Lexington
Leonard Radio, Inc., 69 Cortlandt St.
Midway Radio & TV Corp., 60 W. 45th St.
Music Masters Records, 53 W. 47th St.
Niagara-Concord Corp., 55 Vesey St.
Pro-Sound Corp., 175 Vesey St.
Radio Row Electronics Corp., 172 Greenwich St.
Radio Wire Telev., Inc., 100 Sixth Ave.
Sun Radio & Elec. Co., Inc., 650 6th Ave.

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Trinity Talking Machine Co., 52 Broadway
Rochester
Craig Audio Laboratory, 12 Vine St.
Jerry Fink Co., 358 Averill Ave.
Masline Radio & Elec. Equip. Co.,
192-196 Clinton Ave., N.
Music Lovers Shoppe, 370 E. Main St.
Roslyn Heights
Segen Electronics, Inc., 118 Glen Cove Rd.
Schenectady
Concert-Craft, Inc., 1138 Waverly Place
Syracuse
W. E. Berndt, 655 S. Warren St.
Troy
Trojan Radio Co., Inc., 420 River St.
White Plains
High Fidelity Center, 367 Mamaroneck Ave.
Woodmere
Long Island Radio & TV, Inc., 942 Broadway
Yonkers
Westlab, 1587 Central Ave.

NORTH CAROLINA

Burlington
High Fidelity Sales, Box 1676
Chapel Hill
Abernathy's, 205-207 E. Franklin St.
Charlotte
Music, Inc., 212 N. Independence
Morganton
Thomas Music Shop

Raleigh
Southeastern Radio & Supply Co.,
411 Hillsboro

OHIO

Akron
Electronic Engineering Co., 362 W. Bowery St.
Main TV Supply Co., 1013 N. Main St.

Canton
Burrhoughs Radio Co., 711 Second St., NW

Cincinnati
Customcrafters Audio, Inc., 2259 Gilbert Ave.
Rex Dale, 4114 Francis Ave.
Steinberg's, Inc., 633 Walnut St.

Cleveland
Audio Craft Co., 2915 Prospect Ave.
Counterpoint, Inc., 20971 Westgate
Custom Classics, 13421 Euclid Ave.
Music Unltd., 405 Ten-Ten Euclid Bldg.
Pioneer Radio Supply Co., 2115 Prospect Ave.
The Progress Radio Supply Co.,
413-415 Huron Rd.
Publix Book Mart, 930 Prospect Ave.
Radio & Electronics Parts Corp., 3235 Prospect

Columbus
Anderson's High Fidelity Sound Center,
2244 Neil Avenue
Electronic Supply Corp., 134 E. Long St.
Whitehead Radio Co., 118-124 S. Long St.

Toledo
Warren Radio Co., 1002 Adams St.

OREGON

Eugene
Abar Radio & Television, 298 W. Broadway

Portland
Appliance Wholesalers, 600 NW 14th Ave.

Salem
Cecil Farnes Co., 442 N. Church St.
The Salem Record Shop, Oregon Bldg.

PENNSYLVANIA

Allentown
Federated Purchaser, Inc., 1115 Hamilton St.
Norman D. Steedle Co., 1005 N. 19th St.

Harrisburg
D & H Distributing Co., 2535 Montgomery Ave.

Hazleton
S. J. Pensock, 136 N. Wyoming

Lancaster
John H. Troup Music House, 38 W. King

Merion
Hi-Fidelity Sound Corp., 368 Montgomery Ave.

Philadelphia
Almo Radio Co., 412 N. 6th St.
Audio Electro Co., 4923 N. Broad St.
Danby Radio Corp., 19 S. 21st St.
Friends, 106 N. 6th St.
Penn Electronic Parts Co., 5303 Frankford Ave.

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YOUR COMPLETE SUPPLIER IS *Radio Electric* SERVICE CO. OF PENNA., INC.

HI-FI & COMMERCIAL SOUND STUDIO
709 Arch Street, Philadelphia 6, Pennsylvania
Phone: LOMBARD 3-7390

The Record Shop, 251 S. 15th St.
Walker Radio Serv. & Sales, 3rd & Fern Sts.

Reading
George D. Barbey Co., 2nd & Penn Sts.

Roslyn
High-Fidelity Music Center, 1373-83 Easton Rd.

York
York Radio & Refrigeration, 263 W. Market St.

RHODE ISLAND

Providence
DeMambro Radio Supply Co., 90 Broadway

SOUTH CAROLINA

Charleston
Radio Laboratories, 215 King St.

AXIOM High FIDELITY OF SOUND
Regd. Trade Mark

MADE IN ENGLAND

A 12-inch twin-cone high-power P.M. loudspeaker combining generous bass handling capacity with full range high fidelity reproduction.

BRIEF SPECIFICATION

Frequency Coverage 30 15,000 c/s
Fundamental Resonance - 35 c/s
Flux Density - - 17,500 gauss
Nett Weight - 18lb. 4ozs. (8.3 kg.)

AXIOM 22 MK II

AUDIOPHILE NETT PRICE **\$65.00**



A 12-inch twin-cone full range high fidelity reproducer, with a power handling capacity of 15 watts.

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Frequency Coverage 30/15,000 c/s
Fundamental Resonance - 35 c/s
Flux Density - - - 14,000 gauss
Nett Weight 12lb. 13ozs. (5.8 kg.)

AUDIOPHILE NETT PRICE **\$43.50**



A medium power FREE-SUSPENSION high fidelity P.M. reproducer for the professional enthusiast.

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Frequency Coverage 20/20,000 c/s
Fundamental Resonance - 20 c/s
Flux Density 17,000 gauss nominal
Nett Weight - 9lb. 6ozs. (4.2 kg.)

AXIOM 80

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Exclusively Distributed by:—

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GOODY AUDIO CENTER INC.
235, West 49th Street
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HOLLYWOOD ELECTRONICS
7460, Melrose Avenue
LOS ANGELES 46, CAL.

CANADIAN SALES OFFICE
A. C. SIMMONDS & SONS LTD.
100, Merton Street
TORONTO 12



GOODMANS

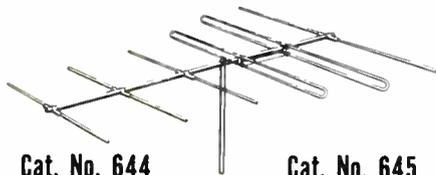
GOODMANS INDUSTRIES LTD., AXIOM WORKS, WEMBLEY, MIDDLESEX, ENGLAND.



HIGH FIDELITY FM STARTS WITH THE antenna

Good FM reproduction demands a good antenna. To realize the full potentials of any Hi-Fi FM system the full signal from the station must be captured by an antenna specifically designed for FM. TACO, the oldest name in receiving antennas, has designed such antennas and is offering the following models for greater enjoyment of Hi-Fi . . .

TWIN-DRIVEN YAGI



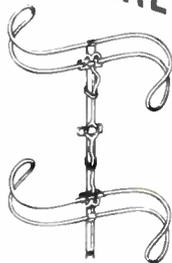
Cat. No. 644
(Single) \$20.00

Cat. No. 645
(Stacked) \$41.50

High-gain design for fringe or weak-signal areas. Provides FM signals at their best. Minimizes interference from other sources. Uni-directional—recommended for areas where all FM channels are received from one direction, or for use with mechanical rotator.

OMNI-DIRECTIONAL

The most popular FM antennas ever offered. Ideal for the average FM installation. Unique design provides equal reception from all directions with excellent gain. May be used as single antenna or stacked as illustrated.



Cat. No. 624L (Single) \$ 7.50

Cat. No. 624STL (Stacked) 15.75

ASK YOUR HI-FI DEALER FOR A TACO FM ANTENNA—THE HI-FI ANTENNA



Greenville
Arthur Rixon & Son, 209 W. Washington St.

TENNESSEE

Memphis
Ferguson's Record Shop, 173 South Cooper St.
Nashville
Nicholson's, 105 8th Ave. N.
Electra Distributing Co., 1914 W. End Ave.
Oak Ridge
The Music Box, 5 Broadway, Box 225

TEXAS

Amarillo
West Texas Radio Supply, 1026 W. 6th
Dallas
Crabtree's Wholesale Radio, 2608 Ross St.
Ernstrom's Record Shop, 4356 Lovers Lane
Fort Worth
Audio Associates, 2804 Race St.
Houston
Audio Center, Inc., 1633 Westheimer
Busacker Elec. Equip., Co., 1721 Waugh Dr.
Business Music, Inc., 403 Cotton Blvd.
Gulf Coast Electronics, 1110 Winbern St.
Southwest Record Sales, 4710 Caroline
Sterling Radio Prods., Co., 1616 McKinney Ave.
Wrye Company Ltd., 2045 Welsh St.
San Antonio
Electronics, Inc., 512 Broadway
Texas TV Stores, 506 W. Hildebrand Ave.

VIRGINIA

Charlottesville
Charlottesville Music Center, Inc.,
117 E. Main
Norfolk
Electronic Engineering Co., 316 W. Olney Rd.
The Music Center, 123 College Place
Radio Sales & Service, 416 Monticello Ave.
Richmond
Harry Dalton—"Audio Workshop"
5813 S. Crestwood Ave.

WASHINGTON

Puyallup
Music Shop, 111 W. Main St.
Seattle
High Fidelity Headquarters, 603 Broadway N.

Radio Products Sales Co., 1214 First Ave.
Seattle Radio Supply Co., 2117 Second Ave.
Spokane
E. M. Johnson Co., W. 615 First Ave.
Twentieth Century Sales, W. 1021 First Ave.
Tacoma
Wm. T. Raymond & Associates
17 Oak Park Dr., SW

WEST VIRGINIA

Wheeling
James M. Black & Sons, 952 Market St.

WISCONSIN

Appleton
Valley Radio Distr., 518 N. Appleton St.
Milwaukee
Marsh Radio Supply Co., 838 N. 4th St.
Television Parts, Inc., 714 W. State St.

ALBERTA

Lethbridge
Leister's, Paramount Theatre Bldg.

ONTARIO

Toronto
Custom Sound & Vision, Ltd., 390 Eglinton West

IN CANADA—

There's one place where you can find—and hear—all your high-fidelity equipment needs. We carry a complete stock . . . come in, or write in, for a chat, a look, and a listen.

ELECTRO-VOICE
SOUND SYSTEMS
141 Dundas St., West, TORONTO

Rohr's Book Shop, 15 Bloor St., West

SASKATCHEWAN

Regina
National Musical Supply Co., 1780 Hamilton St.

CUBA

Havana, Vedado
"California" Alta-Fidelidad, LaRompo 23Y "P"

Workshop Project No. 1

(Continued from page 41)

were given out to inexperienced people to make sure that they could follow out the simple assembly instructions.

Each terminal on the mounting plate is numbered. The original instructions gave the color code of each wire, and the number of the terminal to which it must be connected. Only one person made a mistake in carrying out the instructions. And—perhaps you have guessed it—he was color-blind! Thereupon, it was decided to put number-tape on each lead, with numbers corresponding to the respective leads. This is now standard practice, by the way, on military radio equipment. With that change, the last possibility of error was eliminated.

You will probably want to make the connections (using the screws in the envelope) in numerical order. When you come to numbers 11 and 14, you will find two wires for each of those terminals. That's not a mistake; they must be connected that way. Be sure to arrange each lug so that it will be away from any other part of the

wiring before you tighten down the screw.

That job completed, the amplifier will be ready to use as soon as you replace the bottom plate, check the tubes to be sure they are firmly seated in their sockets, and secure the cover again. On the front of the chassis at the left is a pin jack for the audio input. If your speaker is of 8 ohms impedance, it should be connected across 1 and 5 on the terminal strip, or across 1 and 7 if it is of 16 ohms. Speakers of other impedance values can be used if the small resistor shown in Fig. 5 at the right near the top is changed accordingly. You can identify this resistor positively because the terminals are marked F. Exact values for speaker impedances other than 8 and 16 ohms are given in the instructions.

The model MLF amplifier can be mounted horizontally or vertically without affecting its performance. Overall dimensions are 17 $\frac{3}{8}$ ins. long, 5 $\frac{1}{4}$ ins. wide, and 8 ins. high. Weight is 24 lbs. If you should want to mount the amplifier on a standard rack panel, remove the bottom plate and use it as a template for locating the six mounting screws. Then the plate can be discarded, since the panel will serve in its place.

Ideas for You

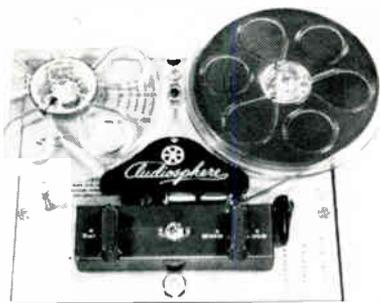
(Continued from page 52)

mounted in a carrying case. Speeds of $7\frac{1}{2}$ and $3\frac{3}{4}$ ips. provide up to 2 hours of single-track running time. Pole pieces of the heads are removeable, eliminating the expense of replacing entire heads. *Pentron Corp., 221 E. Cullerton St., Chicago 16.*



Record Changer

Here is a 3-speed changer that carries the records on a vertical, hollow spindle. A simple mechanism, operated by a shaft inside the spindle, delivers one record at a time to the turntable. Intermixed 10 and 12-in. records are handled automatically. In addition, a single-record spindle is furnished which, when inverted, causes the record to repeat until the motor is switched off. One of the four control buttons repeats all or part of a record at any time. Another, with 5 positions, adjusts the pause between records up to $5\frac{1}{2}$ minutes. The third starts the mechanism, and the fourth cuts in a scratch filter for 78 rpm. records. Tone arm takes any of the standard cartridges. *Audiogersch Corp., 254 Grand Ave., New Haven 13, Conn.*



Two-Way Playback Machine

The very moderately-priced "Bi-Fi" playback unit handles binaural or two-track monaural tapes at $7\frac{1}{2}$ or $3\frac{3}{4}$ ips. Output of .3 volts is adequate for connection to the crystal pickup input of a tuner, or directly to an amplifier. Particular advantage for playback use is that this machine has no erase lead. *Audiosphere, Inc., Livingston, N. J.*

New Tape Material

Data has been released on Mylar magnetic tape, using a polyester film of great strength and durability, and resistance to bending and excessive heat. It is supplied on stand-

(Concluded on page 59)

PRECEDENT



Connoisseur

► The man of discernment insists upon FM reception by PRECEDENT. He knows REL's new PRECEDENT is the only truly professional FM tuner, with performance exceeding broadcast station standards, and beauty which enhances the finest homes.

► Most FM broadcast networks are linked, not with wires, but by REL receivers. Programs passing through a chain of REL receivers emerge with lifelike tonal range and no appreciable distortion — an engineering triumph no other tuner can begin to approach.

► The new PRECEDENT is even further improved. In a handsome, perforated metal cover, it costs \$325 — and worth every penny of it! Write today for the name of your nearest dealer, so you can see and hear this pace-setting PRECEDENT for yourself.

RADIO ENGINEERING LABORATORIES • INC.

36-40 Thirty-seventh Street • Long Island City 1, N. Y.



THE FINE-ARTS QUARTETTE

of the American Broadcasting Co.

plays flawlessly-



The Quartette Recording During Rehearsal . . .

They record their music
faithfully

with the

'SONODYNE'
Dynamic Microphone

• Staff artists of the American Broadcasting Company in Chicago, the Fine-Arts Quartette is known for its unsurpassed tone quality and technical perfection. Consistent recording of all rehearsals has helped this renowned quartette achieve the high standards of perfection for which it is known.

High-fidelity enthusiasts, as well as professional recording artists, are using the "Sonodyne" in ever-increasing numbers. Home users of tape-recorders are finding that the "Sonodyne" reproduces voice and music with a remarkable degree of "naturalness." It makes the "Sonodyne" the ideal high-quality, moderately-priced replacement for the conventional microphones supplied with tape recorders.

Model "51" Sonodyne. List price \$47.50. Available at Shure Distributors everywhere.



SHURE BROTHERS, Inc.
MICROPHONES and ACOUSTIC DEVICES
225 West Huron St., Chicago 10, Illinois
Cable Address: SHUREMICRO

Please send me FREE Shure Microphone catalogs and list of Shure Distributors in my locality.

Name.....

Address.....

City.....State.....MHS-7

Records, Tape, and FM

(Continued from page 6)

natural reproduction will be featured. On the 27th, there will be a special meeting for dealers, distributors, and manufacturers. Information can be obtained from Grady Duckett, 1145 Peachtree Street, N.E., Atlanta 5.

Pressure Exerted by a Stylus

This little picture was sent to us by E. J. Marcus, author of the article on diamond styli which appeared in our last issue. It illustrates graphically the fact that the pressure exerted by the point of a stylus on



a record is the same in pounds per square inch as that exerted by a 25,000-lb. tank resting on a block 1 in. square!

And Mr. Marcus reminded us of something we had forgotten, namely, that diamonds were used for styli long before the invention of electrical recording and reproducing equipment.

Tape Speed & Audio Quality

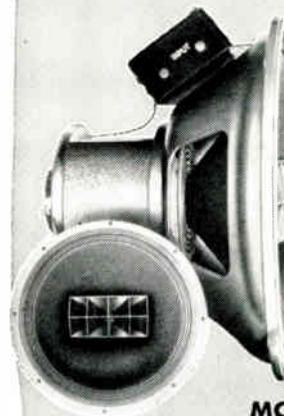
A letter from James Ford of Ampex calls attention to the statement of page 45 of our May-June issue, where reference is made to professional use of 7½ ips. for recording speech, and 15 ips. for music. Said Mr. Ford: "Ampex equipment, particularly the new model 600, is capable of making superb recordings at a tape speed of 7½ ips. Our specifications for the 7½ ips. tape speed say 'down no more than 4 db at 15,000 cycles.' Actually, most of the recorders that leave our shipping dock far exceed this specification at 7½ ips. So that on the model 600 you can get true hi-fi recordings lasting more than 30 minutes from a 7-in. reel."

Our apologies to Ampex and any other company to which the comment about 7½ ips. did an injustice. Knowing the rate of progress in the improvement of audio equipment, we try, as a matter of editorial policy, to avoid comparative statements, or those which might be right today but inaccurate day after tomorrow!

New England Hi-Fi Show

The first annual HiFi Music Show to be held in Boston is scheduled for October 22 to 24 at the Hotel Touraine. Running from Friday through Sunday, it is planned to attract people from all over New England who might not be able to attend on working days.

The
Best
Seats
in the
House...



MODEL 206AX

Stephens
TRU-SONIC
SPEAKER

Regarded as the international standard in high fidelity sound equipment, STEPHENS speaker systems are used throughout the world by the most discriminating listeners.

It's a SOUND PRINCIPLE
when you say

STEPHENS
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MANUFACTURING
CORPORATION

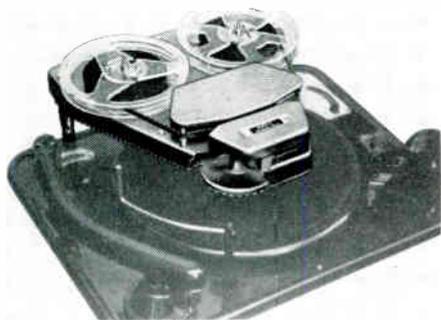
8538 Warner Drive • Culver City, Calif.

You
hear it
all —
as though
you were
there . . .
when
you use
a

Ideas for You

(Continued from page 57)

ard reels containing 300 to 3,500-ft. length in 1 and 1½-mil thickness, or 500 to 2,000 ft. in 2-mil thickness. *Audio Devices, Inc., 444 Madison Ave., New York 22.*



Turntable-Driven Playback Unit

Using a turntable at 78 rpm. for driving power, this playback unit handles dual tapes on 5-in. reels at either 3¾ or 7½ ips. It is the least expensive of all playback designs. For average listening level, it can be fed directly into an amplifier, or a preamp can be used for added output. *Bell Sound Systems, Inc., Columbus 7, Ohio.*

Transformer Catalog

The new 28-page Triad catalog gives detailed data on audio and power transformers in a wide range of sizes, mountings, and cases. Also, four pream-equalizer and amplifier kits, ranging up to 40 watts output, are described. *Triad Transformer Corp., 4055 Redwood Ave., Venice, Calif.*

Records for Children

(Continued from page 44)

but where a teacher uses them to add another dimension to her efforts, and to bring to life her own enthusiasm, they are an inspiration to the children.

One practical note, of utmost importance, about the selection of audio equipment for school use: The purchase of inferior equipment, or equipment of marginal quality that will soon deteriorate in performance is an utter waste of money. Worse, it defeats the purpose for which it was bought. And the best equipment requires regular and expert maintenance. Therefore, the final selection of audio equipment for classrooms, the auditorium, or a complete public address system should never be made by the school committee. Once the appropriation has been made, the choice of equipment should be left to someone known to be qualified as an expert and, preferably, one who is prepared to take full responsibility for carrying out a continuing schedule of inspection and maintenance.

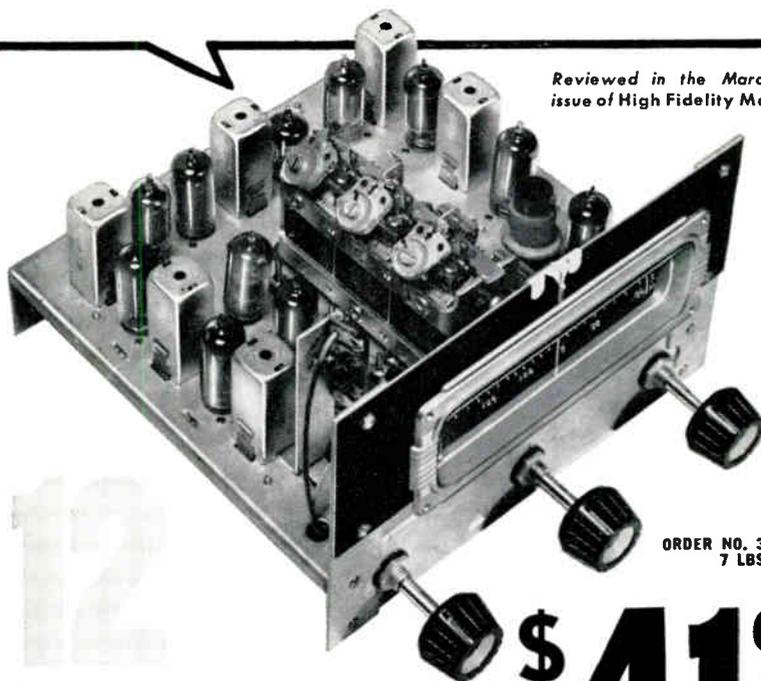
Recommended Records

Now, a few notes about the selection of records for young listeners. Whenever this subject comes up, someone is always ready

(Continued on page 60)

Designed with the FM listeners of WGBH, WXHR, and others in mind, to be sold at a price reflecting extreme savings, but without the usual sacrifice of quality!

Reviewed in the March 1954 issue of High Fidelity Magazine



ORDER NO. 36-206MH
7 LBS.

12
MINIATURE TUBES*

*Plus germanium diode AM detector!

DUAL CASCADE LIMITERS!

NOT ratio detector but true HIGH-FIDELITY Armstrong-type FM, plus sensitive AVC AM. Twelve — not 8 — miniature tubes. 30-15,000 cps *catode follower* output! Dual FM-AM band indicating lamps. Ultra compact to fit anywhere: 8¼ W x 5½ H x 8" deep.

TUNED RF STAGE FM, AM!

Yes! Tuned RF stage and separate RF and IF stages on both FM and AM. Rugged 6-GANG condenser! Hundreds now in use by appreciative music lovers from coast to coast. Attach to any amplifier, radio, TV set or sound system. Immediate delivery!

SIMPLIFIED POWER SUPPLY

The model V-12 tuner comes less power supply. requires 6.3V AC @ 4 amps, 190V DC @ 55 ma. Available from us, 100% wired, for just \$12.05. Order No. 36-207 7 lbs.

\$ 41⁹⁵

DIAMOND-SAPPHIRE for G-E RPX-050

LIST
\$31

\$11⁹⁰

NOTE: include est. postage

Big savings on a limited quantity of the RPX-050 replacement stylus with diamond tip for LP and sapphire tip for 78's. Here's a bargain every hi-fi fan will recognize, for America's most popular magnetic pickup, the G-E triple play! Guaranteed first quality; and the LP diamond is a genuine South African whole stone, not a fragile chip or splint. *Immediate delivery* on mail orders, while they last! Order No. R-6008-MH

ORDER BY MAIL, PHONE, WIRE! FREE 224-PAGE CATALOG!

RADIO SHACK CORPORATION

167 Washington St., Boston 8, Mass. (Dept. MH2)

DIAMOND NEEDLES

\$10.50
PLUS POSTAGE

THE TRANSCRIBER COMPANY, pioneers in diamond re-tipping of phonograph needles and the first in this highly specialized field, will retip your present needle with a genuine whole diamond (not chips or splints) for \$10.50 plus 25 cents for handling and postage.

Today, diamond needles are accepted as the only way to protect valuable, finely grooved long-playing records and to obtain distortion-free reproduction.

Chances are your record player is equipped with a sapphire or osmium-tipped needle, which has an average life of from 20 to 30 hours of playing time. Beyond that you run the risk of serious damage to your records. A diamond tipped needle can be used safely for approximately 1000 hours. When you retip your needle with a diamond you save, because diamonds cost you less per playing hour and records last longer.

Send us your replacement needle assembly now — today. Let us retip it with the highest quality genuine diamond stylus — exactly the same as we make for leading radio stations the country over. You pay only \$10.50 for a genuine diamond from Transcriber because you deal directly with a leading manufacturer of diamond styli for broadcast use.

Our diamond tips are unconditionally guaranteed and are made for long-playing or standard records. Send check or money order for \$10.50 plus 25c for return postage with your needle assembly or complete cartridge if you cannot remove the replacement needle assembly (except Pickering non-replaceable type) to:

THE TRANSCRIBER CO.

[[Diamond Stylus Manufacturers

70 Pine Street Attleboro, Mass.

Records for Children

(Continued from page 59)

to tell all about what children should hear. In so many cases, they should listen to this or that because somebody has judged it to be good music. There is great danger in this because those opinions do not take into consideration what a child is most likely to want to hear, or what good reasons can be given to the child for listening. It must be borne in mind that *listening* is altogether different from *hearing*. Like basic painting or writing, to the child music is first a medium for telling stories or expressing emotion. Let the abstract come later. In the beginning, it is programmatic music that develops the child's awareness. Music that strongly expresses a story, rhythm, or feeling of a definite nature gives the child an opportunity to participate aurally while hearing the music.

The following list of recordings was compiled not as a complete list, but rather as a series of landmarks taken from the road of experience. They are recommended because of the author's observations of children's response to this music when the records were used in the classrooms and in their homes. Many of them are included in lists of approved records compiled by the music committees of the Boards of Education in New York City, Chicago, Philadelphia, and St. Louis.¹

The headings were chosen by students as the types of music they find most interesting. Therefore, this is not a list of technical material for study, but a list of records that have special appeal to children:

STORIES IN MUSIC

Tchaikovsky, *1812 Overture*
Grieg, *Peer Gynt Suites*
Copland, *Appalachian Spring*
Debussy, *Claire de Lune*
Dukas, *The Sorcerer's Apprentice*

MUSIC INSPIRED BY DANCING

Brahms, *Hungarian Dances*
Strauss, *Waltzes*
Ravel, *La Valse*
Bartók, *Roumanian Folk Dances*
Lehar, *Waltzes*

SYMPHONIES

Beethoven, *Symphony No. 5*
Brahms, *Symphony No. 3*
Mozart, *Symphony No. 41*
Dvorak, *Symphony No. 5*
Prokofiev, *Symphony No. 5*
Mahler, *Symphony No. 2*

OPERAS

Verdi, *Traviata*
Wagner, *Meistersinger*
Mozart, *Marriage of Figaro*
R. Strauss, *Rosenkavalier*
Menotti, *The Medium*

(Concluded on page 61)

¹ Lists of accepted and approved records for correlation with the educational programs for children of all school ages can be obtained from Mr. Deutschman by writing him in care of MUSIC AT HOME.



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Records for Children

(Continued from page 60)

OPERETTAS

Gilbert & Sullivan, *HMS Pinafore*
Lehar, *The Merry Widow*
J. Strauss, *Fledermaus*
Herbert, *The Red Mill*

PLACES IN MUSIC

Smetana, *The Moldau*
Groté, *Grand Canyon Suite*
Mendelssohn, *Italian Symphony*
Respighi, *The Fountains of Rome*
Sibelius, *Finlandia*

STORIES IN DANCE — BALLET

Tchaikovsky, *Swan Lake* or
The Nutcracker Suite
Chopin, *Les Sylphides*
Khachaturian, *Masquerade* or *Gayne*
Ofenbach, *Gaité Parisienne*

There are a number of significant points about the above list that should be explained. First, it will be noticed that in each category there are only five or six numbers. These do not necessarily represent the *greatest* music available but they are tested numbers that have received the vote of approval by request for repetition in many schools and record libraries. It will also be noted that the list does not include such important categories as chamber music, oratorios, concertos, sonatas, and great works for solo voice. Those are important as range and depth of appreciation grow, but it must be emphasized that interest comes before appreciation, and children do not begin to hear music until their interest in it has been aroused.

Modern Composers

(Continued from page 39)

is an intense and prolific composer who is relatively unknown, but this performance of his symphony for Victor should place his in the roster of significant names in American music. More Goeb works are following. The American Recording Society has released a set of unusually beautiful *Prairie Songs for Woodwinds* (indifferently performed) along with Ben Weber's *Concert Aria after Solomon* and Howard Swanson's *Seven Songs*. While some of these composers may not produce your particular dish of dissonance, they are men who bear watching. We might bear in mind the case of Brahms who was considered too modern for his time, and had Boston's Philip Hale advocating signs reading "Exit in case of Brahms." Or Wagner, as another example. What was said of him by his real detractors has never been fit to print! But the moderns of today may have less difficulty in gaining acceptance, thanks to TV which, at first eschewed by composers and musicians as diverting public attention from their art, is actually performing for them a signal service.

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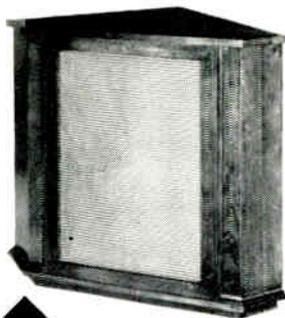


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Hi-Fi Concert Societies

(Continued from page 19)

measure the success of our plan in several ways. Each one has learned a great deal, even if he has only become a specialist in his own program topic. We all know a few phrases of the language of music, and we are looking forward to becoming expert enough to distinguish styles and forms and instruments. We have experienced the compulsion and excitement of doing it ourselves. In this year we have moved from music listening with prepared program notes to music, self-taught, with intelligent first-hand research.

We have in our group six hi-fi systems which, of course, increase our listening enjoyment immeasurably. . . .

It is particularly interesting to learn that music lovers living so close to a fabulous quantity of music on radio and in concert halls have developed such a complete plan of home listening to recorded programs. Miss Cohon graciously ended her letter with a request for suggestions from us, but it seems that she and her group of music enthusiasts are doing a top-notch job.

There are music clubs all over the Country which meet regularly in members' homes. Some of them present their music through their own talent. Others use guest-artists, with the members doing the research and lectures on the music performed. The plan of this New Jersey group, however, has the great advantage of being feasible for those who have no ability to perform themselves by drawing on the unlimited source of music on records.

The second letter came from Mr. and Mrs. Frank Morrison of 75 Garwood Road, Dayton, Ohio. Theirs is not the group participation idea, but rather the presentation of concerts by the host for his guests. The Morrisons wrote: We have been giving concerts in our home for the past two years. They are arranged for one Saturday evening each month, and from 15 to 20 people are usually present. Our programs are planned as they would be at a regular symphony concert, and printed programs are given to each listener so that no conversation is necessary except during intermission.

The whole thing began with a few friends stopping in occasionally to listen for an evening. They brought their friends, until now our group has grown to its present size which happens to be the maximum for good listening conditions within our home. We naturally assumed the enthusiasm for this type of entertainment would wane after a time, but it hasn't. Last year an article on our concerts appeared in the Sunday magazine section of one of our newspapers here. . . .

The Morrisons' programs are typed and mimeographed, the size of an ordinary letterhead folded in half. Inside is the pro-

(Concluded on page 63)

Hi-Fi Concert Societies

(Continued from page 62)

gram, and on the outside of the folder a quotation from William Cowper, 1731-1800: "There is in souls a sympathy with sounds, and as the mind is pitched, the ear is pleased with melting airs or martial, brisk or grave, some chord in unison with what we hear is touched within us, and the heart replies."

Mr. Morrison, by the way, is a really serious hi-fi enthusiast, the kind who is as much concerned with the constant improvement of his audio system as with expanding his library of records.

Other groups have commented on the fact that the more their members listen, the more critical they become about the quality of reproduction.

It is very interesting to learn from our readers that, although *MUSIC AT HOME* is the first magazine to substitute planned programs of recorded music for the familiar assortments of unrelated record reviews, individuals and groups had previously discovered that the program idea has the same advantages for listening to music at home as it does in public concert halls.

Design to Please a Wife

(Continued from page 18)

gave an interesting bleached effect. The drawer pulls were large, highly-finished concave brasses.

Small holes were drilled in the top and bottom edges of the speaker frame, after which a piece of sand colored fabric was tacked to it from the inside. X's of brass strip were made by riveting two strips together in the middle, as the illustrations show. Then the upper and lower ends of the X's were inserted into the drilled holes to make the grill.

With the equipment in place, the cabinets arranged and the connections made, we were ready to turn on the current. Like everyone else who has made a hi-fi installation, we experienced that moment of uncertainty in which the fear of disappointment is shared with the hope of success! Of course, we wanted our system to work perfectly right from the start, but we knew that we'd need a little luck to go along with our care and caution. And I'm glad to report that this system did work perfectly, without a single hitch, when we turned it on the first time.

If you would like to design a similar installation for your home, the following dimensions may be useful:

Speaker cabinet: 40 ins. high, 26 wide, 17 $\frac{3}{4}$ deep

Side cabinets: 37 ins. high, 20 wide, 17 $\frac{3}{4}$ deep

The compartments for the changer drawer and the tuner-amplifier were made 10 ins. deep. The base of each cabinet accounts for 2 ins. of the height.

July-August 1954

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 C. G. Burke, *NEW TRENDS IN AUDIO*
"Saturday Review" Dec. 26, 1953

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1. Photos must be clear, sharp, undistorted. Glossy prints are required, 8 by 10 ins.
2. Include photos of any special features or details of construction. Each picture must be accompanied by a brief description of the equipment, and the name of the individual or company by whom the installation was made. The pictures will be so identified.
3. For each photo used, *MUSIC AT HOME* will pay \$10.00 promptly on publication. Acceptable photos not used at once may be held over for a subsequent issue. Published photos will not be returned. Those which are not acceptable will be returned only if they are accompanied by return postage. *MUSIC AT HOME* will not be responsible for loss or damage to photographs submitted.

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An Antenna for FM

(Continued from page 47)

The accompanying illustrations show two standard designs, both Yagi types, designed to cover the full FM band of 88 to 108 mc. They are high-efficiency types, with maximum pickup at the end carrying the plain director rods. However, these designs are not as sharply directional as TV Yagis. In most locations, therefore, it is possible to leave the antenna in one position suitable for all reception. Only in special cases is it necessary to use a rotator.

IN THE CITY: Near FM transmitters, an antenna of the type described will improve all local reception; the direction in which it is aimed will not be critical. The advantage of the directional effect lies in picking up distant stations. This calls for checking reception carefully as the antenna is rotated through 360°, as best reception from a distance may be obtained when the antenna is not aimed at the desired station. Or it may be necessary to point it away from a powerful, nearby station, so that the signals will not be so strong as to overload the receiver. There are no exact rules.

IN THE SUBURBS: At distances of 10 miles or more from city areas, the advantages of FM show up in a pronounced manner, provided an antenna is used. On AM, since it is necessary to turn up the volume, background noise becomes objectionable, and there is nighttime interference on some if not all of the stations, while FM will hold the programs steady and clear provided there is an antenna to feed adequate signals to the set. A rotator may be found necessary in some instances, depending on the geographical distribution of the stations to be received. As a rule, though, because a Yagi is so efficient, it can be pointed in a direction that makes an acceptable compromise, giving "solid" reception from all important stations. At some locations, two transmitters carrying the same network programs can be picked up, in which case one can be sacrificed in order to get stronger signals for a different program.

IN THE COUNTRY: Surprisingly good results can be obtained in some hilly areas because of the way FM signals are reflected by highground or are carried along valleys. If reception from different compass points is required, a rotator may be essential. It will be noted that when the strongest signals are received, the Yagi may point in an entirely different direction from that of the station. Out on the plains, there may be solid FM reception over distances as great as 200 miles, even though fading, interference, and static spoil programs from nearby AM stations. In fact, it is amazing to see what excellent FM results can be obtained with a good antenna. A simple rule of thumb is that "solid" FM is possible wherever there is any television reception at all, however poor it may be. That is because FM receivers can operate on signals much weaker than for TV.

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