High-Fidelity

FALL ISSUE
VOL 1 NO. 2

Published by Milton B. Sleeper

Price $1.00

Devoted to the Interests of Audio-philes

DISTINCTIVE NEW WEBSTER-CHICAGO *diskchanger*

"106"

Nothing, absolutely nothing, was spared to build the ultimate in quality and versatility into this sparkling new push-off type Diskchanger.

Here is a completely automatic three-speed record changer that has been designed for those who can be satisfied with only the finest in sound reproduction instruments.

The dynamic new Diskchanger "106" by Webster-Chicago is the ideal unit for custom installations as well as the perfect replacement record changer.

these "106" features mean better performance

- automatic stop shuts motor off after last record
- new muting switch to silence radio during record change
- new-type push-off changing system
- balanced tone arm
- velocity-trip mechanism takes lateral pressure away from delicate record grooves
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World's Finest Loudspeaker (15")

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World's Finest Coaxial (15")

K-310 Coaxial (15")

K-210 Coaxial (12")

Single-Unit Direct Radiator Types
(5-15")

how to choose a high fidelity loudspeaker

GENUINE Jensen WIDE RANGE

This trademark* denotes the most comprehensive series of high fidelity loudspeakers available today. Every unit has been designed with the same objective . . . the achievement of the finest possible reproduction of music attainable for the size and type. Every model in the series sets a new high standard of performance . . . a new value . . . makes listening a thrilling new experience.

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Mere extension of response to high frequencies is not enough to insure truly satisfying reproduction . . . good listening which improves with closer acquaintance. Much more is required to make music come to life, free from annoying factors which might mar the illusion of reality. So, by application of the most modern principles of acoustics, confirmed by precise measurements and checked by exhaustive quality judgments and comparative listening tests, Genuine JENSEN Wide-Range loudspeakers give you all 7 Performance Points for enhanced listening pleasure: (1) Wide Frequency Range, (2) Balanced Frequency Response, (3) Smooth Reproduction, (4) Wide-Angle Distribution, (5) Low Distortion, (6) Good Efficiency, and (7) Adequate Power-Handling Capacity.

Thus Genuine JENSEN Wide Range means much more than wide frequency range — it means superior performance all the way — in every attribute that makes for enhanced listening pleasure.

Whatever the limitations on cost or size, the choice of a loudspeaker from the Genuine JENSEN Wide-Range series automatically insures a maximum of performance to today's new high standards . . . a judicious choice to meet exact needs. Only in the Genuine JENSEN Wide-Range series can you make such an exact choice.

Write today for free booklet, "Let Music Come to Life."
It includes a complete listing of
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A studio favorite that can be easily mounted in wall or cabinet. Three magnetic heads; push-button controls; response up to 15,000 cps.; panel size 19" x 24¼"; accommodates 10½" reels. Also available in console unit.

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PRESTO RECORDING CORPORATION

PARAMUS, NEW JERSEY

Export Division: 25 Warren Street, New York 7, N. Y.

Canadian Division: Walter P. Downs, Ltd., Dominion Square Bldg., Montreal

WORLD'S LARGEST MANUFACTURER OF PRECISION RECORDING EQUIPMENT AND DISCS

AUTHORitatively Speaking

John Conly, who authored the article "Hi-Fi-Phrenia" on page 13, is certain that art, including writing, is one-tenth inspiration and nine-tenths perspiration. Or so we gather from his repeated references to the congenital heat and humidity of summertime Washington, where his amusing and helpful article was composed. His writings are familiar to readers of the *Atlantic Monthly;* perhaps less well-known is the fact that he is a very considerable authority on the whole subject of high-fidelity reproduction of music and sound.

HIGH-FIDELITY'S staff had a busy time preparing material for the 17-page section entitled "You Can Budget Your Hi-Fidelity". We had tentative offers from technically inclined persons outside our organization, but when the scope of the article was outlined to them, they declined to undertake the job. Very politely, of course, but very firmly. So we did it ourselves, and had several moments when we wished *we* were outside the organization. We'll look forward to reader reaction. Perhaps the questions it inspires will be the basis for another article.

Our publisher, **Milton B. Sleeper,** took time off a while ago to get first-hand information on super-power FM broadcast station WMIT (page 33). The whole trip was a memorable experience, since the transmitter is located at the uppermost top of a craggy peak, but according to reports received in the home office, the most cold-sweat-producing part of the journey was his trip back to Charlotte at 55 m.p.h. in a Crosley station wagon! Even publishers come down to earth at times!

C. G. Burke, author of "Schubert on Records", needs no introduction. He was represented in the first issue of HIGH-FIDELITY and this time, in addition to contributing a monumental piece of work on Schubert, he has joined our staff of reviewers in an effort to cope with the steadily increasing output of the record companies.

Philip Kelsey is another name familiar to HIGH-FIDELITY readers. Anyway, custom installations such as he engineers are his best certificate of authoritativeness. Looking ahead, he's promised us an article on antennas for fringe-area FM and TV reception: a problem which he has surmounted innumerable times in many ways, and one with which he will be most helpful.

Continued on page 87

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Editorial contributions will be welcomed by the Editor. Payment for articles accepted will be arranged prior to publication. Contributions will be neither acknowledged nor returned unless accompanied by adequate postage, packing, and directions, nor will HIGH-FIDELITY Magazine be responsible for their safe handling in its office or in transit.

High-Fidelity

THE MAGAZINE FOR AUDIO-PHILES

Volume 1 Number 2 Fall 1951

CHARLES FOWLER, Editor

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MILTON B. SLEEPER, Publisher

Entered as second-class matter April 27, 1951 *at the Post Office, Great Barrington, Mass., under the Act of March* 3, 1879. *Additional entry at the Post Office, Pittsfield, Mass. Printed in the U. S. A.*

AS THE EDITOR SEES IT

THERE is a fable going the rounds about a recording studio engineer who commuted to work every day on the New York subways. When, after fifty-seven minutes in subterranean New York, he arrived in the quiet of his control room, the roar and rumble of the subways persisted in his sensitive ears. And that, children, explains why some records are produced with an almost complete absence of bass.

No doubt, similar fables could be devised which would account for all the vagaries of recording practice. And it might be well to do so, for what are technically known as recording characteristics appear to follow *consistently* neither the dictates of science nor the whims of personal taste.

It is difficult to understand why this state of affairs has come to be. Numerous factors are at work, but an important one is often overlooked: the conditions under which *you* listen to the record for the first time.

Let's think about that for a moment. If you are a typical record buyer, the chances are that your first judgment of a new record will be formed by hearing snatches of it on very inadequate equipment, at very low volume levels, and in about the worst imaginable acoustic conditions: a room (?) scarcely larger than a telephone booth!

The record manufacturers are fully aware of this situation, and are, therefore, on the horns of a dilemma. It is well-nigh impossible for them to produce discs which will sound correct under typical record-dealer playback conditions, and equally correct over a high-fidelity, home installation. For a more detailed discussion of this problem, read Carl Eton's article in this issue.

So each record manufacturer tries to produce a "balanced" record: one which is balanced to offset the inadequacies of what that particular manufacturer thinks of as being *typical* playback equipment.

What do we do about it? To answer that crudely but briefly: yell. The louder, the better, and the more, the better.

For neither manufacturers nor dealers are really aware of the number of individuals who already have hi-fi systems and want high-fidelity records.

We have run into this fact over and over again, in connection with publishing HIGH-FIDELITY. Any number of equipment and record manufacturers reacted to the idea of such a magazine with a skeptical, "Think there are enough of those people to support a magazine, devoted to nothing else?" And there is the typical dealer. One of them, in suburban New York, cautiously ordered ten copies of HIGH-FIDELITY, provided we would take back any he didn't sell. During the subsequent two months, he reordered eight times. That he still doesn't believe his customers are interested in hi-fi is evidenced by the fact that he continues to order the Magazine in lots of ten!

So we say, yell! Start talking to your favorite record dealer. If enough of his regular customers urge him to install something at least resembling a hi-fi system he'll be glad to oblige. And when enough dealers have been "converted", the news will get back to the record manufacturer. He, too, will try harder to produce records which please *your* ears. He's trying to do that now, but he is pretty confused about it all.

And, of course, HIGH-FIDELITY itself is a voice. Feeble at first, but as subscriptions continue to swell the total circulation, a louder and louder voice. Even though we are only one issue old, record and equipment manufacturers are listening in a way that they definitely did not, three months ago.

There is still a long road ahead. But if enough of us get together and yell loud enough, the voice will be heard and we shall have not only more hi-fi equipment, but a consistent output of hi-fi records.

IF THIS, the second issue of HIGH-FIDELITY, is more to your liking than the first, it is largely due to the truly remarkable interest which hundreds and hundreds of individuals have shown in our undertaking. To all of you who have taken the time to write us, to telephone us, to visit us: our most sincere thanks and appreciation. We hope you will continue to take an active part in the publication of this Magazine.

And to the many whose letters we have not yet had time to answer, our apologies. We have been thoroughly snowed under, not only with correspondence but also with the myriad problems associated with an undertaking which has rapidly outgrown not only our staff but also our expectations!

WE HAVE been holding open a few lines of space on this page for a last minute announcement of great interest to all audio-philes: as we go to press, arrangements are being finalized for HIGH-FIDELITY to go on the air with a unique concert program of its own. It is unique because *original*, 15,000-cycle *tapes* are being made available to us. It is from these tapes, of U. S. and European symphony orchestras, that phonograph records are subsequently made. Such tapes preserve the full dynamic and frequency range of the original music.

In addition, we are particularly fortunate in having as narrator and commentator a man whose repute as music critic, record reviewer, and author is indeed well-known: none other than David Hall.

The program will be launched over WABF (FM) in New York City, September 21, and will continue on a twice-a-week evening schedule, Fridays at 10, Sundays at 8:30. If you are within range of WABF, be sure to listen to the HIGH-FIDELITY program. It will be a wonderful opportunity to hear the best in music, broadcast with optimum fidelity.

High Fidelity

requires

A RECORD Changer

NOT

A Record CHANGER

the features that bring fine music home

GARRARD

THE WORLD'S FINEST RECORD CHANGER

Distortion free reproduction! — That is why critical listeners prefer the GARRARD. Built with watch-like precision, it reproduces accurately the original tonal quality of the original performance. Features such as the heavy motor and drive shaft guarantee consistent playing quality—even at the critical low speeds—and eliminate wows and wavers. The exclusive Garrard tone arm mounting assures true-tangent tracking, prevents disturbing resonance. With the GARRARD, you'll find no variation from the original, no distortion in highs and lows. And, most important for true high fidelity... Where sensitive reluctance cartridges are used, there is no risk of objectionable hum because of the exclusive 4-pole motor and the steel plate welded on the top of the turntable, which acts as a shield...

Easily, inexpensively installed in your present set.

Write for FREE FACT SHEET — what to look for when purchasing a 3 speed record changer.

GARRARD SALES CORP. Dept. 9F
164 Duane Street, New York 13, N. Y.

...If you wish to enjoy all the musical qualities of your records— not a mere approximation of them...

Play them on the **GARRARD**

THE WORLD'S FINEST 3 SPEED RECORD CHANGER!

VISIT US AT THE AUDIO FAIR — NOVEMBER 1, 2, 3 — AT THE HOTEL NEW YORKER — ROOMS 652 AND 653

FOR THE WORLD OF MUSIC

-- At its Finest!

Zenith Quality

Radios and Radio-Phonographs Alone Bring You Super-Sensitive FM

No finer music outside the concert hall itself—the clear, uninterrupted, static-free music you enjoy on Zenith FM. And now, with Zenith's amazing new Super-Sensitive circuits, your enjoyment of music soars to even greater heights!

Reaching far beyond the usual FM range, powerful Zenith Super-Sensitive FM brings in more stations, more programs. And, with Zenith's larger, finer speaker design brings you a revelation in full, rich glorious tone. New, superior Zenith tuning circuits prevent station drifting or fading. Tune easier . . . and *stay tuned*. No antenna is needed in primary signal areas.

Only in Zenith table radios and striking radio-phonograph combinations can you enjoy *all* the features of this better FM, plus famous Zenith Long-Distance AM reception, too. See them now at your Zenith Radio and Television dealer's.

World's Finest Record Playing, Too!

New Zenith "Cobra-Matic" . . . first and only record player that lets you play every record — all records — at the exact speed at which they were recorded . . . enables you to adjust for perfect pitch, tempo and tone quality. Lets you play not only 33⅓, 45 and 78 R.P.M. but all intermediate speeds between 10 and 85, including the coming new 16 R.P.M. Your insurance for the future of record playing. Yours *only* in Zenith radio-phonographs!

Above, New Zenith "Tudor" with exclusive Cobra-Matic* record-player, Super-Sensitive FM, Long-Distance AM radio, Radiorgan® Tone Control. Beautiful period cabinet, rich Mahogany veneers.

• • •

New Zenith "Super-Symphony." Super-Sensitive FM. Long-Distance* AM. Most sensational tone and reception ever in a Zenith table radio. New-type Broad Range Tone Control. Walnut plastic cabinet.

ZENITH
*LONG DISTANCE RADIO and TELEVISION

THE ROYALTY OF RADIO AND TELEVISION

Zenith Radio Corporation, Chicago 39, Illinois • Over 30 Years of "Know-How" in Radionics® Exclusively
Also Makers of Fine Hearing Aids

Noted with Interest:

Pre-Recorded Tapes

We are watching with very keen interest the growth of a relatively new industry: pre-recorded tapes. Here is music as you like it on *tape* fnr use with your high-fidelity equipment. There is no background noise, and on the tapes operating at 7½ inches per second, the fidelity is excellent. Several organizations are considering release of material along these lines, and one — Audio-Video Tape Libraries, Inc., 730 Fifth Avenue, New Ynrk 19 — has issued a catalog containing snme fourteen selections ranging from organ reveries through western square dances to excerpts from the *Nutcracker Suite*. Both single and double-track tapes are available, recorded at either 7½ or 3¾ inches per second speed. Prices range from $4.75 to $8.50 per reel, plus Federal excise tax.

Meet us at the Audio Fair

For audio-philes, the high spot of the year is the Audio Fair, to be held on November 1, 2, and 3, in the Hotel New Yorker, New York City.

For those of our readers who are not familiar with this annual phenomenon, we would like to point out that this is the year's finest opportunity to hear, talk about, and look at audio in all its aspects. There will be more equipment crowded into two floors of this hotel than one would normally have occasion to see in a lifetime.

HIGH-FIDELITY will combine forces with its sister publication, RADIO COMMUNICATION Magazine, in an extra-large room on the sixth floor: No. 641. We shall have a considerable cnllection of equipment there, including a tape recorder, a high-fidelity audio system, and an FAS speaker system of improved design.

To one and all, a most cordial invitation to stop in to see us. Eight members of our staff will be on hand to help you with both the technical and non-technical aspects of sound reproduction.

TV Growing Up

There seems to be an increasing number of signs that program material on television is approaching adult stature — at least in some instances. The NBC Television Concert Hall series is certainly one such program. This program is a serious attempt to present worthwhile music in a straightforward and interesting manner. In some ways, it is almost better than attending a live concert, because the television camera has a mobility which a concert-goer is not permitted to enjoy. Thus, the video observer is treated first to a long shot from the 15th row, and then is taken right up on stage for a close-up of the artists' finger dexterity or bowing technique.

On the other side of the world, the San Francisco Museum of Art is presenting a regular series of television programs called "Art In Your Life". With the cooperation of Station KRON-TV, the Museum has prepared a series of programs which present contemporary art in all its aspects. Reports from the West Cnast indicate that this program is meeting with very considerable success.

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Noted with Interest,

Continued from page 7

These are favorable signs of the times, of which we hope to see many more. We would be glad to have reports from our readers about either TV or FM music programs which they consider particularly worthwhile.

Briggs III

It is always a pleasure to read a book by G. A. Briggs. He has a rare ability to write about highly technical matters in a manner that is entirely lucid and, thanks to a dry sense of humor which lurks between the lines, completely enjoyable to read. We were delighted, therefore, to take up Briggs III: his third and latest volume, "Pianos, Pianists, and Sonics."[1]

Separate chapters are devoted to the history, construction, and action of pianos; to a comparison of uprights and grands; to touch and tone, tuning and toning; the choice and care of the instrument; room acoustics; and recording and reproduction. By using a high proportion of excellent illustrations, he makes the sound of a piano literally visible. For both music lovers and sound enthusiasts, the book provides a fascinating insight and understanding as to why we hear what we do when notes are struck *pianissimo* or *fortissimo*, singly or in combination.

In addition, there is a chapter devoted to "Pianists and Their Views", which is the result of asking a number of well-known artists a specific set of questions ranging from how they memorize to whether or not they find it boring to play in public.

"Pianos, Pianists, and Sonics" is must reading for all audio-philes, be they confirmed sound hobbyists or music lovers with just a touch of curiosity about the scientific aspects of a favorite instrument.

Notes Noted

Every time a new issue of the Music Library Association's quarterly publication, *Notes*, reaches our desk, we have fun checking the divergent opinions of record reviewers. *Notes* reports the kudos and brick bats voiced by reviewers for 13 different publications, including HIGH-FIDELITY, and summarizes them by single symbols indicating excellent, adequate, or inadequate. Surprisingly often, the reviewers agree, but every now and then a record comes along which throws their ranks into complete confusion.

Record reviews form only a relatively small part of the material in this publication. Each issue includes a complete bibliography and review of new books; lists of music dealer's catalogs; and a summary of recently-published music scores and compositions. Also carried are feature articles about the world of music. As a reference book covering this field, *Notes* is most valuable. Single copies are 85cents; subscriptions, $3.00 a year in the U. S. For further information, write Miss Mary R. Rogers, Music Library association, c/o Music Division, Library of Congress, Washington 25, D. C.

[1]Published by Wharfedale Wireless Works, 1951. Available from the Book Department, High-Fidelity, at $2.50 per copy postpaid.

Readers' Forum

SIR:

Your first issue of HIGH-FIDELITY is here before me. I have read it no less than "umteen" times . . .

I do have a criticism which I should like to sound off about, along with probably 20,000 others you will get on this first issue. The section on records, "Records in Review" I noticed, delt almost entirely with classics and semi-classics. There wasn't a single line devoted to popular music. By this I don't mean the "here today and gone tomorrow" novelty tunes. There are many artists in the field of popular music, whose instrumental achievements are well worth talking about. Many of these artists have made some ear-catching recordings lately through the use of electronics and echo chambers, etc. I shall cite one case of this. Les Paul and Mary Ford, who would ordinarily be just an electric guitarist and vocalist.

Another thing I hope to see in future issues of HIGH-FIDELITY is more articles on hi-fi amplifiers, preamplifiers, tone controls, equalizers, etc., for the home builder who likes to build his own equipment.

You ask us to tell you of our likes and dislikes, so you now have mine to add to probably thousands of others.

I should like to extend to you my best wishes, strong support, and anything else you need from your readers.

Terry McConnell

Petoskey, Mich.

SIR:

You rang the bell with the first issue of HIGH-FIDELITY. There is a need for such a magazine and it ought to have quick success.

Let me make the following suggestions:

1) Confine your record reviews to the material of greatest interest to audio-philes. For example, the review of London LLP-4, *Tales of Hoffman*, should have begun with the sixth paragraph, omitting all the stuff found in books of program notes. This change will result in reviews of performance, engineering, and manufacturing and will make room for reports on more record releases.

2) The only way to make HIGH-FIDELITY practical is to be free in the use of trade names. The article by Paul W. Klipsch is especially good for this reason. He likes the Brook amplifier and the G-E pickup, for example. Writers of other articles will disagree, but the result will be good for all manufacturers and certainly of value to your readers.

Congratulations and good luck.

Paul N. Elbin

West Liberty, W. Va.

SIR:

Hooray! I'm a charter subscriber. Sorry I didn't send $6 for a three-year sub instead of $3.

As suggested, I am writing to tell you of my interest in HIGH-FIDELITY. I am a postal clerk by occupation and a semi-professional musician by choice for my principal avocation. Have played in bands and orchestras

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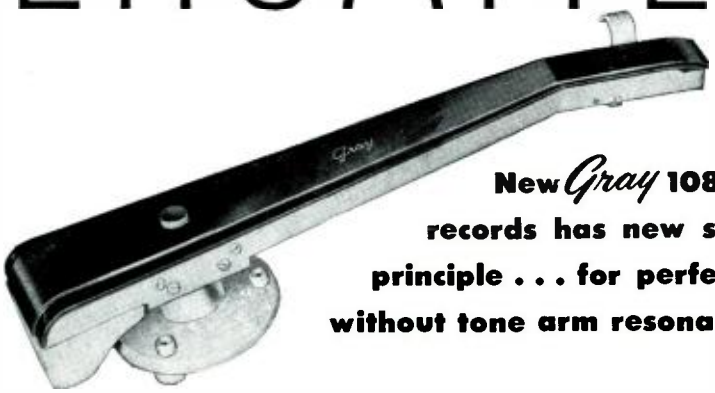
VERSATILITY!



New *Gray* 108-B Arm for all records has new suspension principle . . . for perfect tracking without tone arm resonances

Perfect tracking of records and virtual elimination of tone arm resonances are only two advantages of this versatile, specially-designed arm — the finest yet developed! It satisfies every requirement of LP reproduction, permits instant changing from 78 r.p.m. to LP (micro-groove) or 45 r.p.m., and *assures correct stylus pressure automatically*. GE or Pickering magnetic pickup cartridges are interchangeable and slip into place quickly and easily. Maintains perfect contact with bad records, accommodates records up to 16″ in diameter.

106-SP Transcription Arm —

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

Gray Equalizers —

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

Please write for bulletins describing the above equipment.

GRAY RESEARCH

and Development Co., Inc., 16 Arbor St., Hartford 1, Conn.

Walter E. Gilmore
President

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

for over 36 years. Am at present in two bands and two orchestras.

I built my first three or four radio receivers and am at present accumulating parts to build a super-duper dream amplifier from salvage and new parts, 807's push-pull final stage with somewhat similar characteristics to the Williamson amplifier except for cathode follower drive, slightly higher output and a few other minor differences.

Have always been super-critical of audio reproduction and was stuck with a $10,000 ear and a $100 income. Have listened to many fine receivers and combinations but never had the money to buy one and, anyway, they were not as good as I could build myself.

The kind of articles I like are semi-technical ones on any subject making for finer reception and reproduction of music.

Alex DePew

Zion, Ill.

SIR:

Thank you for sending us a copy of the first issue of HIGH-FIDELITY. We are most enthusiastic, and are showing it to all our friends.

We are considering submitting an article on our own unique remote control radiophonograph. Admittedly, our equipment is somewhat antique. It will soon have to be replaced but, although there is much to be said for a highly efficient, modern installation, we shall be loath to part with what has, over the years, developed a definite personality of its own and thus won itself a real place in our hearts.

The poor old thing just takes a rest from its function every few seconds. The remarkable aspect is that we can then pound on the table or stamp on the floor anywhere in the room, and it wearily resumes its job. Breakfast time has become quite a scene of activity — we listen to a classical records program — and all three of us stamp and pound most of the time!

Perhaps this brief description will suffice; no doubt, other readers of HIGH-FIDELITY have phonograph and radio equipment whose peculiarities have endeared themselves to the members of the household. Is there no answer other than to ship them off, remorselessly, to the old age home — or will *you* write the article and tell us what to do?

S. M. MacEachron

W. Des Moines, Iowa.

SIR:

Just received my first copy of HIGH-FIDELITY. To say that I am delighted is to put it mildly. It fills a huge void for me. Heretofore I've had to get my information about good sound from reading catalogs. I'm one of, I'm sure, a great many people who know absolutely nothing about radios, amplifiers, and speakers. However that, in my mind, has no bearing on my appreciation of music. To make it possible to obtain really good music in the home comes close to a public service. HIGH-FIDELITY is a long step in that direction.

William L. Fleury

Chicago, Ill.

HIFI·PHRENIA

Suffering from split-budget personality? You can have fun spending half your income on high-fidelity phonograph and radio reproduction: John M. Conly

"HOW American it is", ran an advertising slogan current a few years ago, "to want something better!"

This slogan didn't last very long. To the advertising fraternity at large, it must have sounded rankly subversive. The highest duty of the good American, as viewed from inside an Ad Club, is not to want something better. It is to want exactly what he is told to want by someone being paid $20,000 a year to tell him.

Too often the good American does just that. Obediently he houses his dear ones in a storm-tossed $18,000 rambler precariously anchored on the underground waters of Quagmire Acres. Daily he thunders off to work in a bellying mass of expensive chrome and enamel, insecurely perched on a modest little 1942 chassis and guaranteed to get 12 miles to the gallon. In his living room, come evening, he derives spiritual solace from a Sumptuous Supercroon TV-radio-phonograph, endowed with synthetic pine knots, a 29-cent crystal pickup and the full tonal range of a rubber hammer hitting a dishpan.

Of course, this depiction is exaggerated. But it isn't exaggerated enough to keep it from being a trifle depressing. There is so much forced uniformity in our prosperous American life that escaping it becomes an exciting adventure and a feat to be proud of. And the biggest, proudest group of escapees in the nation, without much doubt, are the people for whom this Magazine is published — the music-lovers, hobbyists, craftsmen and engineers who together have built the sizeable industry known (perhaps regrettably but probably incurably) as hi-fi.

In the successful launching of this industry, it was the consumers rather than the producers who furnished the critical kinetic component. This is said with no intent to disparage the audio engineers and gadgeteers. However, most manufacturing fields probably have similar bright, eager experimenters who'd like nothing better than to ignore commercial standards and show what they really could do with the hobbles off. But between them and the buying public stands a wall of cautious business practice which is seldom breached. In audio, it was the consumers who did most of the breaching.

They still hold the initiative, too, in the buyer-seller realtionship, and this is as it should be. The audio manufacturers and dealers could seize it by more ambitious advertising, but this is contra-indicated by the very nature of their products and their customers — as well as by the size of their budgets.

The virtues of their products are engineering refinements, not easily describable in the terse, overheated adjectives of mass advertising. (Furthermore, it is unlikely that either Dagmar or Groucho Marx could be proved to suffer much from being constrained to a 4,000-cps tone-range.) Beyond this, there is the paradoxical fact that a distinguishing feature of the hi-fi rig purchaser, thus far, has been his healthy distrust of mass advertising. It has been wise of the audio men to advertise selectively and discreetly, confining their efforts to technical and enthusiasts' magazines and such general circulation publications as cater obviously to laymen of independent mind and venturesome disposition. There is no high pressure, and the first move remains with the buyer.

Howbeit, as the man said, into each life some rain must fall. The customer's lot is not an altogether happy one.

- *No-Rumble Turntable*
- *Diamond-styli Pickups*
- *15 ips. Tape Recorder*
- *Hi-fi Amplifier*
- *Three-way Speaker*
- *FM Tuner*

CUSTOM CABINET BY NEW ERA, N. Y.

Your hi-fi rig can be styled to match a modern decor

He has moved from an area of inadequate choice into one where there is entirely too much choice. There are a lot of custom audio components on the market nowadays, each with a set of curves to prove it better than all others. A cursory tally, in fact, will make it obvious that the rigs which could be contrived from these components outnumber standard radio models by a very substantial margin. The buyer soon begins to feel uncomfortably incompetent to choose from such a wealth of perfection. When he has chosen, he is uncertain that his equipment is performing as it should. That is why this article is being written and, it may as well be admitted now, it won't solve the problem. However, it may ease it somewhat.

FOR an audio neophyte, the first thing to study in an audio setup is the last component engineers think about, to wit: the listener — himself. He should figure out what he wants, what kind of listener he is, for there is considerable variety.

He may be, for instance, a member of the perfectionist, or super-hobbyist, subspecies. In this case, his worries are over before they begin. No matter what he gets, or has already, he isn't going to be satisfied, and he may as well resign himself to it. A horrible fate dogs him. Halfway home from a handsome investment in Pickering cartridges with diamond styli, he will be struck with the unshakable conviction that Fairchild or Audak would have been better. For six months, while he practices sacrificial economies and goes semi-lunchless, a Jim Lansing two-way speaker system will be the best there is. As soon as he has acquired it, however, an Altec Duplex will become incomparably and incontestably superior. Eventually all his friends will leave him, too, saturated with the pianissimo passages in *Lieutenant Kije*, played so that they can testify that his $118 hysteresis turntable rumbles audibly. There is little that this particular variety of audio-phile can do about his problem except cultivate the habit of giving his pay check to his wife.

At the other extreme is what might be called the modicum-hunter. He wants only a modicum of high fidelity: the absence of the muffled boom and strangled screech offered by the Sumptuous Supercroon. He wants to hear the words in his Gilbert & Sullivan records and the triangle in the Brahms *Fourth*. He doesn't know what this means in terms of cycles-per-second and he doesn't especially want to learn. Usually he receives very calmly the news that he will have to spend between $300 and $500 for this, and expresses the hope that, once he has done so, he won't have to spend any more for five years. Told that some FM tuners have automatic frequency control, enabling the children to get the Lone Ranger without grief, he comes across readily with the extra $30.

This man is the dealer's delight—if he lives in an area where there is a good custom installation dealer in whose hands he can put himself. If he doesn't, he needs help in his shopping, and he deserves it. Fortunately, mail-order houses in the audio field are mostly pretty reliable and rather helpful. The prospective buyer's problem is primarily a matter of where to begin. And, for the modicum-hunter, the place to begin is with the amplifier. He should pick, tentatively, about three reputable makes. Then he should write to the makers and ask *them* what other components to use with their products.

Once he has, proceeding thus, got as far as the speaker, he should write to its maker and ask what kind of enclosure it works best in. This enables him to be specific with the mail-order dealer, or even with a local cabinet-maker.

The process takes time, but it usually gets very good results. When the modicum-hunter gets his rig, it won't deliver the Western Hemisphere's highest fidelity, but it will be well balanced (which means comfortable to listen to and is uncomfortably uncommon) and reasonably trouble-free. However, the forewarned modicum-hunter makes sure that, with each component he buys, he gets the manufacturer's complete instructions. This can be an important money-saver if something trivial goes wrong.

At that, he can be plagued by minor misfunctions which could be averted in advance but seldom are. It might not be amiss to describe a couple.

One derives from the fact that the five-foot, T-shaped, 300-ohm FM loop antenna usually stapled to the back of a cabinet by an installation man, is a directional device. If the cabinet is at the wrong angle, the owner's favorite station (it's always his favorite, never one he doesn't care about) may come in feeble or buzzy. He should be told that the antenna can be detached and re-aligned (perhaps under a convenient rug) at another angle. But he seldom is.

ANOTHER common source of woe is this: All good LP magnetic cartridges are designed to play best when parallel to the record surface — and on record-changers are designed to let them play this way. The changer arm dips well below horizontal, bringing the cartridge into play at a very awkward angle. If the stylus is of the type

mounted on the end of a trailer, as most are, it actually has to lift the arm each time it traverses under these conditions. It will sound gritty and, unless it's heavily weighted, it may jump grooves. If it's playing an Alban Berg record, no one may notice, but if it's *Guys & Dolls* or the *Marriage of Figaro*, the result is slightly infuriating.

Probably the easiest way to correct this is to make a circular pad of about six thicknesses of felt and put it atop the turntable when LP's are played. Or, the cartridge can be unscrewed from the head, propped under its rear (or terminal) end by a segment of a penny eraser, and screwed back on. It may then look as if the head had a dislocated jaw, but the performance will be improved.

There is no point in trying to instruct the modicum-hunter in judging whether his rig delivers the most spectacular performance possible. He doesn't really care. He wants intelligibility and effortless listening. He can judge the first merely by owning and playing some well-recommended records. The second is likely to test his self-assurance. If he can't sit and drink his beer comfortably while his machine renders Columbia's Rossini-Respighi *La Boutique Fantastique* (suggested because it itself contains nothing irritant or even very compelling), but must get and fiddle with the controls, he can safely assume the fault's in the rig, not in himself. The trick is to hear clearly without listening attentively. If anything obtrudes — unpleasantly, of course — over the attention-threshold, the chances are that the rig is misbehaving and the man isn't getting his money's worth.

Unfortunately, it is less easy to tell him what to do about it. If he got the rig from a good local installation shop, the problem should be put to the boss-man there. If he can't take time to come and listen himself (and some honestly can't, even when offered cocktails as a bonus) the rig-owner should write him a detailed symptom-list. This should be *in his own words*, untechnical but precise. With it he should include a chart of his living room, giving measurements and showing the placement of furniture and the speaker enclosure.

If there isn't an experienced installation man nearby, the problem is complicated. What this industry really needs are some good consultants willing to solve such home problems by mail at reasonable fees. Until there are, manufacturers are the best source of helpful answers, and the symptom-lists should be sent to them. Also worth trying is the Reader Service Department of this Magazine.

Much of the foregoing applies not only to the modicum-hunter, but to the large majority of audio-philes who fall between him and the insatiable hobbyist.

Among these latter there is so much variety that it is difficult to picture them compositely. In general, however, the difference between them and the modicum-hunter is one of attitude. In their lives, music is not a pleasant trimming, it's something vital. They want its maximum impact; they won't be satisfied with intelligibility and absence of annoyance. Many of them also are brimful of intellectual curiosity. They want to know how and why things work. They're willing to do a little work themselves.

When they buy, their standard plan is to start modestly and improve as they go along. This is a worthy aim, but it opens them to two opposed but valid arguments. One is based on the re-salability of various components, since improving a rig implies disposing of what is replaced. Without much doubt, the components which re-sell best, because they're the most durable, are amplifiers and speakers. The inference is that in the initial, modest rig, these should be regarded as the temporary items, and (relatively) the cheapest. The heavy dough should be spent on turntable, cartridges and tuner. A variation on the same theme is that the speaker should be the dominant item, since each model needs a specialized housing, an expensive thing to discard when making a change.

The opposed argument is that this system won't give the best performance for the money in the interim befor the substitution process starts, since it de-emphasizes the very heart of the rig, the amplifier. Holders of this view point out, probably truly, that amplifiers differ more drastically than other components, and contend that a $200 amplifier driving a $30 speaker is usually more satisfactory than a $50 amplifier driving a $150 speaker.

BOTH of these arguments are unanswerable. The prospective buyer must make up his own mind. However, he has this guidance: if at the beginning he has to get minimum-price components all down the line, he at least has some notion of the order in which to make his substitutions. Amplifier, normally, comes first. Then speaker —*and* acoustic cabinet. Cartridges next. Either tuner or fancy turntable after that. This way, the whole rig is built around the dominant component, the one bought first (in the above sequence, the amplifier). If the manufacturer of the number-one component, or a well-versed installation man (or both) is consulted on subsequent choices, the chances of mismating are minimized. Mismating components is quite pos- (*Continued on page 88*

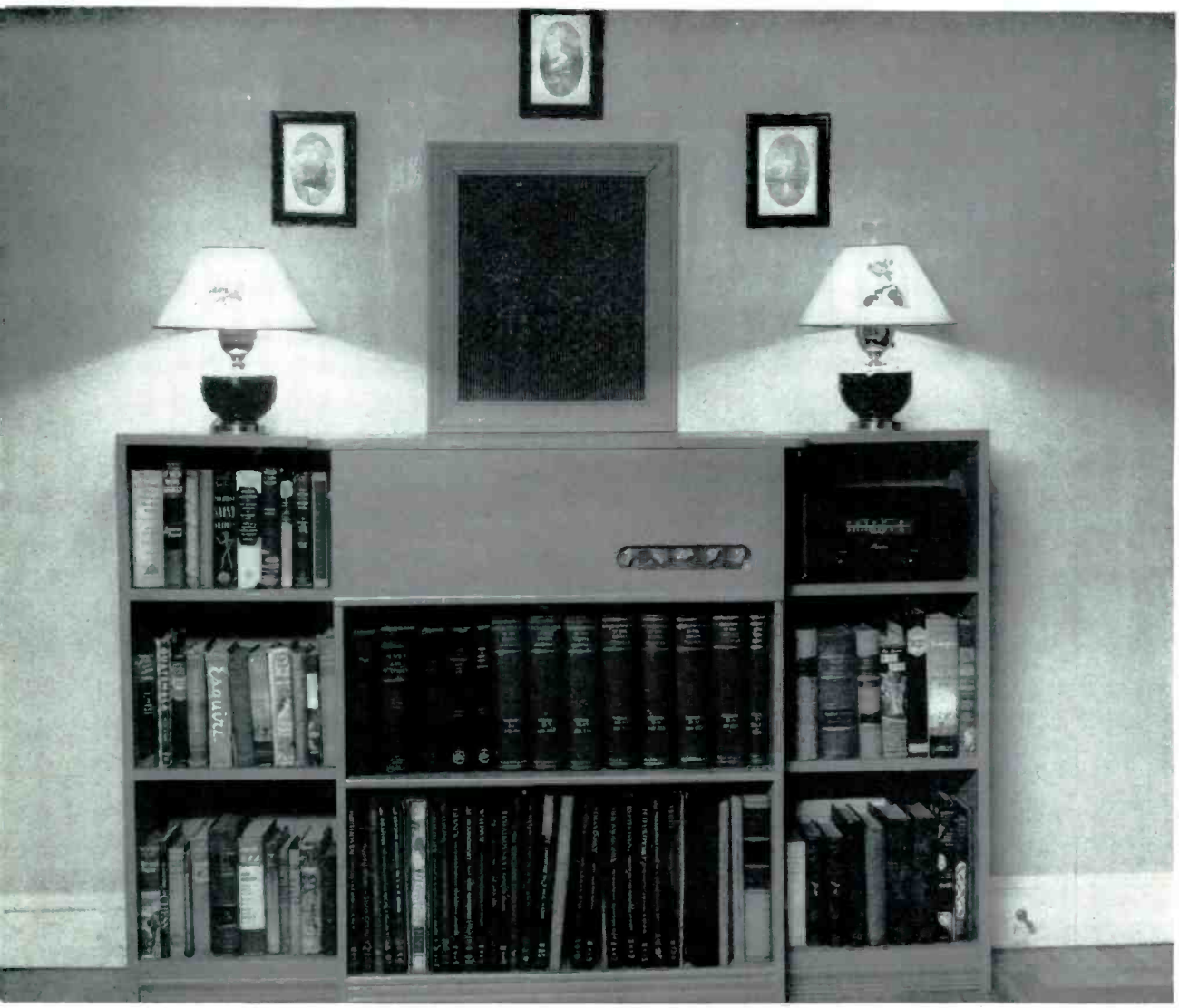
A conservative cabinet with a separate speaker enclosure

CUSTOM CABINET BY KELSEY

"He wants to hear the words in his Gilbert and Sullivan records

. . . and the triangle in the Brahms Fourth . . .

He wants intelligibility and effortless listening."



you can Budget your high-fidelity

"SIR: It was with great pleasure that I received the first issue of your splendid magazine. May I make the following requests and suggestions:

"First, many of us are sincerely interested in the best possible reproduction of recorded music. We have little technical knowledge, and precious little time to acquire it. Don't let your magazine get too technical!

"Second, a great many of us crave high-fidelity reproduction, but are seriously handicapped by this annoying thing called money. Find ways for us to achieve it at minimum cost!" *L. P. Resweber, Bastrop, La.*

INDEED yes, Mr. Resweber, you can have high-fidelity at moderate cost. For as little as $100, you can have highly enjoyable phonograph and radio reproduction. That amount can be your total and final cost.

Or, if you prefer to develop a high-fidelity system of optimum performance over a period of time, you can start in a small way now and add units to your system until the desired goal is reached. The method is simple: *budget your high-fidelity!*

Furthermore, you *can* make the installation yourself. If you can plug a bridge lamp into a wall outlet, you can plug together the few, simple components of your first system. Later — or if your plan is very elaborate, with many components — you may want to ask the help of a specialist whose job it is to make certain that you get the greatest possible satisfaction from an important, long-term investment.

We're writing this article for you, Mr. Resweber, because you have voiced a problem which has been echoed by so many of our readers who want improved record reproduction, but are scared off because they fear the technicalities, the cost, or both.

We repeat: there is nothing necessarily complicated nor expensive about selecting and assembling the components of an audio system.

Let's see just what these components are: ➡

these are the elements...

ALL the essential elements of a phonograph record reproducing system are shown in the photograph below. These are the *basic* elements. In every radio-phonograph combination the same elements recur. It does not matter if the system in question is a $39.95 portable phonograph or a superlative custom installation.

Anyone who has ever put a record on a phonograph is familiar with the two units at the left: the pickup[1] and the turntable. In the middle is the amplifier unit. Its function is exactly what its name implies: it amplifies the minute electric currents generated in the pickup by the motion of the needle so that they become strong enough to make the final unit, the speaker, do just that: speak!

This may be a ridiculously simplified description and explanation, but it is the skeleton on which every audio system is built, and all the technical terms and formulas in the engineering books cannot change it. True, there are myriad varieties of each type of equipment, but they are all brothers under the skin.

Actually, amplifiers are one category of equipment, with a distinct function. Speakers are a second category, with another function. Pickups, on the other hand, are a subcategory. The master category here might be called "input equipment", or units which feed into or drive the amplifier. In this classification are the familiar FM, AM, and TV tuners, which accomplish the basic purpose of picking up radio waves from broadcast stations, and transforming them into the electrical equivalents of sound. Other "input" equipment includes tape, wire, and disc recorders, and microphones.

Once equipment in the amplifier category, and in the speaker category, are available, a wide variety of other equipment in the "input" category can be used.

There are only four units in a phonograph system: pickup, turntable, amplifier and speaker.

What Equipment to Buy First

Given an understanding of these fundamental components of an audio system, the next questions are: 1) how does one go about getting acquainted with the varieties of equipment available; 2) how does one select the specific equipment; and 3) which components are bought first?

First, read John Conly's article in this issue. Let it be a warning: the hi-fi bug can be infectious (but highly enjoyable!). Let it also be a challenge, because, as he points out, a great deal of lasting satisfaction can be derived from a relatively small amount of money carefully spent. Further, the purchasing procedure which Conly recommends is a wise one to follow, whether the final cost is $100 or $1,000.

Second, send to some of the mail order radio jobbers for their catalogs and any other literature which they have on audio components. The addresses of the major ones are in HIGH-FIDELITY. If such catalogs are a new experience, they will be utterly confusing because of the variety of equipment available. Some of it will have nothing to do with audio; just skip it (for sanity's sake!). Other catalogs will be devoted exclusively to audio and will include much helpful information on the whole subject.

[1]The pickup illustrated is an Audak Polyphase. Amplifier is a Bell, and the speaker, a University model 6200 12-inch.

Third, *sit down and budget the installation!* Figure out how much can be spent now, and how much more over a period of time.

Almost any amount can be spent on hi-fi. An expenditure of $15 for a new pickup may effect a startling improvement in the performance of a factory-built radio-phono combination. $120 will buy the complete outfit pictured on the opposite page. Often, an experienced listener can suggest improvements in installations whose equipment costs (exclusive of cabinetry) exceed $1,000.

The question of which item to buy first — which one is the most important — is a subject of unending and inconclusive argument among inveterate audio hobbyists. In the final installation, balancing the units, so that all are of approximately equal quality and fidelity characteristics, is of prime importance. A cheap speaker can ruin the best amplifier, and a cheap pickup can make a thousand dollars' worth of amplifier and speaker equipment sound like a pre-war portable radio.

If there is existing equipment, and the budget is limited or must be spread out, it *may* be advisable to change 1) the pickup, 2) the speaker, and 3) the amplifier — in that order. If the existing speaker is 8 ins. or less in diameter, it may be wise to change the speaker first, then the pickup, and finally the amplifier.

If the installation is a completely new project, the possible approaches are numerous indeed. Two general statements may be helpful, and we shall make them, even though we fully expect at least 500 letters arguing the point: first, an amplifier is the heart of the system and it is unwise to skimp on this item. The detailed discussion below will be helpful in this connection. Second, at least three times the cost of the amplifier can be spent on speakers, turntables, and pickups before the high-fidelity characteristics of these units exceed those of the amplifier.

What this means is, roughly, that if $50 is spent for an amplifier, then by the time $150 more has been expended for pickup, turntable (or record changer), and speakers, then it will be time to think about acquiring a better amplifier. There are, of course, all sorts of individual circumstances and conditions which will entirely disprove the validity of the second "rule".

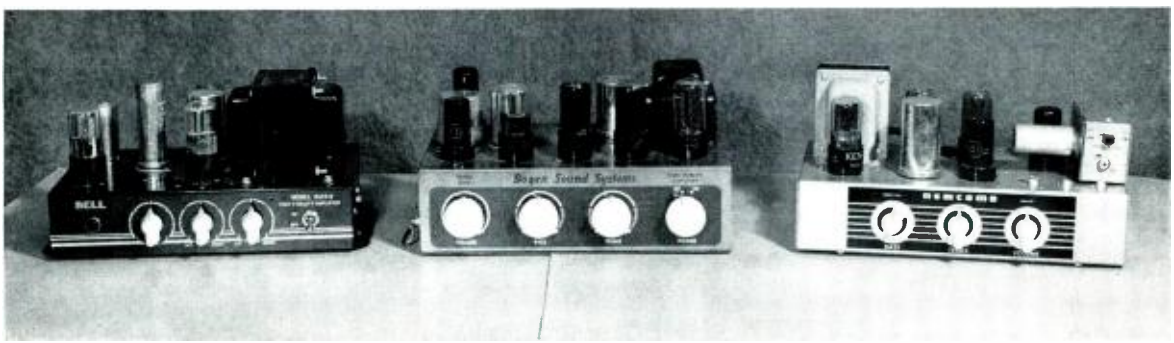
One of the most likely individual circumstances is that an FM or TV tuner will be wanted somewhere in the process. Such costs are not included in the "rule", nor are cabinetry costs.

...amplifiers

Making A Choice

The illustration on this page shows three typical, medium-priced amplifiers which we photographed side by side for purposes of comparison. There are dozens of other amplifiers in this price class; there are more than 100 amplifiers of all types available to the audiophile today! The price range is from less than $10 to somewhat over $300. Those photographed are all in the $50 class; they all meet minimum but adequate standards, and provide a reasonable degree of flexibility and adaptability. There are many, many more in this particular price category — and there is no absolute "best" from the point of view of sound reproduction characteristics.

The three on this page are manufactured by Bell, Bogen, and Newcomb — and they correspond roughly to Chevrolet, Ford, and Plymouth. All three are widely distributed and well-known. But just as Studebaker advertises that "Now there are *four* to look at", so too, there are other amplifiers in this class which should be examined and if possible — listened to before purchasing.



These three are typical examples of moderately-priced, good-quality amplifiers.

What are the features to look for or, better, to listen for, when purchasing a medium-priced amplifier? Certain technical specifications, provided by the manufacturer, are helpful but should not be final unless all such standards of measurement are known and their meaning well understood. Within the scope of this article, it is not possible nor wise to go into a detailed interpretation of these specifications; that is a subject for another article! However, here is what to look for: first, the ability of the amplifier to *amplify equally* a range of individual tones or frequencies. This is called the *flatness* of the amplifier response over a specified frequency range. Engineering and catalog specifications report amplifier response, for instance, as being

"from 40 to 12,000 cycles 3 db (or decibels)". As a rule of thumb, choose the amplifier with the widest frequency range *combined with* the lowest decibel figure. Frequency range alone is valueless. The plus or minus so many decibels figure indicates the amount of one type of distortion present within the specified frequency range.

Second: another type of distortion is specified as so many percent at full rated output. The lower the percent figure, the better.

Third: power output, which is an indication of the maximum volume of sound which a given amplifier will produce from a speaker. Without going into all the ifs, ands, and buts, minimum power requirements are approximately 5 watts for small rooms, 8 watts for medium-size rooms, and 20 watts or so for large rooms or high volume levels. Higher power output is of real advantage only if the amplifier is so well engineered that distortion does not increase.

Tone Controls

Tone controls are not absolutely essential, but they may be of so much usefulness that they are indicated here as a requirement. Their action is to increase or decrease the volume level of a *range* of frequencies. Whereas the volume control itself changes the loudness of the entire sound spectrum, the tone control affects only part of it. Bass control is usually operative *below* 1,000 cycles (roughly, two octaves above middle C on the piano); treble control is operative *above* 1,000 cycles. Some amplifiers (in the Crosley automobile class, to continue our simile) use a combined bass and treble control but, except under unusual circumstances, this is considered inadequate. Hence, a further specification for the moderate cost amplifier is that it incorporate *separate* bass and treble controls.

The degree of control or variation possible is frequently indicated in manufacturers' specifications in terms of decibels (db). A 6 db change represents a two-to-one increase or decrease. Thus the bass control on the Bell is stated to have a control range from minus 9 to plus 12 db at 100 cycles; the treble control range is from minus 18 to plus 9 db at 10,000 cycles.

For more information about the operation of tone controls, see the article *Audio Nerve Center* in the previous issue of HIGH-FIDELITY.

Input Equipment

It was mentioned earlier that there were several types of equipment in the input category, including phonograph pickups, FM, AM, and TV tuners, microphones, and recording equipment. Hence the flexibility of an amplifier is greatly increased if provision is made for several different pieces of equipment. As a matter of fact, arrangement of input connections is one of the variations between amplifiers in any price class, but particularly those in the medium cost bracket. So that the differences may be entirely clear, close-up pictures were taken of the three amplifiers used as typical cases for this article.

In general, there are two sub-species in the input category of equipment: phonograph pickups, and radio tuners. The sub-species pickups can be further divided into two major classifications: crystal and magnetic. Practically every factory-built radio-phonograph sold today uses a crystal pickup. They are less expensive, and they can be used with very simple amplifier circuits. Most record changers are equipped with them, unless otherwise specified. The better types deliver excellent performance. The hi-fi fraternity, as a whole, favors the magnetic or reluctance type of pickup.

There are several different varieties of magnetic pickup (confusingly enough, some are not magnetic in principle at all!) but, for the purposes of this discussion, we shall lump them all together. The point that must be brought out is that the output of a magnetic cartridge is far less than that of a crystal cartridge. Therefore, if an amplifier is to accommodate both types, it must have either separate input connections for a *built-in* preamplifier, or a *separate* preamplifier unit which can be added when a magnetic cartridge is used. The three amplifiers show both arrangements. The Bell, for instance, has an input plug marked Radio, for a tuner; another marked Xtal for a crystal pickup, and two marked Mag for two varieties of magnetic pickups. The Newcomb, on the other hand, provides three identical inputs, and offers a separate plug-in unit which can be added to the amplifier when a magnetic cartridge is used.

Preamplifiers can be purchased as entirely separate and self-powered units, so that a magnetic pickup can be used on an existing installation originally designed for a crystal. This is the $15 first step, mentioned at the very beginning of this article.

Amplifier Output

Just as amplifiers have inputs, they also have outputs! The output terminals are connected, very simply, to the loudspeaker. There are no problems here at all. Speakers are rated in various ways, which will be discussed in the section on loudspeakers, but the only characteristics which concern the amplifier are voice coil impedance (more frequently called simply impedance) and power handling capacity. The power handling capacity of the speaker must be equal to or greater than that of the amplifier; thus a speaker rated 4 watts should not be used with an amplifier rated at 10 watts, unless great care is used to keep the volume control turned down at all times.

The impedance characteristic is simple: 98% of the speakers sold today have a voice coil impedance of approximately 4, 8, or 16 ohms. It will be noted that on our three typical amplifiers, separate terminals are provided for each of these impedances. It is important that amplifier output impedance and speaker impedance match fairly closely, so that if an amplifier provides only one output impedance, only a speaker of that impedance should be used with it.

Considerable space has been devoted so far to a discussion and pictorialization of amplifiers because they are, as has been said, the heart of high-fidelity systems; all the other equipment revolves around them.

The close-up photographs on this page show the terminal arrangements of our three typical amplifiers. Although the physical arrangements differ, all three units provide several input connections and output impedances to match a variety of speakers.

The Newcomb amplifier, below, has all connections on the top of the chassis. At bottom right are three input connectors: all are identical in wiring and can be used interchangeably.

To the right and above the input connectors is a preamplifier socket. Newcomb features a plug-in preamp unit (insert in photograph) which can be purchased separately, thus effecting an economy for the person who has only a crystal pickup. Plug-in unit embodies a scratch filter for use with old or worn phonograph records.

Output connections are made through another plug-in socket, located at the rear.

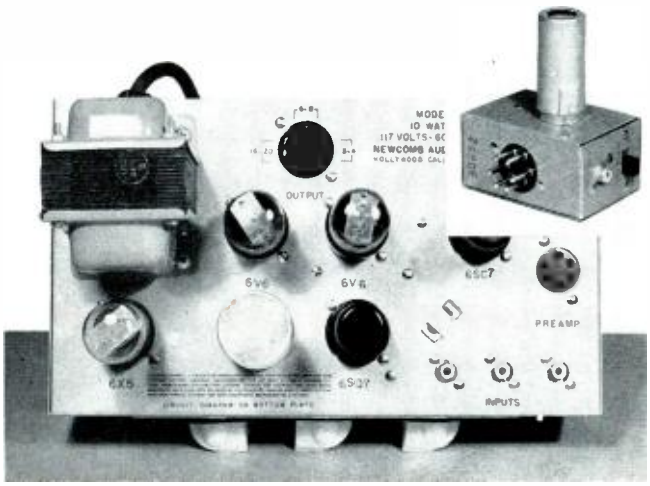
All connections to the Bell amplifier, above, are made on the back of the chassis. At the left, note the outlet marked "for motor". It provides 110 volts to operate tuners, turntables, etc., and is controlled by the amplifier switch on the front.

Next are the speaker connections. As with both the other amplifiers illustrated, a range of output impedances is provided. Screw terminals are used.

In the right hand corner are the four input connectors. To compensate for difference between various makes of magnetic pickups, two "Mag" plugs are used, Mag 1 providing a slightly higher degree of amplification than Mag. 2.

For improved performance with crystal cartridges, a slight compensation should be made for their reproducing characteristics; Bell incorporates this compensation by means of a separate input terminal.

The "Radio" plug is for connections from FM, AM, or TV tuners.



The Bogen amplifier, lower right, provides speaker or output connections similar to the Bell, as well as a switched AC outlet for accessory equipment.

Input connections are unusual. As with Bell, provision is made for two types of magnetic pickups, but the output of the preamplifier is connected to the input of the amplifier proper by means of a short piece of shielded cable. This precludes any possibility of hum pickup should both tuner and pickup be operated simultaneously, by permitting the main amplifier input to be switched from a remote point.

Advantages of Better Equipment

The question logically arises: what more does one get by paying $150 or $300 for an amplifier?

The differences are largely electrical — and are matters of degree. The mechanical features will be much the same: there will be several inputs (but these will be switched; see the discussion in connection with the Bogen amplifier on page 21) and there will be the same variety of output impedances to match different speakers. It is very likely that the control knobs will be put into a separate box which may be operated at a distance from the amplifier. This facilitates adjustment of volume and tone from the listening position, instead of at the amplifier itself.

CONNECTING THE AMPLIFIER

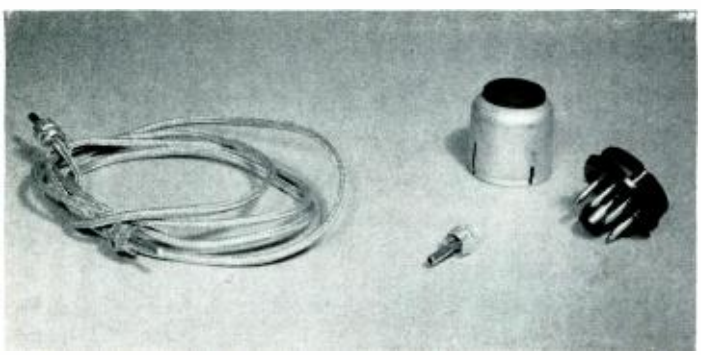
In a typical phonograph reproducing system, only two connections are necessary! Both are very simple: one is from the amplifier output to the speaker, the other is from the pickup to the amplifier input.

Connect the speaker first, using ordinary lamp wire or, better and neater, some 300-ohm twin lead, such as is used for TV and FM antenna installation. Solder the wires at one end to the two terminals on the speaker; attach the other ends of the wire to the screw terminals on the amplifier. Some amplifiers, such as the Newcomb, require a special input plug which must be soldered to the amplifier end of the speaker wire.

Second, connect the pickup to the correct amplifier input terminal. Some pickups come with a wire long enough to reach the amplifier, and with the standard RMA plug already soldered on the wire. If such is not the case, get a piece of *shielded* wire, as illustrated below, of the necessary length — but not over 6 to 8 ft. at the most — and attach one end to the wire from the pickup; solder an RMA plug to the other end; plug in!

If soldering is too much of a complication, the neighborhood radio service man can supply the necessary wire and do whatever soldering is needed very easily and inexpensively.

Finally, plug the amplifier into an AC outlet. Do not turn on the amplifier without having the speaker connected first. Then plug the turntable motor cord either into another AC outlet, or into the amplifier if such a connection is provided.



The illustration above shows a coiled piece of shielded wire, with an RMA plug soldered to either end, and an RMA plug by itself. This is the standard input connector used for almost every amplifier manufactured. At the right are the two parts of the output plug used by Newcomb.

As a matter of fact, chairside controls are available for some of the low-cost equipment. Bell, for one, makes such a unit available at a small extra charge.

The electrical, or internal differences are considerable and of greater importance. It's the difference between a Cadillac and a Chevrolet; the essentials are all in the Chevrolet, but a whole series of differences, each minor in itself, perhaps, add up to a Cadillac. It is the same with the higher-priced amplifiers. The one big difference is that through the use of larger and better designed components, as well as through other internal refinements, the various causes of distortion are reduced.

Importance of Reducing Distortion

For instance, the "total distortion" in a low-cost amplifier is usually stated to be not more than 3% at full rated output, and the output is — again, usually — somewhere around 10 watts. Now, distortion will jump up rapidly with increase in power output *unless* the quality of the components and the engineering design of the amplifier are improved. Thus, more or less the same components could be used to deliver 20 watts — but the distortion might be 10% instead of 3%. Yet in the top-price bracket, 1% distortion at 10 watts is considered high. One well-known amplifier holds distortion to 1/10th of 1% at 10 watts; another has less than 1% at 50 watts!

Just what difference does this perfection make to the listener? It's as hard to answer that question specifically as it is to get down in black and white, in a few words, the difference between the Chevrolet and the Cadillac.

Let's assume that a symphony orchestra is being broadcast over an FM station, and that the engineers at the broadcasting station do not fiddle around with *their* tone controls, as they often do, alas! Then a high-fidelity system will provide in the listener's living room an almost exact reproduction of the original music. The more exact the reproduction, the higher the fidelity. If this program is heard on an average factory-built set, the listener will get up after a very short while and turn up the bass tone control, and turn down the treble control. This adjustment is felt necessary because the receiver is deficient in the bass, and contains enough distortion to make the high notes unpleasant to listen to. On the other hand, if the listener enjoys live music, and has a high-fidelity system, there will be no inclination to alter the reproduction by adjusting the tone controls.

Although distortion can be, and often is, present *throughout* the frequency spectrum, its principal effect on the listener is a feeling of unpleasant high notes and the desire therefore to turn down the treble control.

Thus the value of lower distortion found in higher-price amplifiers lies, in essence, in more enjoyable listening . . . which is the result of greater realism, truer fidelity to the original. To make one more comparison, it is the difference between a Stradivarius and a $99.50 Gluckenheimer Special.

For these reasons, it is advisable to budget as much as possible for the amplifier, bearing in mind, however, the three-to-one relationship mentioned earlier.

...loudspeakers

"Speak the speech, I pray you, as I pronounced it to you,

Trippingly on the tongue . . ."

THE identity of the first audio-phile has been lost in the limbo of history, but certainly the quotation above bears witness to the fact that Shakespeare was well aware of high-fidelity reproduction! Even today, Hamlet's words recapitulate the specific goal of hi-fi enthusiasts: to "speak the speech . . . as I pronounced it": to reproduce the sound as it was in the original.

In this process of sound reproduction, all the work and all the equipment can amount to nothing unless the final element — the speaker — is "right" for the system.

Not only are there more varieties of speakers than any other single audio component, but the terminology of the industry is ambiguous and loose, specifications of usefulness to the audio-phile are few and far between, sizes range from 2-inch units to theatre horns measured in feet, and prices, even for home units, run from a couple of dollars for a small replacement unit to almost a thousand for a speaker system!

What is a Loudspeaker?

In principle, all speakers perform the same operation: they transform electrical energy into mechanical motion. The electrical energy, from an amplifier output, for instance, energizes a coil which is attached to a diaphragm or cone. The to-and-fro motion of the cone agitates the air, the moving air strikes our eardrums, and we hear sound. Now the cone must complete a to-and-fro cycle many times each second: 32 times a second for a very low organ pedal note, 256 times for middle C on the piano, over 4,000 times for the highest note on the piano, and up to 16,000 times a second for violin harmonics or overtones.

Although this may sound somewhat complicated, but not insurmountable, it is only part of the speaker designer's

Period furniture, such as this corner cabinet, can be easily adapted to house a loudspeaker.

problem. For the cone must move back and forth not only at the same rate as the frequency of the sound, but also in proportion to the loudness of the sound. And to make matters still more complicated, the total mass or volume of air which is stirred up must vary inversely to the frequency! The last requirement of a speaker is the most serious one, and one which needs understanding.

For a moment, let's substitute a 2-in. wide slat of wood for a 2-in. speaker cone, and a tubful of water for a roomful of air. If we move the slat back and forth in the water very, very fast we'll probably flood the bathroom floor and soak ourselves besides. But if we take the same slat, and move it back and forth very, very *slowly*, we'll produce barely a ripple. To produce as much agitation in the tub at slow speed as we did when we moved the slat rapidly, we would have to use a much wider plank.

The same is true of a speaker: the 2-in. cone produces high-frequency sound, say 4,000 cycles, very efficiently, but will produce no sound at all at low or bass frequencies. A big cone will be efficient at these low frequencies, but it is just about impossible to make it move back and forth some 10,000 times a second for a high frequency.

Hence, we come to what is almost axiomatic: every speaker is the wrong size! The speaker manufacturer is forced to compromise, forced to produce a unit which is as efficient as possible over as wide a range of frequencies as possible. He can, and does, produce several sizes and types, each particularly efficient in its proper segment of the audible frequency spectrum, and the hi-fi enthusiast soon takes advantage of the improved audio reproduction made possible by the use of several speakers.

On the other hand, factory-built sets are limited by economics to one speaker, usually not too large, because of the relatively small amount of space available even in an average console — let alone in a table model radio.

Types of Speakers

We would like to paraphrase Gertrude Stein and say that a speaker is a speaker is a speaker, etc., but though it might be accurate, it would not be helpful. The audio-phile reads about cone speakers, diaphragm speakers, horn speakers, coaxial speakers, bass reflex speakers, corner speakers, and a whole raft of other types. The confusion in terminology arises from the fact that it is customary, if inaccurate, to consider not only the speaker itself but also the impedimenta to which it is attached, as a unit. Thus a bass reflex speaker is, in reality, a speaker operating in a bass reflex type of enclosure.

The distinction between *cone* and *diaphragm* speakers is one of size and application. Cone speakers are readily available in sizes from 2 ins. to 18 ins. in nominal diameter. This is the type with which most people are familiar; the two at the left in the illustration, opposite, are cone units. Diaphragm units are usually small, with flat diaphragms 1 inch or less in diameter, and the speaker unit itself is sometimes called a driver. Such speakers are widely used for reproduction of high-frequency sounds and the speaker (or driver) unit is usually attached to a horn of some sort, as shown at the right in the illustration.

Horns, Enclosures, and Baffles

We have just used the word "horn" for the second time in this article. We have also talked about the impedimenta to which speakers are attached, and suggested that worthwhile specifications on speakers are few and far between. The three are rather closely related, so it would be well to clarify what we are talking about.

Specifications for speakers, other than power handling capacity, are seldom given, for the reason that in actual practice they would mean very little. Because a manufacturer cannot control the type of enclosure in which his unit will be mounted, he cannot give specifications except on the speaker "in the raw". But speakers are rarely used without some sort of a mounting or enclosure or horn — and that "impedimenta" as we called it, bears a very important relationship to the characteristics of the sound which the speaker reproduces . . . just as the reed in an alto clarinet produces one type of sound, while more or less the same reed in a bassoon produces an entirely different sound. Far more important to the audio-phile than specifications is the understanding that a) the larger the diameter of the cone, the better it will reproduce bass notes, b) and conversely, the smaller the cone, the better it will handle the high frequencies, and c) the best way to judge the quality of a speaker is to *hear it* in its enclosure.

Aside from their decorative function, enclosures serve three purposes. First, and simplest, they effect a separation between the sound emanating from the back of the speaker and that which comes from the front. The "back radiation" from a speaker cone can, at certain frequencies and under certain conditions, cancel the sound from the front, with the overall result of either no sound or a definite reduction in sound. In its simplest form, an enclosure becomes a "baffle" which may be just a large piece of wood with a speaker hole cut into it. The size of the baffle determines the frequency of the sounds which will be affected by back radiation; the bigger the baffle, the lower the frequency. At its optimum, a baffle becomes the wall of a room so that there is no possibility of the sound from the back of the speaker interacting with that from the front.

Second, enclosures can be designed to compensate for the sound reproducing characteristics of the speaker itself. Thus, if one thumps on a box, sound of a specific frequency or pitch, depending on the size and shape of the box, is produced. If a speaker is mounted in such a box, then every time the frequency being reproduced by the speaker coincides with the fundamental resonant frequency or pitch of the box, the overall volume of sound at that frequency will be amplified. This characteristic of enclosures is used to complement those of the speaker. In poorly designed enclosures, the result is known euphoniously as "beer barrel boom" or "juke-box bass".

Third, enclosures can be designed to reinforce more or less evenly the entire range of frequencies carried by a speaker. Technically, such an enclosure is better known as a horn, and it effectively amplifies the sound produced by the diaphragm of the speaker. The horn may be very small, as in the case of the unit illustrated on page 25, or, as in theatre horns, it may be many feet across.

Because enclosures can do so much to make or break the tone quality of a speaker, their design is extremely important and is often very complex. For further information on enclosures, see page 27.

Woofers and Tweeters

As was mentioned before, the high-fidelity enthusiast can very easily use two or more speakers, each operating efficiently in the particular range of frequencies for which it was designed. The overall result will be a marked improvement, provided, of course, that the amplifier and other equipment preceding the speaker are of sufficiently good quality to utilize to advantage the wider range of a two- or three-speaker system.

The use of two speakers to cover the audible frequencies led to the characterization of these speakers as "woofers" and "tweeters". The former are units designed for maximum efficiency in the bass range, and the latter operate best (and often, only) in the treble range.

In the illustration on this page, the speaker at the left is a GE-1201-D which has a nominal cone diameter of 12 ins. and is used as an all-around speaker. The one in the middle is a 15-in. Jensen, designed specifically as a woofer. At the right is a University model 4409, used solely as a tweeter. The horn on this unit not only amplifies the sound produced by the very small diaphragm, but projects and disperses it. It is a characteristic of high frequency sounds that they tend to travel straight forward from their source. Hence, nearly all tweeters are equipped with horns to spread the treble sounds throughout the listening area. Low frequency notes, on the other hand, tend to disperse in all directions.

Coaxial Speakers

When a woofer and a tweeter are mounted together *on the same axis*, they become a "coaxial" speaker. Such units provide excellent frequency characteristics, and are available from a number of manufacturers. The speaker shown in the cabinet on page 23 is a coaxial unit; in essence, it is two speakers mounted together, one of which carries the bass frequencies, the other, the highs.

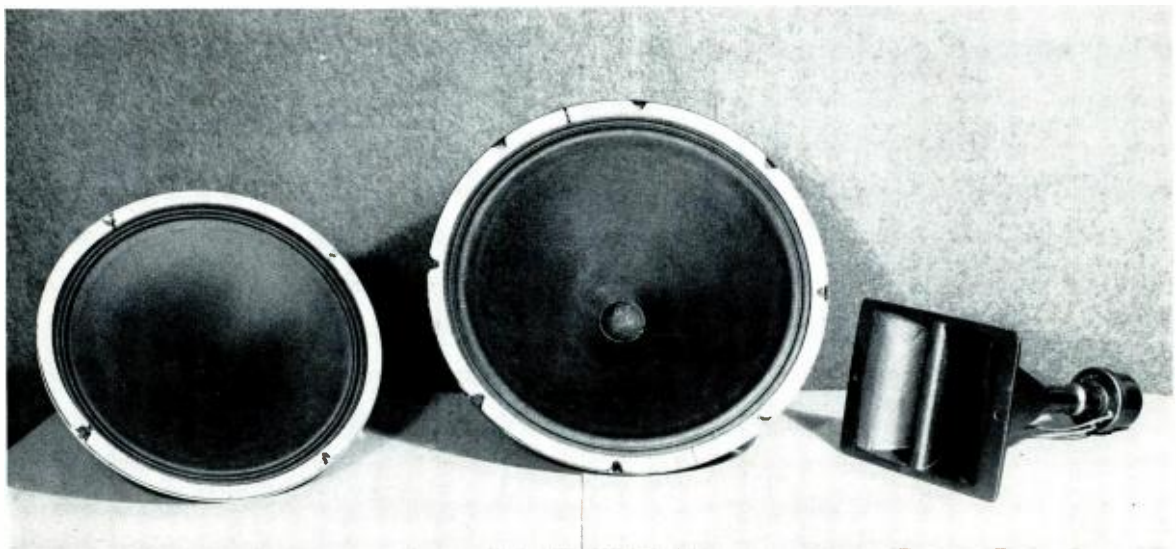
As a compromise between the costliness of two separate speakers, such as a separate woofer and tweeter, or a coaxial unit, and the rather limited high frequency response of a simple cone speaker, several manufacturers are producing units which are, in essence, *two cones* attached to *one* magnet. By careful design, it is thus possible to make a considerable improvement over single-cone units, insofar as response to and dispersion of high frequencies are concerned.

How to Select a Speaker

It may have been thought that this discussion of speakers and their enclosures was unnecessary, and that a few simple suggestions on selecting them were all that might be needed. Yet, we felt it advisable to go into the problems of loudspeakers in some detail because a poor speaker can ruin the best amplifier, and a poor enclosure can ruin the best speaker. Also, understanding the outlines of the speaker problem will make more bearable our instructions on how to buy a speaker, to wit: *go and listen to it!*

If a speaker must be purchased unheard, it would be wise to decide first what type of speaker will best meet requirements, and then figure that, for a given type and size, price and quality correlate accurately enough. One warning, however: do not become confused between the speaker itself, and the speaker plus its enclosure. Particularly in the top price brackets, the price is likely to include

Speakers are like human voices. Only a rare Yma Sumac has a four octave range; better results are obtained if several voices — or speakers — are used. Below, a 12-in. unit represents the tenor voice; a 15-in. woofer, the basso profundo, and a small tweeter, the soprano.



the enclosure, which has been specifically designed and carefully engineered for a particular speaker or group of speakers.

Which Speaker to Buy First

It has been suggested that a high-fidelity system should be built around the amplifier, and a rule of thumb was laid down: roughly three times the cost of the amplifier can be spent for pickup, turntable (or changer), and speaker system, before the fidelity characteristics of these components exceed that of the amplifier.

After the amplifier has been selected, one should determine tentatively the pickup and turntable (or record changer) combination; all the amount remaining should be devoted to the speaker system. This procedure is recommended because, although as much as possible should be spent on the speaker system, the pickup should not be slighted.

If the installation is to be made on a once-and-for-all basis and the budget is large, include the enclosure as part of the speaker cost. The reason is that, given a relatively large amount of money available for a speaker, it will be possible to buy a top quality unit — and such a unit deserves an enclosure designed specifically to get the best results from that speaker.

If the budget is small, it would be wise to spend all available funds for a good speaker, with the idea in mind of saving up enough later for the enclosure.

It should be emphasized that there is very wide flexibility in speaker enclosures. A speaker can be installed in an elaborate corner enclosure, or it can be installed in a relatively simple bass reflex cabinet. It can be mounted in a wall between rooms, in the door of a large closet, or even — if the FAS system described in the previous issue of HIGH-FIDELITY is used — in the floor!

There is still further flexibility in the matter of enclosure if it can be built by a local cabinet maker, or even in the cellar workshop. Designs are given on subsequent pages which can be followed by the home woodworker, or by the cabinet maker.

If the installation is planned on a basis of gradual expansion, then spend all the money available now for the best speaker possible; cut a hole the right size in a large piece of ¾-in. plywood, and set the whole thing up in the corner of a room. A more adequate enclosure can come later.

In selecting the particular speaker type or types for an installation, remember that two speakers are better than one, and four may be better than two. This means that the eventual goal should be a woofer-tweeter combination, which can be either two separate units, or a single coaxial job. Which it should be, is a matter of heated debate. The coaxial type has the advantage of single-hole mounting and, more important, the two units are specifically designed to operate together.

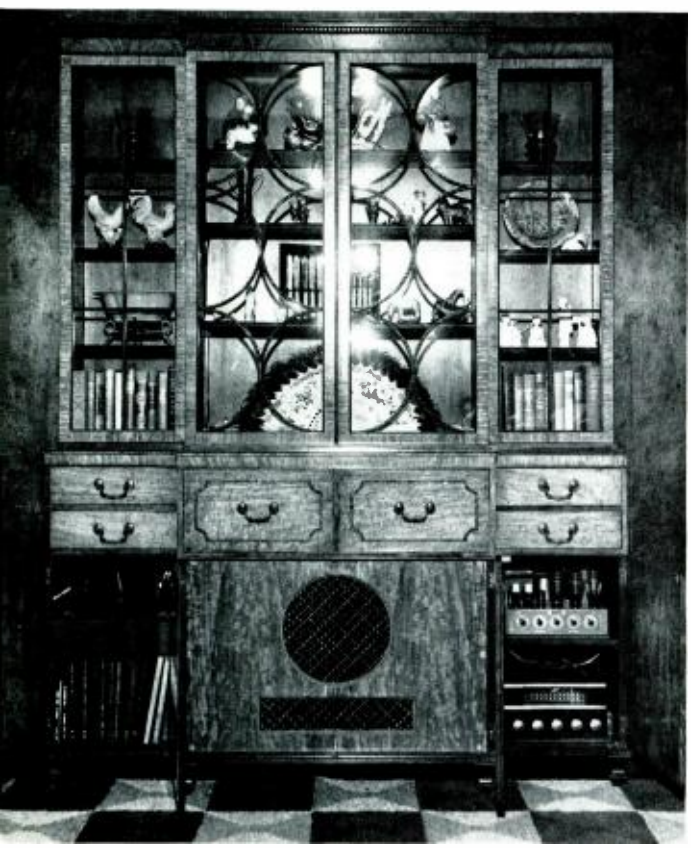
On the other hand, separate woofer-tweeter units have a major financial advantage since they can be purchased separately; also a special enclosure for the woofer can be built or purchased to improve bass response, and the tweeter mounted more or less casually. Further, should the plan envision a third speaker, it can be fitted in more easily to a setup employing separate woofer-tweeter units.

If a coaxial unit is indicated, get the best that can be afforded, and mount it in an enclosure which follows the manufacturer's recommendations.

If a two-unit system is decided upon, the first speaker should be a 15-in. woofer. The second will be a tweeter. It should be noted, however, that a 15-in. woofer requires a larger cabinet than a 12-in. unit; this may be a factor — and the 12-in. one will provide eminently satisfactory results if correctly enclosed.

A three-unit system is likely to include a 15-in. woofer for the extreme lows, a 12 to 8-in. unit for the middle range, plus a tweeter for the highs. In this connection, the cabinet designs on the following pages will be helpful; several designs for multiple speaker enclosures are suggested.

If the budget is small, and only one speaker can be purchased, then a 12-in. dual cone type is about the best all-purpose, moderate cost unit available.



As on page 23, an existing piece of furniture has been used to house the speaker. In this case, all the equipment has been built into this one unit. Equipment includes a Garrard record changer, Altec amplifier and coaxial speaker, Radio Craftsman FM-AM tuner. Installation by Bluff City, Memphis, Tenn.

...enclosures

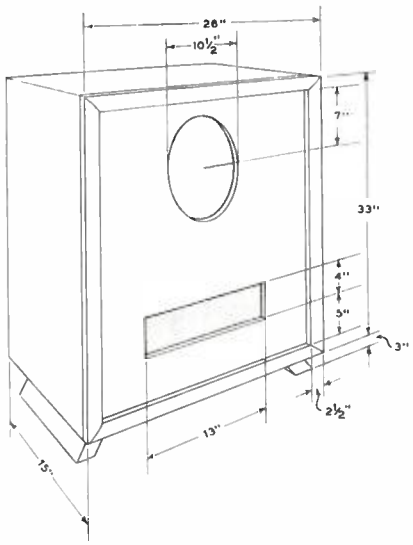
ENCLOSURES for loudspeakers are indeed legion. A speaker can be installed in existing furniture, in prefabricated cabinets, in made-to-order enclosures, in bookcases, on doors, or in walls between rooms. Almost anywhere and in any manner.

If there are several speakers in a system, each can be mounted and enclosed individually, or they can all be assembled into one unit.

On this and the following pages is a series of designs developed by University, specifically for their speakers. Provision is made for from one to five speakers, and the arrangements are representative of cabinet-type enclosures. In this and the preceding issue of HIGH-FIDELITY are many other suggestions on what to do with speakers.

Speaker enclosures can be divided into four fundamental types. First is the simple baffle, whose function is to keep the sound from the back of the speaker from interfering with sound from the front. A baffle may be a plain large piece of heavy plywood, or it may take the form of the wall between two rooms. The essential point in a simple baffle is that the lower the frequency carried by the speaker, the larger the baffle should be.

At the frequency of bottom A on the piano, a baffle 20 ft. on each side would be needed to keep the back radiation of the speaker from affecting the front radiation. At an octave higher, 10 ft. across would be required.

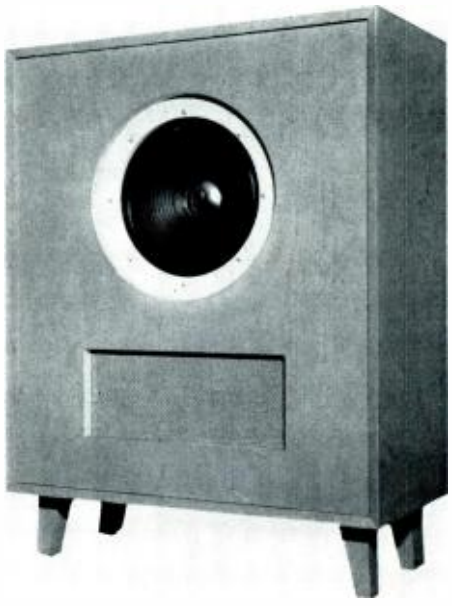


This totally enclosed cabinet is a bass reflex type designed to work with a single 12-in. speaker, which may be either a woofer, with a tweeter mounted outside the cabinet, a dual-cone type, or a small coaxial. Using a speaker larger than 12 ins. would require changes in the dimensions of the cabinet.

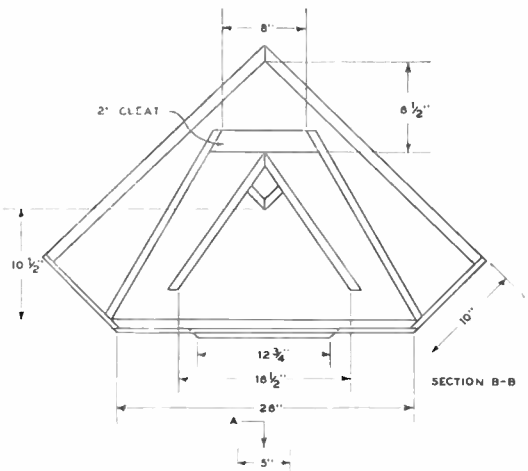
The second type is the fully enclosed cabinet — a box in which there are no openings except for the speaker. As with the baffle, the size necessary depends on the frequencies carried by the speaker. A low frequency woofer may require a fully-enclosed cabinet having 10 cubic feet of enclosed volume; a speaker limited to middle and high frequencies, as in multiple speaker systems, will require only 2½ to 3 cubic feet. In this connection, speaker manufacturers' instructions should be followed closely.

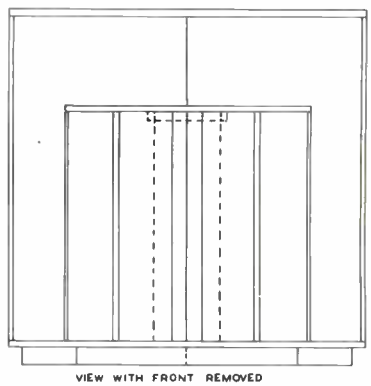
The third type is similar to the fully enclosed, except that a "port" or opening, usually in the front panel, is added to the speaker opening. Design of such an enclosure, commonly called bass reflex, is a technical job, and manufacturer's specifications should be followed exactly. Bass reflex cabinets are not complicated to build, if proper dimensions are known, but they should be used with specified speakers because they are designed to compensate for the characteristics of particular speaker types.

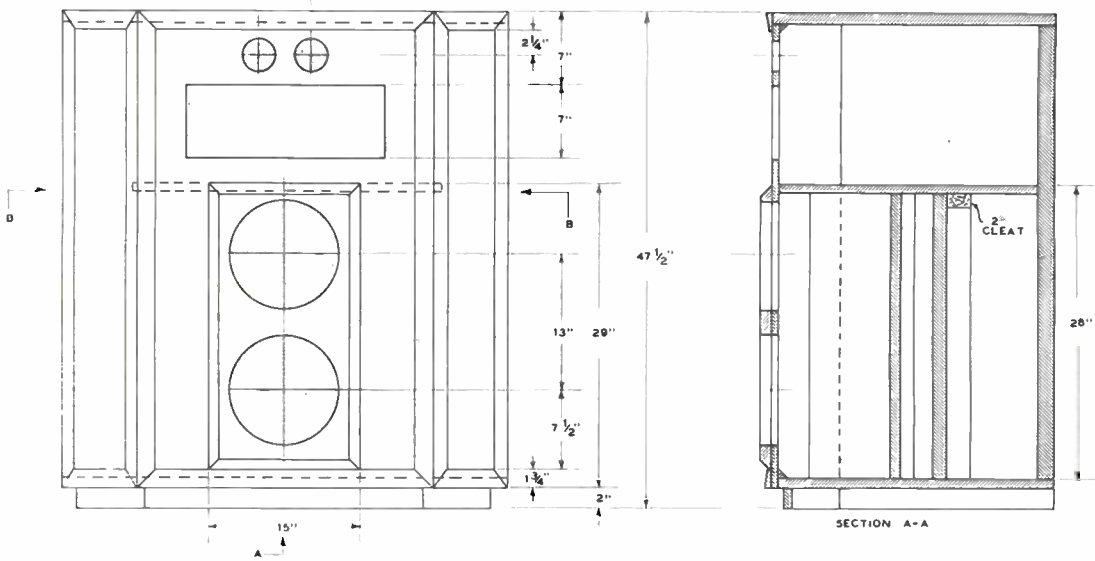
The fourth type is the corner cabinet. These may be simple in design, and shaped to fit a corner primarily because corners are good locations for speakers. In fact, sound output of very low frequencies can often be increased very considerably just by moving the speaker cabinet into a corner. On the other hand, corner enclosures may be very complex affairs designed to produce optimum results from a specific set of speakers. The Klipschorn is typical of this class.



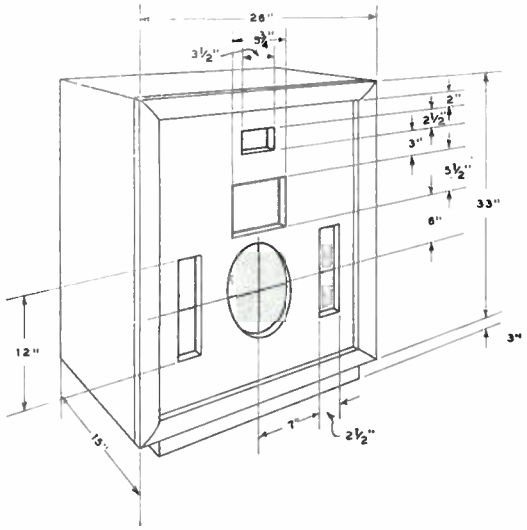
This corner-type enclosure is designed to accommodate five speakers. Two 12-in. units are used in parallel as woofers for improved bass response. A horn speaker carries the middle frequencies, and a dual tweeter reproduces the highs. The bass section of the enclosure is designed to utilize the sound from the back of the two cones to reinforce front radiation. Note that the enclosure is divided at B-B by a solid shelf. Thus the lower half of this design could be used alone for bass reproduction should another arrangement or location for the middle and high speakers be desired.





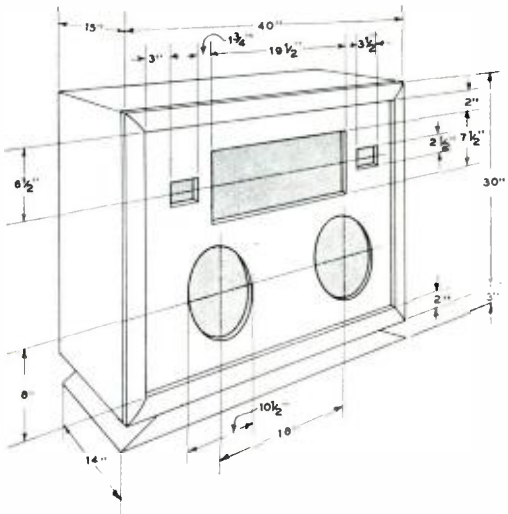


The cabinet at the right and below is fundamentally a bass reflex type, with the addition of large and small tweeters for optimum high-frequency response. Note that two small ports are used, instead of one large one as in the cabinet shown on page 27.



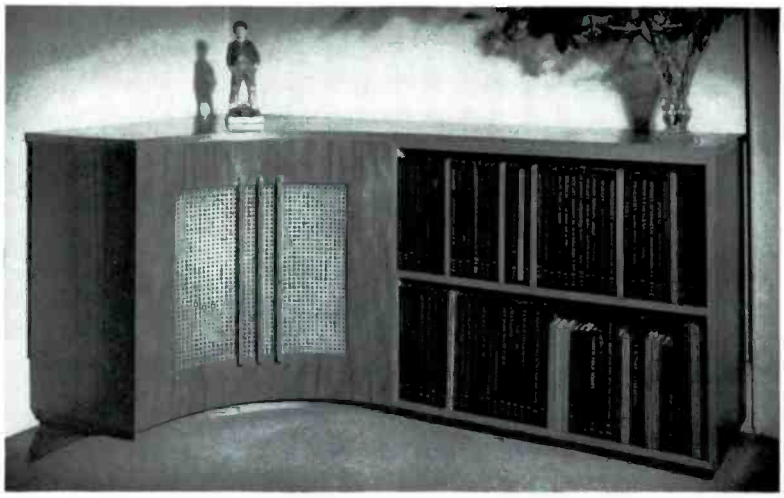
Note the knobs on the sides of the two cabinets on this page. These control the volume of sound from each speaker, so that they can be balanced over the entire frequency range.

Below and right is a five-speaker enclosure of the fully enclosed type. Compare this with the corner arrangement on page 28. Although the corner speaker is considerably more complicated to construct, it will give better bass response.



A single cabinet houses all high-fidelity components: FM tuner, wide-range speaker, and record changer.

This excellent example of functional styling provides a dual-purpose speaker cabinet facing the listening area, with a second chairside cabinet containing record playing equipment, tuner, and amplifier controls.



cabinetry...

When the components of a high-fidelity system have been assembled — the pickup, turntable, amplifier, and speakers — the final question is: where to put them?

There are so many answers and so many possibilities that only a few suggestions are pictured on these pages. Cabinetry is often classified into two types: built-in and built-out. Yet there is no reason why both types should not be used together, as in the case of a chair-side cabinet for the amplifier, changer, and other control equipment, with the speaker built into the wall.

There are only two important points to watch for when the final installation is being made. First, adequate ventilation should be provided in the cabinet which houses the amplifier. It is a good idea to put a thermometer into the compartment. If, after an hour of operation, the temperature is much more than 10° above that of the room itself, then more ventilation is indicated.

The second important point is correct design of the cabinet for the speaker. Design of enclosures has been discussed on preceding pages and, no matter how great the temptation to alter design for the sake of beauty, correct design must come first.

Actually, there are so many different ways in which to design enclosures for a speaker system that attractiveness and convenience need not be sacrificed. This is amply demonstrated by the photographs on these two pages of installations designed by Weingarten in Los Angeles. These are all custom built, it is true, but on preceding pages were examples of the use of existing pieces of furniture.

Elsewhere in this issue, as well as in the preceding one, are many more answers to the question of what to do with the components of an audio system. One of the greatest advantages of custom installations such as we have been discussing is that they can be eminently pleasing to the eye as well as to the ear.

Building a system in a wall makes it neat and unobtrusive. When the doors above are closed, only the speaker grille shows.

Two very simple units house a complete radio-phonograph custom installation, providing attractiveness to the ear and to the eye. Existing cabinets and bookcases can be used, or new ones can be designed for individual pieces of equipment.

pickups...

PHONOGRAPH pickups fall into two major classifications: crystal and magnetic. Crystal units are very widely used on factory-built equipment because they are relatively inexpensive, require no special equipment or complicated circuitry in the amplifier, and have response characteristics which match those of the amplifier and speaker with which they are normally used.

Crystal pickups are available with a wide range of response characteristics. The more expensive ones give excellent results and are supplied as standard equipment on many record changers for custom installation.

"Magnetic" is something of a misnomer for the second classification, since some of the units are not magnetic. However, it is convenient to lump all non-crystal cartridges into this second classification because of one characteristic which they have in common: they require additional amplification before being attached to the average audio amplifier. This was discussed in detail in the section on amplifiers.

The hi-fi fraternity is thoroughly enamored of magnetic pickups. If the response characteristics of the pickup are properly balanced by a carefully designed preamplifier, the overall frequency range usually exceeds that of the average crystal unit.

The final choice of pickup will depend largely on the budget. It should also depend on a hearing test if possible. It is also important to make sure that the pickup and preamplifier match each other.

Because of their wider frequency response range, the magnetics tend to be more brilliant in sound. With certain types of records, which incorporate a large amount of preemphasis, or treble boost, into the record itself, this brilliancy may become annoying and call for a compensating device (record compensator, in the catalogs). Magnetic pickup manufacturers supply instructions for such compensation, and the higher-priced amplifiers frequently provide such a control.

Pickup *arms* fall into two general groups: low cost ones which usually come complete with a crystal cartridge, and the more expensive ones which can be used with various magnetic cartridges. In the more expensive arms, better design in the matter of weight distribution and precision bearings will reduce record wear and certain forms of distortion. Generally speaking, the choice of a pickup arm depends, in the main, on the amount of money to be spent and the type of cartridge to be employed.

turntables...

THE question of what turntable to buy is a fairly simple one. The first decision must be: shall it be a turntable or a record changer? The answer will depend almost entirely on the type of record which will be used most. If 78 rpm records predominate, then the answer is almost certain to be a changer. The number of different makes of changer can be counted on the fingers of one hand, so the final choice of which one will be determined by the budget. It should be pointed out that certain changers accept only certain types of pickup cartridges; if the cartridge has been decided upon first, then make certain that the changer comes equipped with this unit.

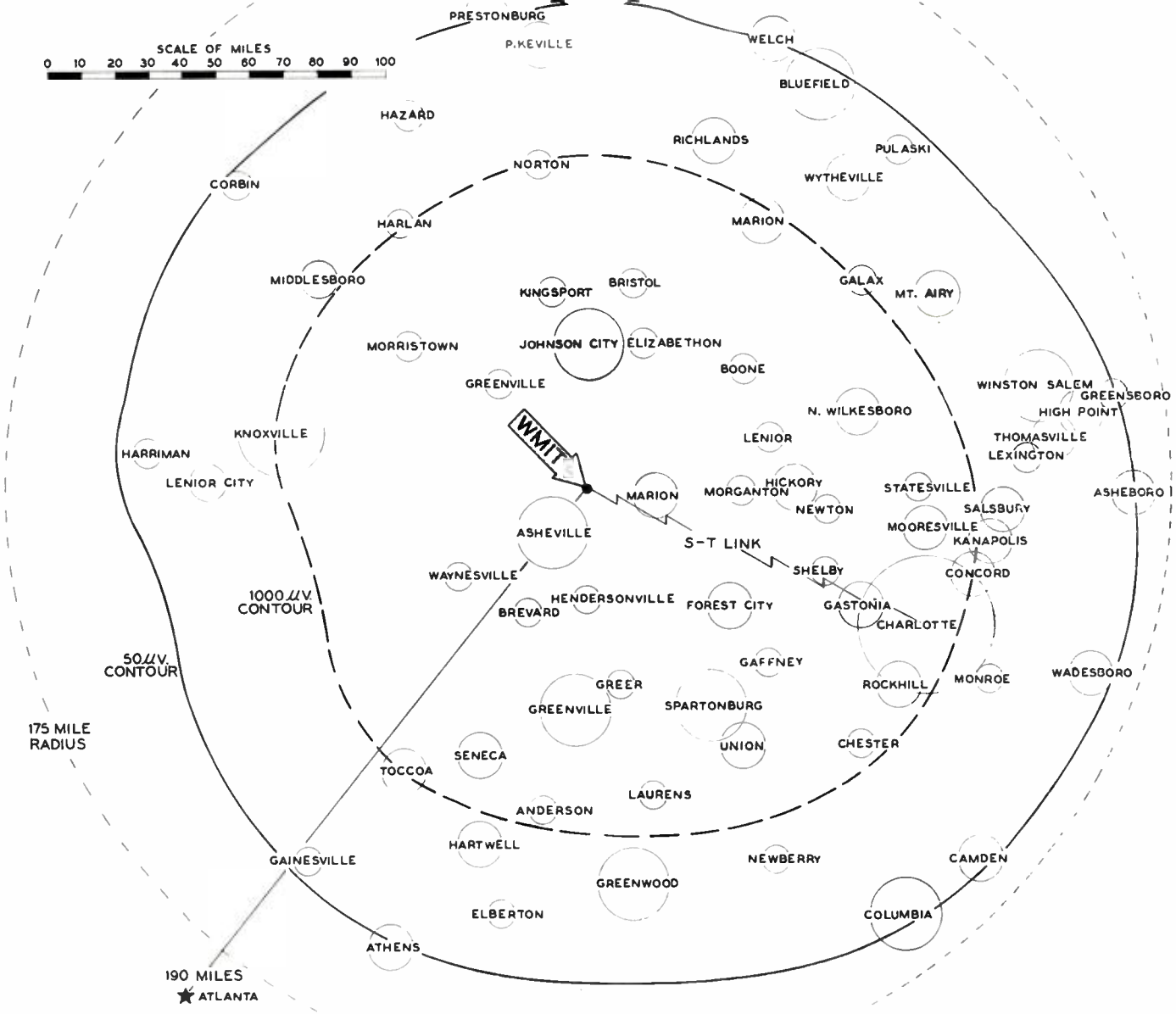
If the record collection includes a large number of old-style, flip-flop 78's, the changers which play both sides of a record should be examined carefully.

If long-playing records constitute a major part of the collection, a straight turntable may be preferable. Changers are more awkward to load with single records; on the other hand, three or four LP's on a changer will enable the listener to sit in peace in the easy chair for hours on end!

Turntables are available at almost any price from a few dollars to several hundred for broadcast station transcription turntables. The advantages of the higher price units are absence of three complaints: *hum*, which is usually caused by magnetic induction between the pickup and the turntable motor; *wow*, which results from unsteady turntable speed and causes the sound to waver slightly; and *rumble*, which is a very low grumbling noise caused by small mechanical imperfections. Hum and wow are both noticeable on any type of audio system. Rumble is not audible unless the audio system has exceptionally good bass response, as it is a very low frequency sound. Incidentally, some amplifiers incorporate a low frequency cut-off circuit, to prevent rumble from being heard.

Record changers are subject to these mechanical defects as well as turntables; one should listen carefully for them.

By and large, price and quality correlate for changers and for turntables. Buy the best that can be afforded, but once again: match the whole system. There is little sense in buying a transcription turntable if the benefits of its mechanical perfection are not "appreciated" by the rest of the system.



FM station WMIT, on Clingman's Peak, North Carolina, provides dependable night-and-day service, free of interference and fading, well beyond the solid-line contour. Small circles show the approximate night range of the most powerful AM station in each city.

MORE FM BROADCASTING

In case you haven't been paying attention to the activities of the FM stations, you may be surprised to learn of the progress this method of broadcasting has made in providing better programs, wider coverage, and interference-free reception. **By Milton B. Sleeper**

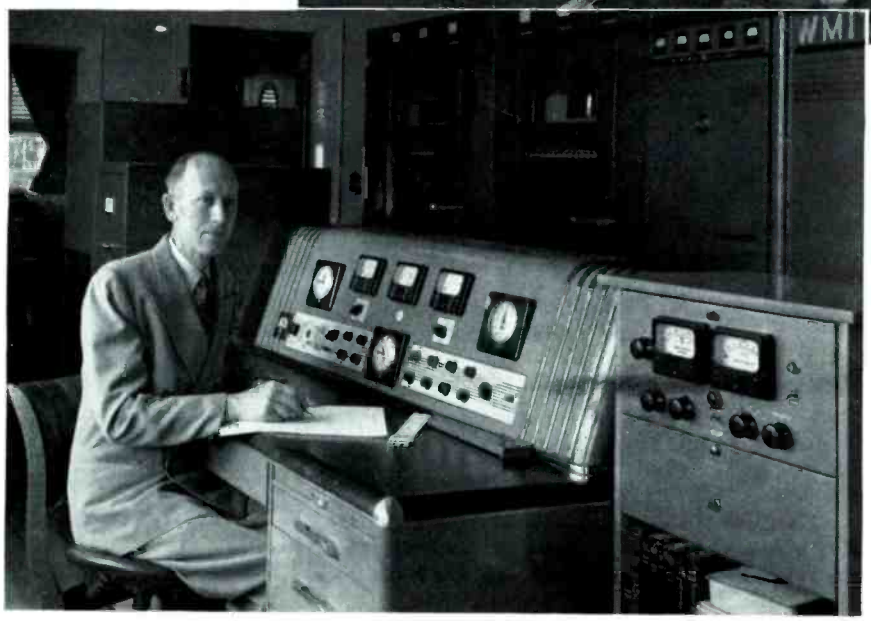
TO PEOPLE who own FM receiving sets, it may seem surprising, but it's nevertheless true that a great many listeners who have only AM sets think they are getting FM reception when they hear announcers say: "This is station So-and-So, AM and FM." They don't realize that such announcements actually indicate that two separate and totally different kinds of transmitters and antennas, very likely at locations spaced miles apart, are transmitting the same program. However, the AM transmission cannot be picked up on an FM set, nor can the FM transmission be heard on an AM receiver. Specifically, a set with dial calibrations running only from 550 to 1,600, or from 55 to 160 cannot receive FM. Many sets are intended for both FM and AM. They have switches to shift the tuning and dials calibrated from 88 to 108 for FM, and 550 to 1,600 or 55 to 160 for AM.

Then, too, reception by the two methods is distinctly different. In city locations, AM reception is often characterized by clicks, buzzing sounds, and a variety of interfering noises. At suburban or rural areas, where the distance to AM stations is greater, there is likely to be a strong, steady rushing sound, or background noise, when an AM station is tuned in. At night, reception may fade, become garbled, and then a totally different station may be heard. Or perhaps the original program just drops out. Also characteristic of AM is a continued squeal, slowly changing in tone and loudness. None of these annoyances is experienced on a good FM set, installed with a simple outdoor antenna.

FM reception is steady, clear, and free from clicks, buzzing sounds, and static disturbances. Particularly noticeable is the complete absence of background noise, and the absolute silence during pauses in the programs. Most surprising experience with FM is to see a flash of lightning, without hearing the expected crash of static from the loudspeaker as is the case with AM.

Most every FM model is equipped with some kind of built-in antenna. However, since FM broadcasting is at the higher frequencies employed for television, reception on FM can be improved — if it is not otherwise satisfactory — by the use of an outdoor antenna. In fact, the standard remedy for poor results on either TV or FM is to put up a better antenna, although FM requires only a simple dipole, in contrast to the elaborate and expensive TV types.

This two-story building at the top of Clingman's Peak houses the WMIT transmitter, studios, generating plant, and very comfortable living quarters for the operating staff. Only the mast for the old antenna shows in this picture. Top of the new 180-ft. tower is 6,557 ft. above sea level, the highest point east of the Mississippi River.



Joseph L. McFarland is chief engineer of WMIT. Here he is seated at the master control console, facing the 50-kw. FM transmitter. The window at the extreme left opens into the studio. Station WMIT is owned by Mt. Mitchell Broadcasters, Inc., of which W. Olin Nesbet, Jr. is president, John Erwin is vice president, and W. H. B. Simpson is secretary and treasurer. Regular broadcasting under the new ownership was inaugurated in July of this year.

Of the various broadcast services, FM is currently making the greatest progress in giving better service to American audiences. There are specific instances of poor programming, to be sure, but in that respect FM bears only a small part of the total complaints registered against audio and television stations.

To mention a few outstanding examples, there is WHO-FM in Des Moines (100.3 mc.), operating with 400 kw. effective radiation and giving its listeners dependable,

interference-free reception of NBC programs far beyond the primary coverage of the AM transmitter. The university FM stations in Michigan and those in Wisconsin operated by the State Radio Council are doing an outstanding job of fine programming.[1] A 400-kw. installation is being built now by the University of Illinois, which has purchased the transmitter of the once-famous *Milwaukee Journal* FM station. Rural Radio Network, operating from Ithaca, N. Y. has added more stations to its chain, and is serving growing audiences in 6 states.

Announcing the construction of a new FM transmitter and antenna for WBEN-FM Buffalo, with the highest tower in the world, vice president Kirchhoffer said: "We will back FM by a wholehearted effort to show listeners, particularly those in AM fringe areas, that FM is a superior means of reception." In Boston, the Lowell Institute Cooperative Broadcasting Council is erecting a transmitter provided by Major Edwin H. Armstrong and, under a grant from the Ford Foundation, will broadcast programs of the Boston Symphony Orchestra, and others originating from 6 colleges in that area. It will go on the air October 6, with the call letters WGBH.

The most powerful of all FM stations, in point of coverage, is WMIT on Clingman's Peak, N. C., the highest spot east of the Mississippi. Originally built by Gordon Gray, WMIT was purchased early this year by a group of Charlotte businessmen. They added a 50-kw. amplifier to the transmitter and erected a new 8-bay antenna, increasing the effective radiated power to 325 kw.

Operating on 106.9 mc., WMIT has been on the air since last July from 6:00 A. M. to midnight. Fig. 1 shows the calculated coverage of this station, but actual measurements show it to be much greater than that indicated by the solid and dotted lines. At most locations within the 1,000-mv. dotted contour line, relatively insensitive FM sets can pick up WMIT on a simple chimney-mounted antenna. Well-designed receivers can get this station at or beyond the 50-mv. solid contour line. For example, WMIT puts a good signal into Atlanta, at a distance of 190 miles.

By way of comparison, the small circles indicate the approximate nighttime range of the most powerful AM station in each city. The superiority of FM over AM service is indicated by the fact that a newtork of 70 AM stations within the area shown by this map would cover only a fraction of the area over which WMIT furnishes dependable, day-and-night service!

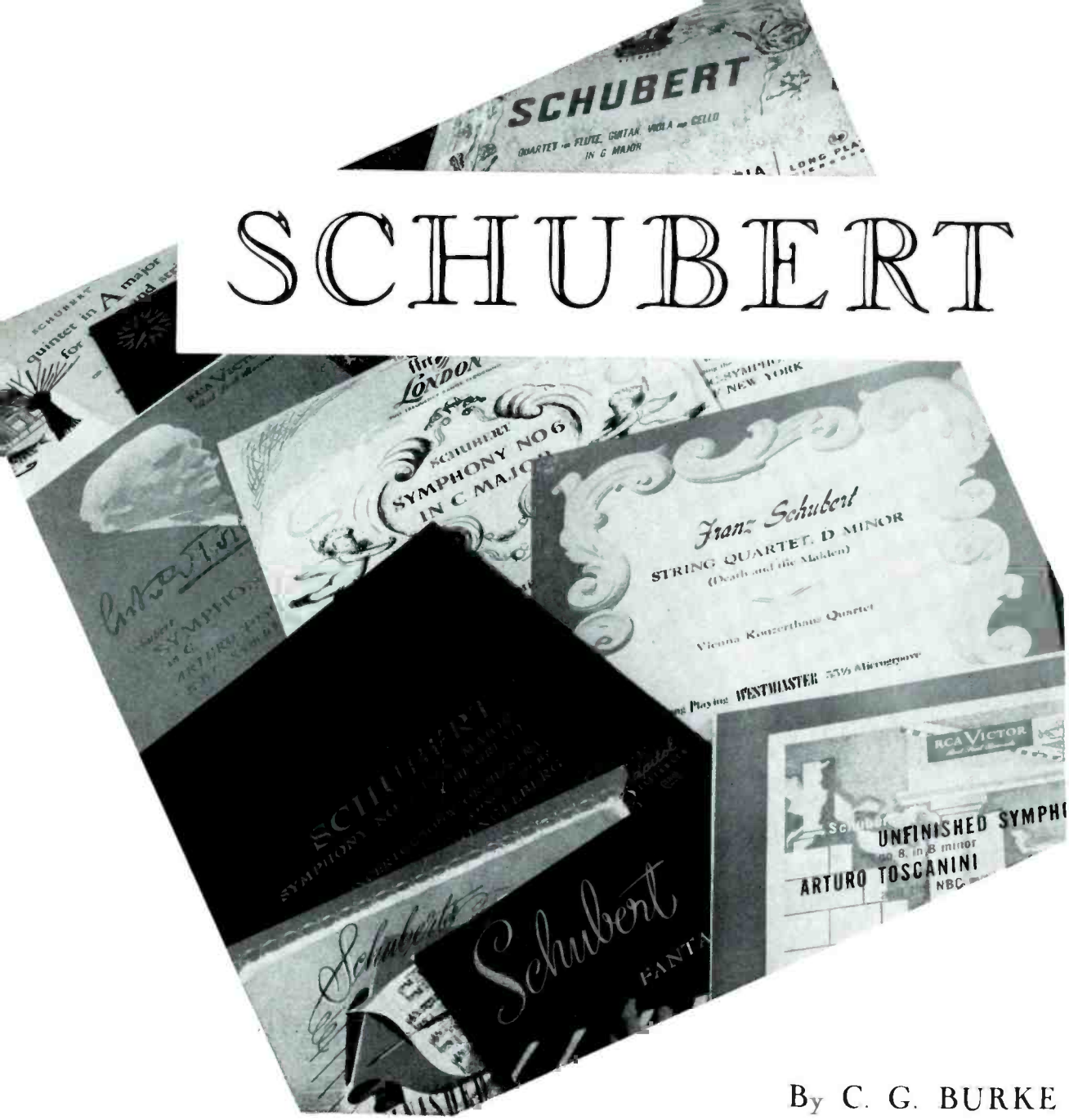
The use of a high-sensitivity FM set and an outdoor dipole antenna are recommended because there are so many other FM stations that can be heard by listeners in the WMIT area. Specifically, in the 6 states surrounding Clingman's Peak there are 111 stations, divided as follows: Georgia 21, North Carolina 40, South *Continued on page 82*

Above: Engineer-operator Ralph Thompson prepares to switch over from a program coming up from Charlotte via the studio-transmitter link to one previously recorded on the tape equipment. The receiver mounted on the left hand rack is used to pick up FM programs from other stations, to be rebroadcast on WMIT.

Left: A considerable part of the WMIT programs comes from the studio on Clingman's Peak. This photograph shows operator-announcer Lindy Seamon at the studio console, ready to shift from the microphone to the transcription on the turntable at the left.

[1]These are WUOM Ann Arbor 91.7 mc.; WDTR Detroit 90.9 mc.; WKAR-FM East Lansing 90.5 mc.; WMCR Kalamazoo 91.1 mc.; WHKW Chilton 89.3 mc.; WHAD Delafield 90.7 mc.; WHWC Colfax 88.3 mc.; WHA-FM Madison 88.7 mc.; WHLA Madison 90.3 mc.; WHRM Wausau 91.9 mc.

SCHUBERT



By C. G. BURKE

THE GREATEST composers in some number have died in Vienna — we cannot say by choice, but from a resigned and poetic sense of appropriateness: accepting the disagreeable inevitability of the event, they so placed themselves that their failing mortality would be ready in the city most propitious for nascent immortality.

Alone of the great, Franz Schubert was born in Vienna; he died there too soon. Thirty-one years encompassed this life empty of all but music. Our world has to no other human source returned so little for such a vast delivery. The six-hundred Songs, the nine remaining Symphonies, the fifteen Quartets, the dozens of Sonatas, the ineffable Trios, the unequaled Quintets and the hundreds of artless instinctive utterances in nearly all musical forms do not attain the unbelievable volume of a Händel or a Mozart; but those predecessors had more years, and a most thorough training in their art, besides patrons of a sort.

The man — who up to three or four years from the end was always a boy — gushed music; and more tears have been gushed over him than for anyone else who ever arranged tones in formation. This grief is correct: the beset Vienna of the French Revolutionary Wars and Bonaparte's campaigns begot him; and the uneasy, cynical Vienna of the Metternich repression after the Congress, sentimental and mellow on the surface, had developed a case-hardened heart from universal adversities too general to lament the tragedy of a citizen, were he Franz Schubert.

He won recognition, even fame, very early; God

ON RECORDS

knows the youth who composed the *Erlkönig* could not have been unacknowledged. He had this recognition and nowadays some commentators think that this sufficed for him; and that since occasionally his fees were not derisory, his poverty was not excessive.

He was undersized, ugly, myopic and often ailing. His incomplete education had bourgeois drabness, and his esthetic predilections were disparate, contradictory and generously over-catholic except in music, where a mysterious compulsion instilled perfection.

He had no real love, no women, seldom any money: he was excessive in generosity and avid for love, and dispensed on friendship the stipends he received for an outpouring of masterpieces. His quarters were wretched and cafés were his salons.

He was obscured by the enormous shadow of Beethoven whom he worshipped with an intensity of admiration which made him speechless in Beethoven's presence, the only time he was in that presence. He was brightly naive with an endearing simplicity; he seemed to have no envy and never repined until the shadows began to touch him.

He was instinct with music, and in both popular and learned estimation the most essentially, natally-inescapably, musical of musicians: "Le musicien le plus poète que jamais", Liszt said. No doubt, this is obvious most specifically in the preeminence of melody in the compositions of this man, melody being certainly the most appealing, the most easily memorable and most readily distinguishable component of music. It is the rarest gift. It was so abundantly disposed in Schubert that he could and did lavish superfluous tunes in compositions already thoroughly larded. He was incapable of calculation and his music always flowed spontaneously. His distaste for the concentrated agony revealed in the sketch-books of his titanic coeval Beethoven is known; for with Schubert composition was not work but spiritual necessity.

Deep in this untutored, simple candor, darker understandings emerged to tint his music. The imprint of death is on much of it — not only in those places where death is his subject, but in the formal, abstract movements of classic compositions: the slow movement of the *Second Trio* and the *G Major Quartet;* the overwhelming sadness permeating songs which to other composers would require just a little melancholy. He wrote hysterical scherzos encased by sunlight; and he would end three bubbling movements with one of frightening protestation. His despair was real, but most of the time only in his music, in this unlike Tchaikovsky, whose life was despairing (with less reason) and whose music was an assertion of energetic pride in his comfortable misery. It is possible to sift Schubert's work and find a class of delightful compositions altogether carefree and another class preponderantly dark in their ever-present melody, painfully piognant in their personal harmony. Anyone can find what he wishes to hear, in the work of the man who owned nothing and expressed everything.

The Schubert Records

Of the great men, Schubert offers the easiest basic appeal to most people. It is hard to resist the allure of opulent melody. As is the case with most established composers, the phonograph offers more of Schubert's music than could be heard in diligent years of concert-going. Here are a list and estimates of recordings available on LP, August 1, 1951, with a few exceptions indicated.

INSTRUMENTAL

Divertissement a la Hongroise, Op. 54
Vitya Vronsky, Victor Babin, piano fourhands. Columbia 10-in. ML 2125. 27 min.

At twenty-seven the composer on holiday wrote this gay-seeming procession of sprightly, reflective, prim and jubilant rhythmic airs tinted with fever and in constant despair. If we do not choose to accept the evidence of this, his adhesive later mood, we can enjoy a brave display of simple clipped melodies played by this team with a neat awareness of external aspect and internal implications. The doubled piano sounds very good in a sober way except for a touch of steel near the top.

***Fantasy in C, Op. 15* ("*Wanderer*")**
Clifford Curzon, piano. London 10-in. LPS 83. 21 min.

***Orazio Frugoni, piano. Vox. 12-in. (Backed by *Impromptus, Op. 90*) PL 6690.**

Rather harsh piano sound and low volume (conducive to domination by background noise) injure a performance of uneven tendencies.

Four-Hand Piano Music: *Fantasy in F Minor, Op. 103; Rondo in D, Op. 138; Rondo in A, Op. 107; Marche Characteristique in C, Op. 121.*
Paul Badura-Skoda, Joerg Demus. Westminster 12-in. WL 5047. 43 min.

The four hands play with a happy bounce where this is appropriate in the assortment; and where it is not, in nice agreement of fluid phrase not commonplace in joint efforts. The piano tone is good in the *Fantasy*, very good in the shorter pieces.

Ländler from Op. 18
Lili Kraus, piano. Decca 12-in. DL 8505. 4 min.

A magical trifle appended to a Mozart Concerto and Sonata to fill space, skillfully manipulated with some excess of caprice in an unstable recording which clangs bell-like above *mf*.

*For footnotes, see page 81

Moments Musicals, Op. 94

Joerg Demus, piano. Remington 10-in. RLP 149-21. 27 min.

***Leonard Shure. Vox 12-in. (Backed by Schumann: *Andante and Variations*) PL 6050.**

The "l" in the plural was Schubert's, whose splendors and errors we touch not. — Some responsively poetic playing badly obscured by hard treble, insufficient bass and low volume.

Quartet No. 10 in E Flat, Op. 125, No. 1

Guilet String Quartet. Concert Hall 12-in. CHC 7. 24 min.

In his most easygoing and perhaps easiest-listening *Quartet* the nineteen-year-old composer uses a method ingratiating in its simplicity but not often employed by others, for patent reasons: after a tune has served for some measures, he brings in another, and then another; not thrifty, but rewarding. The Guilets play with supple warmth and the tonal qualities are apposite.

Quartet (Movement) No. 12 in C Minor

Amadeus String Quartet. Westminster 12-in. (Backed by Brahms: *Quartet No. 1*) WL 5084. 9 min.

Barchet Quartet. Period 12-in. (Backed by *Symphony No. 3*) SPLP 517. 8 min.

In German, *Quartetsatz*. A quartet movement of brutal opposition between its subjects, the first not disdained by César Franck. The versions are both of excellent sonic delivery in a broad style. The Amadeus underlines intensity and drama; Barchet emphasizes the lyrical suavity of the second subject. The principal material to which these are subordinate is too diversely important to allow a choice of disc on the basis of the Quartet alone.

Quartet No. 13 in A Minor, Op. 29

Fine Arts Quartet of the American Broadcasting Company. Mercury 12-in. (Backed by Mendelssohn: *Quartet No. 1*) MG 10065. 27 min.

The *Quartet Movement* indicates the route remaining for Schubert's chamber music — agitated, tormented, introspective and ominous — but carried in a flow of the melodic abundance evident in the very early quartets. This thirteenth *Quartet*, with four perfect, unique movements variously beautiful in their unhappiness, is excelled in the composer's writing only by the two yet to come. Its dark colors are well set forth here in a painstaking but imaginative performance free of tempting emotional excess. Sonically, attention is on a very rich reproduction of the cello and viola; and no exception could be taken were it not for a violin echo in the *fortes*.

Quartet No. 14 in D Minor ("Death and the Maiden")

Vienna Konzerthaus Quartet. Westminster 12-in. WL 5052. 39 min.

Fine Arts Quartet of the American Broadcasting Company. Mercury 12-in. MG 10008. 35 min.

The most famous of Schubert's enraptured laments in two versions of striking merit and divergent characteristics. Tonally, both are very fine, but the Westminster is bigger and enjoys the advantage of superior room-tone. The bigness, of course, serves to make the dynamics more impressive. The performance by the Fine Arts Quartet is much as we would expect any first-class combination to present this work, while the Konzerthaus group plays in a somewhat special manner, some aspects of which are unquestionably admirable and others controversial. In this latter class is their treatment of tempo, invariably slower than customary and occasionally larded with retards not in the score. This critic happens to prefer this style in this kind of highly emotional work, for in all cases it seems to point the tension better and nowhere is it a mere obtrusive mannerism. Uncontroversially, the Konzerthaus Quartet is patently clearer in detail, more extensive in dynamic sweep and more exultant, if one may say so, in its anguish.

Quartet No. 15 in G, Op. 161

Vienna Konzerthaus Quartet. Westminster 12-in. WL 5041. 44 min.

The most difficult, the last, the greatest of the fifteen Quartets. Episodic, unstable, untied to any of its somber moods, it is not the least example of the greatness of Beethoven's last quartets whose free expression inspired it. The Vienna Konzerthaus Quartet unfold its patterns of ravishing misery in a way similar to their work in Quartet No. 14. Surely their lingering style is perfect to narrate the utter heartbroken hopelessness of the Andante; and the lost battle against calamity exclaimed in the other movemenrs is horribly beautiful in their phrasing.

The recorded sound of the four players is consistently excellent, and — rarity in quartet recording — particularly striking when the sound is loudest.

Quartet for Flute, Guitar, Viola and Violincello, in G

Seigfried Barchet et al. Period 12-in. SPLP 518, 28 min.

Not Schubert, although so proclaimed on the envelope. Schubert added a cello part to a favored trio by Matyegka. Listening to its cheerful charm in this healthy recording we understand why he took the trouble.

Quintet in A, Op. 114 ("Trout")

Paul Badura-Skoda, piano. Josef Hermann, bass viol. Members of the Vienna Konzerthaus Quartet. Westminster 12-in. WL 5025. 37 min.

Members of the Vienna Octet. London 12-in. LLP 223. 34 min.

Mieczyslaw Horszowski, piano. Georges Moleux, bass viol. Members of the Budapest Quartet. Columbia 12-in. ML 4317. 35 min.

Franz Rupp, piano. Stross Quartet. Capitol 12-in. P 8019. 30 min.

***Boskovsky Quintet. Remington 10-in. RLP-149-5.**

No one resists the spontaneous flow of tuneful, wistful jollity in the most frequently played of all quintets. Musicians love to play it, and these recorded editions exhibit this love. All are well-performed and a choice among them can be offered with little confidence in its finality. However, some definite facts can tend to a choice: the Westminster recording is the brightest and best-detailed; Columbia and London emphasize the profundity of the bull-fiddle with fine success (this will have to be subdued in reproduction); while the Capitol disc is a skillful transfer from 78's; the London interpretation is the most tenderly phrased, but in the Trio of the Scherzo a ruinously slow tempo is adopted and the repeat omitted. This flaw is short but leaves an unpleasant memory of an otherwise luscious performance. Budapest seems to be a little more euphonious than the others, but not consistently; and Vienna Konzerthaus is the most respectful of repeats. This critic has all four and thus is not confronted by the difficult task of personal choice. If he were somehow forced to give up all but one he would retain the Westminster.

Quintet in C, Op. 163

Vienna Konzerthaus Quartet; Gunther Weiss, second violoncello. Westminster 12-in. WL 5033. 52 min.

The Hollywood Quartet; Kurt Reher, second violoncello. Capitol 12-in. P 8133. 44 min.

Composing toward the end of the road he composed himself, almost, to an acceptance of the end. This is his elegy: it is his last chamber music; and who will contest that it is the most beautiful of his, of anyone's chamber music? It is really a series of long elegies interspersed with revolt, but there is more of pure serenity here than in the outraged despair of the last quartets The slow sections are of sidereal, comtemplative sadness. The revolt has the masculinity of Beethoven but is not dominant.

The two editions having appeared (a third is announced by Mercury) differ as versions must when one is by the Konzerthaus Quartet, whose tempi are persistently slower and contrasts wider than other quartets'. We have a beautiful performance by the Hollywood Quartet setting forth above all the celestial serenity paramount in this masterpiece; while the Viennese stress the tense agitation of the rebellious sections. A number of music-lovers profess to detest the Vienna performance, and it is not conventional; all music-lovers should hear both. Tonally both are very superior, the Westminster being on its usual large scale with wonderfully rich undistorted bass, while the Capitol is more subdued, less resonant; a less virtuoso feat of engineering but excellent.

Sonata for Piano No. 11 in G, Op. 78

Erno Balogh. Lyrichord 12-in. LL 5. 32 min.

A tranquil, leisurely, healthy and euphonic expression of the Schubert Sonata generally found most seductively lyrical but not without its passages of fright. A superbly ripe and plangent bass is featured, well-proportioned and expansive; with a treble from time to time brittle, at *ff* distorted.

Sonata for Piano No. 12 in C Minor, Op. Posth.

Webster Aitkin. EMS 12-in. EMS 110. 30 min.

Sonata for Piano No. 13 in A, Op. Posth.

Webster Aitken. EMS 12-in. EMS 111. 36 min. *Lili Kraus. Vox 12-in. PL 6940

Sonata for Piano No. 14 in B Flat, Op. Posth.

Webster Aitkin. EMS 12-in. EMS 112. 42 min. *Wilhelm Kempff. London 12-in. LLP 307.

The three big works culminate Schubert's writing for the piano. We encounter here a grandeur akin to the last sonatas of Beethoven; and the opening movement of the *B Flat Sonata*, apostrophizing regret in all the guises Schubert better than any other could feel in 1828, is a miraculous coda narrating an end more final than of a piece of music, like the Arietta in Beethoven's *Op. 111*. The *Sonata in A* is the best-known, the *C Minor* the least, the *B Flat* the least frequently played; as if its sublimity intimidates. They were written in one month, two before death would reach him.

Music-lovers are fortunate that Mr. Aitken has recorded the three; for it if it unlikely that any pianist (Schnabel just dead) can transact all the moods of them, few can give a more eloquent earnest than Mr. Aitken, whose playing is devoted essentially to the inherant content of this music. The recording is excellent.

Sonata for Piano No. 15 in C ("Unfinished")

Ray Lev. Concert Hall 12-in. (Backed by *Allegretto in C Minor*). CHS 1072. 24 min.

Ernst Krenek completed the last two movements of this massive sonata, Schubert indeed having accomplished most of them when he laid the work down. It is hard to take exception to Krenek's reverent elaboration of the material his grand predecessor has left. Unluckily, this critic is without sympathy for the performance, which seems a grim and dogged tussle with the keyboard. The piano tone is frequently admirable and occasionally unpleasant in the treble: a clangor which may have been peculiar to the instrument used, to the attack, or to faults in the recording process.

Sonata for Violin and Piano ("Grand Duo") in A, Op. 162

Fredell Lack, Leonid Hambro. Allegro 10-in. AL 22. 16 min.

This only recorded version seems to be played with intelligence and spirit, but the recording is so deficient in the customary qualities that it is impossible not to urge music lovers to wait for a new edition.

Sonatinas for Violin and Piano in D, A Minor, and G Minor, Op. 137, Nos. 1, 2, and 3

Mischa Mischakoff, Erno Balogh. Lyrichord 12-in. LL 7. 40 min.

Opus 137, No. 1 (only) **Joseph Szigeti, Andor Földes. Columbia 12-in. (Backed by Beethoven: *Violin Sonata No. 1*) ML 4133. 13 min.**

It is obviously sensible but not sensibly obvious to include all three in a single edition. These are simple songs beautifully chiseled by Mischakoff without pretension. Szigeti's aggressive style is more suited to other music. Both discs have a rumbling background pulse when adequate bass is reproduced. Very severe treble reduction is necessary to blunt the artificially-sharp edge of the Lyrichord recording.

Trio No. 1 in B Flat, Op. 99

Arthur Rubinstein, piano; Jascha Heifetz, violin; Emanuel Feuermann, cello. RCA-Victor 12-in. LCT 1017. 32 min.

Carnegie Trio. Program 12-in. EXLP 703. 34 min.

The Carnegie performance, sane and musicianly, is pristine compared to the justifiably celebrated interpretation of Messrs. Rubinstein, Heifetz, and Feuermann, which can never be repeated except through these records. The R-H-F version flies on the wings of bright imagination; it sings lyric subtleties on satin strings.

The engineering requirements for such an instrumental combination are not exacting except in the bass of the piano, somewhat obscured on the Victor, which also has a pretty large share of background noise. But these are recorded from 78's while the Carnegies have been taped, which has not prevented an unconscionable mid-frequency exaggeration to injure the tonal reproduction of their work. Prefereince must be unhesitating for R-H-F, the predecessor by a dozen years.

Trio No. 2 in E Flat, Op. 100

Alma Trio. Allegro 12-in. AL 1. 37 min.

A mystery of recording is why this most exquisite embrace of death has been neglected in favor of its lovely but slighter brother in B Flat. The relation is that between *Hamlet* and *Twelfth Night*. The gaiety in the first trio is gay; in the second it is a dance or march of fevered tears. The Alma Trio play with complete awareness of the emotional distress of this matchless work and a fine regard for the musical values of precision and cohesion, but their tonal semblance is not flattered in a very early LP, weak in the bass and obstreperous in mid-range.

ORCHESTRAL

Symphony No. 1 in D

Winterthur Symphony Orch.; Henry Swoboda, cond. Concert Hall 12-in. CHC 23. 30 min.

Viennese Symphony Orch.; Kurt Wöss, cond. Remington 12-in. (Backed by Mozart: *Fantasia in F Minor* K 608) RLP 199-2. 25 min.

Here the boy was sixteen and full of Haydn, but three of the movements are melodically of the Schubert essence and delightful. Neglected works like these are not standardized in performance since there are practically no performances, and it is amazing how concepts differ when there is no tradition. Wöss rowels while Swoboda caresses, both orchestras opposing some inanly resistance to regimentation; but the Viennese version has been lacerated in the recording process to a rejective degree. The Swiss have been endisced with average skill, lacking remarkable virtues or conspicuous faults.

Symphony No. 2 in B Flat

Boston Symphony Orch.; Charles Munch, cond. RCA-Victor 10-in. LM 41. 25 min.

Written two years later than No. 1, but as lightsome if more resourceful; played here by a large band of experts in a big style captured with neat and easy competence by the engineers.

Symphony No. 3 in D

Stuttgart Philharmonic Orch.; Willem van Hoogstraten, cond. Period 12-in. (Backed by *Quartet Movement in C Minor*) SPLP 517. 21 min.

Nearing the age of nineteen, our enormous little man gives a seductive parade of genial tunes led with appropriate energy and fatly played by a good orchestra. A little dryness here and there in the resonance is all that deprives the recording of the qualification "excellent".

Symphony No. 4 in C Minor ("Tragic")

Vienna Symphony Orch.; Paul Sacher, cond. Program 12-in. EXLP 704. 31 min.

Munich Philharmonic Orch.; Kurt Eichhorn, cond. Mercury 12-in. MG 10054. 33 min.

***Lamoureux Orch., Paris; Otto Klemperer, cond. Vox 12-in. (Backed by *Arpeggione Sonata*) PL 6800.**

Sacher is not a name familiar to American audiences, but on the basis of his beautifully-felt projection of all the moods of this remarkable *Symphony*, which differs from its predecessors somewhat as the *Eroica* differs from Beethoven's first two, it is not one to forget. The conductor is equally persuasive in weaving a gentle lyricism or expressing the torment which dominates here. It is a good standard recording, and would have been very good with a trifle more hall-tone. Eichhorn is an individualist: his languor hurts the nervousness of the first movement and his hurry is not beneficial to the Andante. (Nevertheless, the man is sensitive to nuance.) Engineering is in a considerably lower class than that of the Sacher.

Otto Klemperer used to lead this work very convincingly years ago; the recording was not made available for this panorama, but it might be worth hearing.

Symphony No. 5 in B Flat

Winterthur Symphony Orch.; Fritz Busch, cond. Concert Hall 12-in. (Backed by Mendelssohn: *Scherzo from Octet*) CHC 61. 24 min.

Busch's tender direction makes the benign sunshine glow, and his prestige has compelled the orchestra to a more unified attack than it usually shows. The reproduction will be satisfactory with treble drastically weakened and bass fortified.

Symphony No. 6 in C ("The Little C Major")

London Symphony Orch.; Josef Krips, cond. London 12-in. LLP 21. 27 min.

Bavarian Radio Orch.; Alfons Dressel, cond. Mercury 10-in. MG 15003. 31 min.

Both performances are persuasive and curvilinear, smooth and pleasant in the most light-hearted music Schubert ever wrote, a succession of delightful tunes in a bright and easy orchestration. The engineers have achieved opposite results: the London is a little excessive in the bass, with a rumble and some muffling but a clean treble; the Mercury is strident in mid-frequencies, ripe and solid in the bass. A flexible apparatus can neutralize the faults, but neither disc is recommended for discophiles lacking such apparatus.

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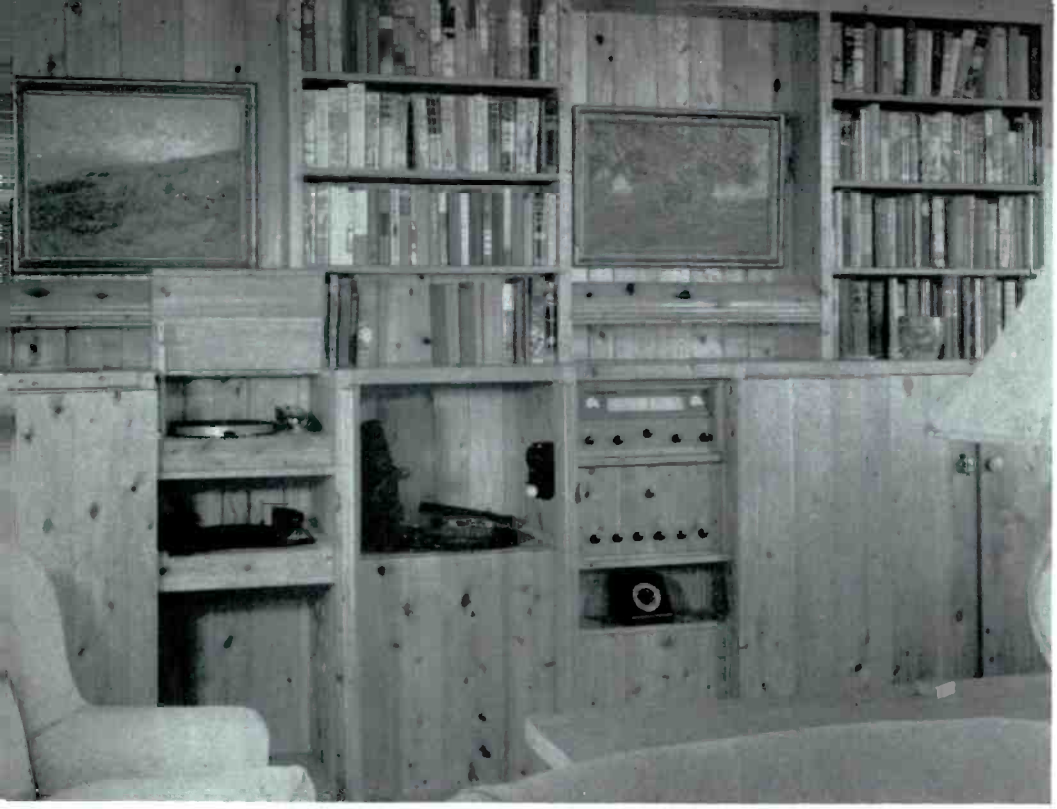


Music . . . in your home

by PHILIP C. KELSEY

For more and more families, music is part of living. Custom installation of radio, television, and phonograph equipment is something to be planned when first consultations are held with the architect. In this article is a description of a complete music installation, with photographs of the raw cabinets as well as of the finished product. Fig. 1, above, shows the operating center: FM tuner, amplifier controls, record changers, and transcription turntable. Fig. 2, right, illustrates the appearance when the cabinet doors are closed.

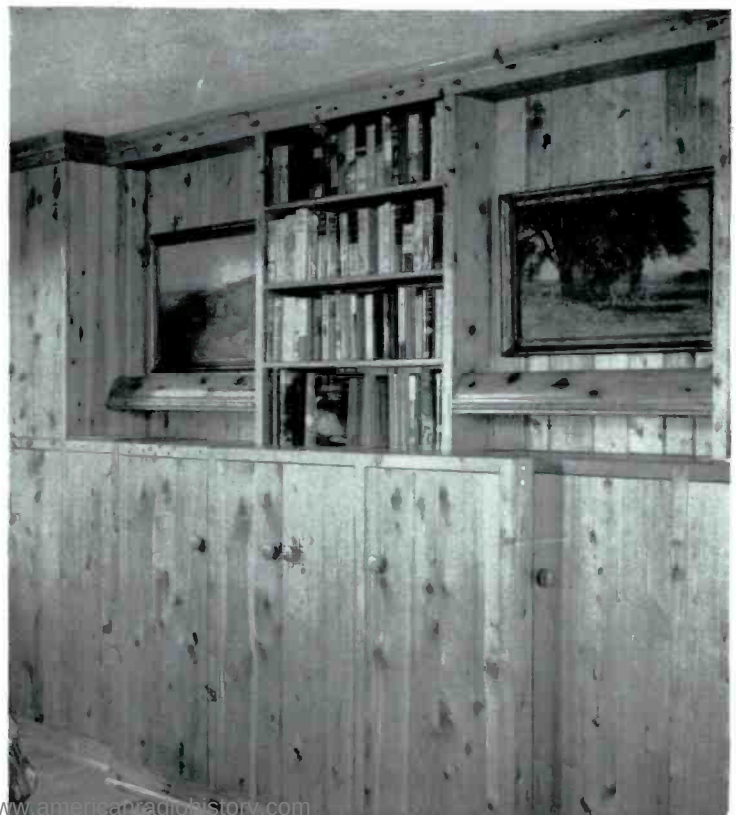


Fig. 3. The entire installation was planned when the architect's drawings were made. Built-in bookshelves and cabinets were to line one wall of the living room, as shown above. Provision was made at that time for the installation of a complete music system for the entire house.

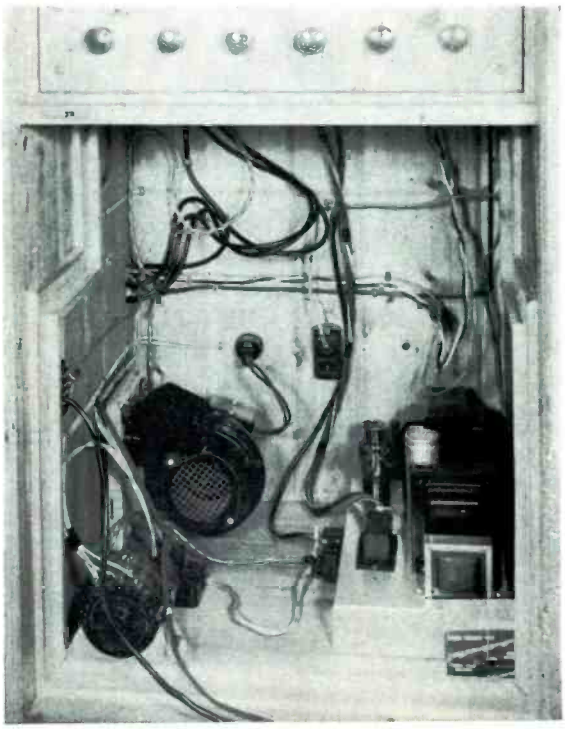
TO A great many, the word "custom" implies something extravagantly expensive because it is made to order. It may conjure up visions of $250 suits and $10,000 cars. I am told at least twice a week by various interested people that they would love a custom music and television system if the cost were not out of this world. To me, comments of this sort from those with good taste and an appreciation of music are not at all discouraging. They merely disclose a widespread and very understandable lack of information as to the surprisingly modest cost of seemingly high-priced built-in systems. This situation is rapidly being corrected, and an astonishing amount of unsuspected interest and desire for more information is making itself evident. HIGH-FIDELITY Magazine has already contributed substantially in that respect.

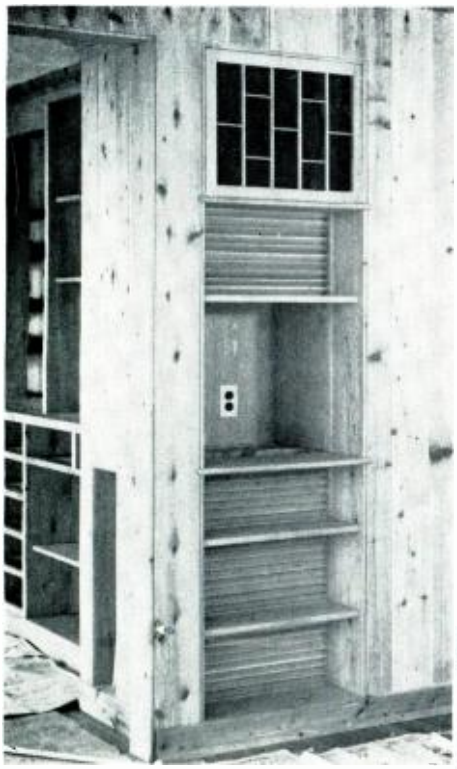
Of course, there are many who are not yet aware of the actual economies and vastly better reproduction offered by a properly built-in system. Unfortunately, when these people decide to replace outmoded equipment they are very likely to head for the nearest radio store and put $795 on the barrel-head for something with Queen Anne legs and 19 tubes. There are many other ways to spend $400 out of that sum without getting any commensurate value for it, but there seems to be an intriguing certainty about this method. If you doubt this, make such a purchase and try to sell it a week or two later.

A custom installation is usually planned more intelligently, and, as a result, its appearance in the home, the provisions for subsequent, inexpensive improvements, and the performance of the system provide far greater aural and visual satisfaction than any factory-built set in one of the furniture styles known to the trade as "borax".

The fact that this article is largely devoted to a description of an unusually elaborate music and television system certainly does not mean that there is the slightest desire to be high-hat about it. It is merely a description

Fig. 4. Below is the "powerhouse" compartment described in the text. The knobs at the very top of the photograph are the amplifier controls, and correspond to those shown just above the antenna rotator in Fig. 1, facing.

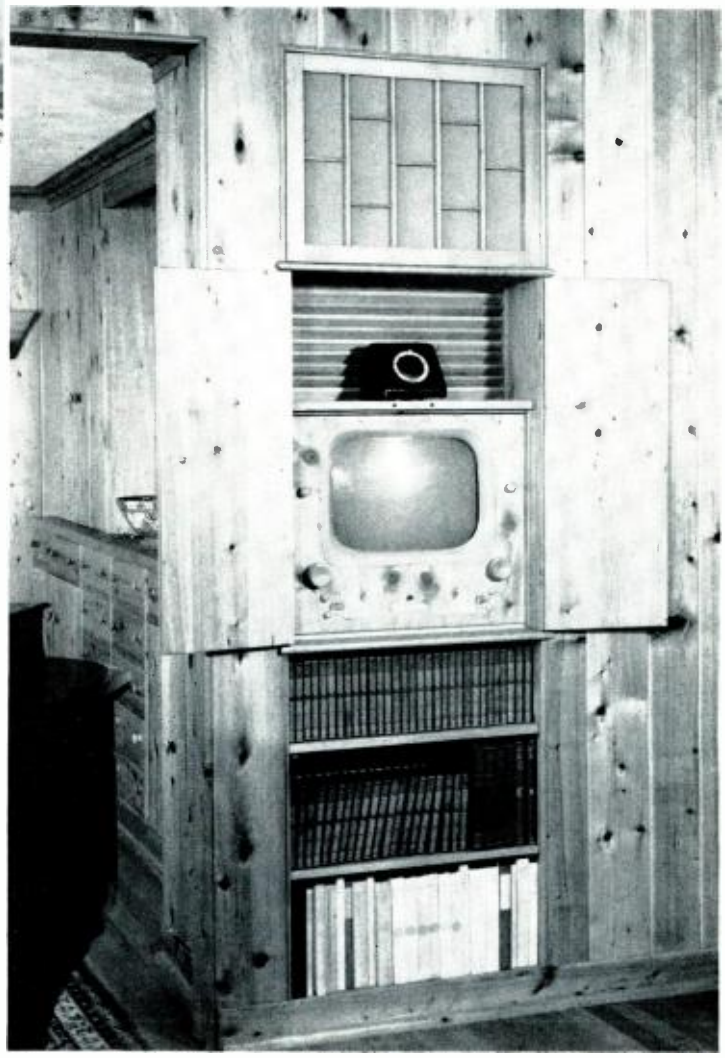




of a particular installation to serve as an example of the potentialities of custom installations. Endless modifications of this design can be scaled down to simpler systems, and each will represent an excellent investment. The photo on page 14 shows a surprisingly inexpensive system which gives excellent performance and blends beautifully with its environment. It offers considerably more in genuine entertainment value for the amount invested, either on a short or long-term basis, than the garden variety of radio-phonograph consoles. At this point I cannot help but wonder just how many people are using the connection marked "Television" on sets they bought a few years back?

These introductory words were set down to stress the fact that custom installations can be planned for almost any price bracket, they provide comparably excellent performance, and they offer an important bonus of satisfaction in their convenient design and inconspicuous appearance.

One installation which really does justice to the word "custom" was completed recently in the home of Mr. and Mrs. V. W. Bates, Branford, Conn. I was fortunate in being able to accomplish much of the preliminary work while their house was being built. Thus it was possible to make the finished installation really a part of the original



Facing the listening area and operating center shown in Fig. 1, are the TV screen and living room loudspeaker. In Fig. 5, above, note the ventilating louvres and the extra cabinet depth provided for the TV screen tube. Even the fact that it would be desirable to rotate the TV antenna from the television control center was thought out before hand, and a shelf provided to hold the control. The cabinet doors shown in Fig. 6, right, conceal all television equipment when desirable.

construction of the building. The entire house was designed to suit the living habits of the owners and, as a result, it simply abounds in unusual conveniences.

The living room arrangement, with regard to reproduced music and television, had been given considerable thought during the planning stage. The loudspeaker for both music and television is located above the TV screen, Fig. 6. The record players, FM tuner, and amplifier are at the opposite end of the room, as shown in Fig. 1. Therefore the position of the loudspeaker provides the necessary close proximity to the picture when TV is used, and allows for a comfortable distance to the listeners when they are enjoying music. The loudspeaker unit, an Altec 604-B, is mounted at a slight angle downward as well as facing in the general direction of an open doorway at the opposite end of the room. With considerable help from G. A. Briggs' books on loudspeakers,[1] and some sturdy wood construction, the resulting speaker enclosure gives very smooth performance. I am sure the carpenters thought that I was a little touched because of my insistence on solid construction. (They had seen too many radio cabinets!) Perhaps this particular enclosure can be called "dual" in that it baffled both speaker and workmen. However, the results were worth the effort. This seems to be the appropriate moment for me to say again that, in its location and manner of installation, a loudspeaker or loudspeaker system undoubtedly needs more intelligent treatment and good workmanship than any other part in a music reproducing system. The increasing recognition of this fact is a healthy sign, and points to better and better reproduction for those who are willing to make the effort.

The record playing equipment, which is shown in the photograph, Fig. 1, consists of a Rek-O-Kut 3-speed turntable mounted with a Gray 108-B arm, a Garrard RC-80 record changer, and a Capehart record changer which has been modified to use the GE pickup. The arrangement used gives unusual convenience in operation. Part of the cabinet top is hinged to permit ready access to the transcription table. The Garrard changer rolls out 12 ins., and in the Capehart section there is ample room for the loading and removal of records.

The FM tuner, power amplifier, pre-amplifier, power supply, cooling blower, and master pilot light system are in the right hand section of the cabinet. The tuner is an REL 646-B which has been modified for use as a part of this system. On the panel directly beneath the FM tuner are the preamplifier, power amplifier, and tone controls. The latter uses the Williamson circuit, somewhat modified as to the speaker and feed-back circuits to provide for proper operation of two speakers separately or simultaneously. The preamplifier for the phonograph inputs is unusual in that transformer input is used with 50-ohm input lines to GE diamond-styli pickups which have been fitted with 50-ohm coils. Use of these low impedance circuits results in a very considerable reduction of hum. A discussion of the reasons for this change is not warranted nor desirable in this article, but I should mention the fact that such low-impedance pickups are not, to the best of my knowledge, available from the General Electric Company. Those special coils are made up for each installation and are carefully measured for electrical balance, output, and matching to the transformer used. Construction of such coils for this particular use should not be attempted without considerable experience and equipment.

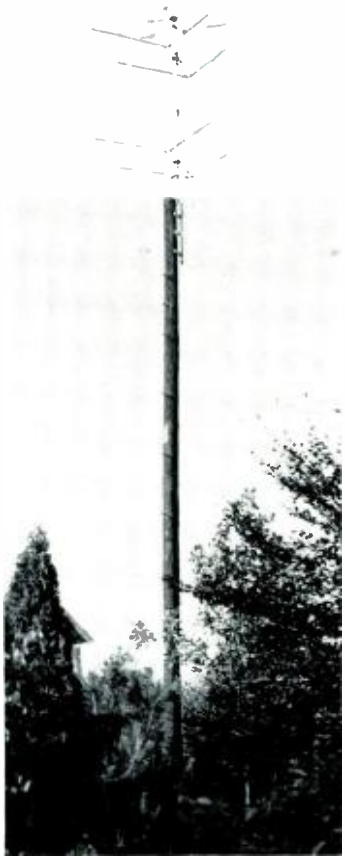


Fig. 7. Atop a 45-ft. pole are two individually rotatable antennas.

The equalizing circuits which were used give excellent correction for almost all recent foreign and domestic recordings. Particular attention was given to LP reproduction, and to motor or turntable rumble. Incorporated in the equalizer is a filter which, combined with equalizer characteristics, provides a sharp low-frequency cutoff below 30 cycles, thereby reducing the distortion caused by very low rumble frequencies. This type of distortion is insidious in that rumble frequencies themselves are often practically inaudible, yet the accompanying distortion can cause more trouble than all the more commonly discussed types put together. I have strayed from the main subject momentarily merely to justify the use of a somewhat complicated phonograph correction circuit.

The amplifier has six input circuits: three phono-inputs, FM, TV, and a spare for the possible use of a tape recorder. The TV output is a 500-ohm cathode-follower, providing a "solid" line from the TV receiver to the amplifier, a distance of about 45 feet. A shielded line was run in thin-wall conduit. As a result of these precautions, there is no measurable or audible hum pickup, and only a slight high-frequency loss amounting to less than 1 db at 12 kc. The FM output is also a cathode follower, the output of which is at about the same level as that of the TV tuner.

[1] "Loudspeakers" and "Sound Reproduction" by G. A. Briggs, published by Wharfedale Wireless Works. This book is available from the Book Department, HIGH-FIDELITY Magazine

The power supply for the amplifier is mounted in the space below the tuner and control panel, Fig. 4. Even with a single source of DC for all stages, no motor-boating occurs, due to efficient de-coupling between stages. Hum is not audible at listening levels, and clicks from AC line transients (a common occurrence in high-quality high-gain amplifiers) are absent, due to proper by-passing. The power supply can be turned on or off by means of push-

Fig. 8. Bedside box houses volume and on-off controls.

buttons in a remote control box, Fig. 8, in the master bedroom.

As previously mentioned, two loudspeakers are used, the second being built into a wall of the master bedroom, Fig. 9. A remote control box at the bedside contains a volume control of the T-pad type, and ON-OFF push buttons. The bedroom loudspeaker is a very worthwhile part of the system. It is probably most appreciated when used for late evening news or music to read by. The Capehart provides over an hour's music without repeating, or it can be set to stop after any number of selections. With LP records, the Garrard changer provides over three hours of music, and turns off when the last record has been played. To switch off the system, it is only necessary to press the OFF button. If either record changer is being used, the record then playing will finish and the player will switch itself off.

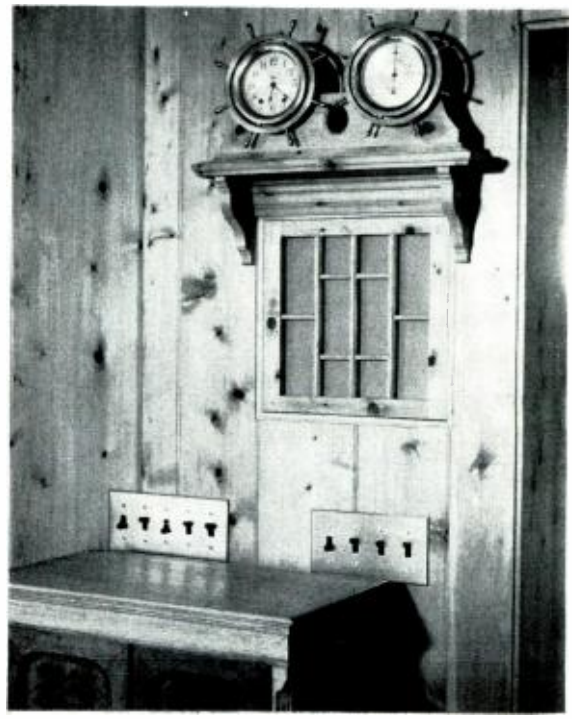
Since Mr. and Mrs. Bates have a fine collection of 78-rpm. records in excellent condition, it was simply good sense to include the Capehart changer. Last, but far from least, is the combination of a transcription turntable and a fine tone arm and pickup. This is for serious and critical listening. It allows unencumbered access to any portion of the recording (after all, it *is* fun to pick out or repeat a favorite passage or a certain section of an LP), and it does its work with quiet consideration of the record.

Cooling of the entire cabinet is easily accomplished without any very obvious grilles or louvres. In the photograph of the powerhouse, Fig. 4, a small blower can be seen and, directly in front of it, a 100-watt Variac for controlling the speed of the blower motor by reducing the voltage. Air is taken in through a small grille in the top of the cabinet over the FM tuner, Fig. 1, also over the front panel of the tuner. After passing over and around the tuner and the amplifier below, it is drawn into the powerhouse compartment and gently blown through the lower part of the center section, leaving through a second small grille over the transcription turntable. I was very well satisfied with the cooling because, after a 4-hour period with the room temperature at 75°, the temperature in the powerhouse rose to only 86°. The blower speed was cut down so that blower noise was inaudible.

A master pilot light, which remains lit as long as any equipment whatever is turned on, is located on the side of the cabinet where it is most noticeable. This is operated by a bank of relays, one for each unit in the system. Such a degree of convenience and protection may seem at first to be simply an attempt to make "de luxe" an inadequate description. However, when several pieces of equipment are involved, such an arrangement is part and parcel of a thorough job. A master switch was not the answer, as both the Garrard and Capehart changers should be allowed to play through the record on the turntable. In case either the changer or the turntable is still running the pilot is a reminder to remove the arm and switch off the turntable or changer in use. Also because doors cover the screen of the television receiver, it could be left on and go unnoticed for long periods.

The antennas for both TV and FM were made to provide the maximum in signal strength attainable with the least conspicuous installation. The *Continued on page 84*

Fig. 9. Volume level of separate speaker located in bedroom can be regulated from bedside control box.



TAPE RECORDING

Have you wondered what tape recording was all about? Just how much pleasure and enjoyment you could have with a tape machine? How much of a problem it would be to use it in conjunction with your present equipment? If you have asked yourself these questions, then you should find this feature section of HIGH-FIDELITY *of real interest and practical value, for here we have reviewed the major technical considerations, reported on available equipment, and told of our own experience with the installation and operation of a standard tape recorder.*

ALAN C. MACY

To show the heart of a tape recorder — erase, record, and playback heads — Ampex made a special cover plate of plastic.

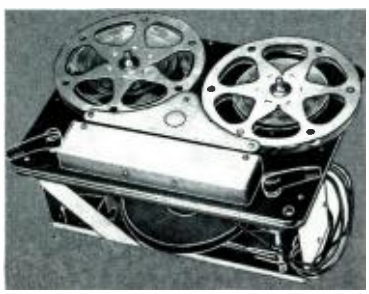
IT SEEMS a long way from the "morning-glory horn" phonograph illustrated on the facing page to a modern tape recorder, yet there is just as much excitement and fascination in store for the purchaser of a home recorder, today, as there was for the family who heard their first recorded music over a talking machine at the turn of the century. For most people, even confirmed hi-fi hobbyists, recording at home is a new and somewhat unbelievable experience. It's really startling that such a realistic record of sound can be impressed and preserved, somehow, in microscopic particles of powdered iron spread so thinly on a narrow cellophane tape.

It is also unbelievable because it is so easy. Too many people seem to have the thought imbedded in their minds, "Oh, a tape recorder is something they use in broadcasting stations. It probably takes a staff of engineers to run it!" And with that, the thought of recording at home is dismissed quickly.

Let it be stated at the outset that *home recording is easy*. Also, it is not only entertaining and fascinating, but it can be very worthwhile. It makes possible the preservation, for a few minutes or indefinitely, of *any sounds you can hear*.

Stop for a moment to think over the many things you have heard and would like to hear again . . . from baby's first words to the symphony played last night over your local FM station . . . and you will have some idea of why recording at home is so fascinating, and why so many people are purchasing recording equipment.

Yet it is only in recent years that home recording has been elevated from the realm of novelty to its present status as a high-fidelity operation. Technological advances in design and manufacture, prompted by the increasing demand for quality reproduction, have not only improved the art but have also made available good tape recorders at prices commensurate with that of other types of wide-range home equipment.



AMPLIFIER CORP. tape recording and playback mechanism. This company manufactures a wide range of tape recording and playback equipment. Illustrated above is their model 808 chassis which is foundation for many other models. Heads are usually dual track; plug-in single track heads available. No electrical circuits are included on the 808 chassis; recording and playback amplifiers, erase and bias oscillators, etc. must be added. Such equipment is avialable on a separate chassis, model 809. Cost of 808 plus 809 is $250 to $300. Tape speeds of 7½ and 15 ips. or 3¾ and 7½ ips. are available; some units operate at one speed forward, faster speed in reverse; recording and playback is possible with tape operating in either direction. On some models, tape reverses automatically, thus eliminating need to flip-flop the reels to record on second track. Complete portable units are available, with built in power amplifiers, speakers, and input connections; other models are for stereophonic recording, continuous recording, and other special purposes. A wide range of accessories is available.

AMPEX Electric Corp. manufactures professional tape recording equipment operating at speeds from 7½ to 30 ips. Available as portable or console units, with separate record and playback heads and amplifiers. Prices are $1,735 for console model, $925 for portable. Illustration at beginning of section on tape recording is of the Ampex unit.

Progress of Magnetic Recording

Prior to World War II, the disc recorder was the predominant type of equipment available to home users. Although magnetic tape had been recognized in this Country as a medium for recording, the initial development and exploitation was carried out in Germany. Subsequently, the advantages of tape were explored by American manufacturers, and today it is widely used by professional recording organizations, broadcast stations, and by phonograph record manufacturers for original recording purposes. During the last two or three years, the technique of tape recording has been standardized and simplified to a point where it is entirely practical for high-fidelity recording at home.

AMPRO model 731: About $120 complete with microphone. Amplifier and speaker built in. Portable.

SPEED 3¾ ips. HEAD dual track. REELS to 7-in. INPUT jack for microphone or radio-phono. OUTPUT jack for external speaker. AMPLIFIER OUTPUT is 2 watts. SPEAKER oval, 5 by 7 ins. RESPONSE stated to be 100 to 7,000 cycles. CONTROLS: volume, playback tone. Record level indicator. Fast forward at about 45 ips. WEIGHT 17 lbs.

Two Basic Questions about Recording

How can a recorder be used in conjunction with a high-fidelity sound system in your home? As has been stated,

it is the purpose of this feature section in HIGH-FIDELITY to answer that question in full. First, however, two basic aspects should be considered: 1) the physical and electrical considerations involved, and 2) the quality of sound reproduction which can be expected, as compared with that of the existing equipment in the system.

Fundamentally, to add a recorder to a home installation composed of a record player (or radio tuner), an amplifier, and a loudspeaker system, the only alteration necessary is the connection of the recorder between the record player (or tuner) and the amplifier. In other words, the output of the tuner or phonograph would be fed directly into the recorder and the output of the recorder into the existing amplifier. The installation is actually as simple as it sounds. Input and output jacks are built into most recording equipment, thus not even soldered connections are necessary. In most cases the entire operation consists only of plugging in leads between units.

The second point of discussion concerns the comparative quality of sound reproduction obtainable from recorders with respect to the high-fidelity standards already set by the existing equipment.

As with any other unit such as an amplifier or speaker, a recorder will perform only as well as its associated equipment allows. A poor amplifier will distort the output of the best of recorders. On the other hand, a good unit will reproduce all the faults inherent in a tuner, record player, or microphone of inferior quality. Good tape recording equipment possesses frequency response, volume range, and distortion properties comparable to the best high-fidelity equipment.

BELL model RT-65-B: $170 complete with microphone. Amplifier and speaker built in. Portable.

SPEEDS 1⅞, 3¾, 7½ ips. HEAD dual track. REELS to 7-in. INPUT jacks for microphone and for radio-phono. OUTPUT jacks for earphone and for external speaker. Latter automatically cuts out built-in 6-in. 8-watt speaker. AMPLIFIER OUTPUT is 3.5 watts. RESPONSE: 70 to 8,000 cycles at 7½ ips.; to 5,000 at 3¾; to 3,500 at 1⅞ ips. CONTROLS: volume, tone, record-playback, and equalization switch. Fast forward and rewind at 45 ips. Record level indicator. WEIGHT 33 lbs.

Factors to Consider in Buying Tape Equipment

The prospective purchaser of tape recording equipment must take into consideration the price of equipment, uses

DUKANE: Under $200 complete with microphone. Amplifier and speaker built in. Portable.

SPEED 7½ ips. HEAD dual track. REELS to 7-in. INPUT jack for microphone or radio-phono. OUTPUTS for headphones or external amplifier-speakers, and for external speaker. AMPLIFIER OUTPUT is 7 watts to built-in oval speaker 6 by 9 ins. RESPONSE: 50 to 8,000 cycles. CONTROLS: volume and tone. Fast forward and rewind at 150 ips. Record level indicator. WEIGHT 26 lbs.

to which the recorder will be put, compatability with present high-fidelity equipment and, finally, a series of technical specifications of overall quality.

As in any item where quality is a prime requisite, price becomes a dominant factor. Generally speaking, price and quality of tape equipment correlate: the higher the fidelity, the better the mechanical workmanship, the greater the flexibility of the equipment — the higher the price. Prices range from about $100 to several thousand. The top-price equipment is intended primarily for professional and studio use; below that level there is equipment to fit almost any budget and meet any needs.

Uses to Which Equipment Will Be Put

By far the most important question which the prospective buyer must answer is: to what use will this equipment

Circa 1900: morning glory horns and cylindrical phonograph records

EKOTAPE models 109 and 111: Under $200 complete with microphone. Amplifier and speaker built in. Portable.

SPEEDS 3¾ ips. on model 109; 7½ ips. on model 111. Models otherwise identical. HEAD dual track. REELS to 7-in. INPUTS for microphone and for radio-phono. OUTPUT jack for external speaker. AMPLIFIER OUTPUT is 2.5 watts. RESPONSE: 60 to 4,000 cycles at 3¾ ips. (model 109); to 7,000 at 7½ ips. (model 111). CONTROLS: volume, tone, record-playback, and switch to cut out built-in speaker. Fast forward and rewind at about 75 ips. Record level indicator. WEIGHT 34 lbs.

be put? A. C. Shaney[1] has listed over 1,000 applications for recording equipment! Careful consideration of a few leading questions will help in finding the final answer:

Is portability required? Will the equipment be used for recording in the field, where it must be carried to various locations?

If the answer to this question is affirmative, then the second question is: will the ability to play back the tape in the field be a requisite? This determines whether or not an amplifier and speaker must be included with the portable unit.

If it is desired to install the recorder permanently, there are several possibilities. Some manufacturers market recorders with the tape-handling mechanism assembled and mounted separately from the recording and playback amplifier. Thus, the two units can be fashioned into any

EKOTAPE model 101-8: About $375 complete with microphone and carrying case. Amplifier and speaker built in.

SPEED 7½ ips. HEAD single track. REELS to 7-in. INPUTS for low-level microphone and for radio-phono. OUTPUT jack for external speaker. AMPLIFIER OUTPUT is 5 watts. RESPONSE 40 to 8,000 cycles. CONTROLS: separate recording and playback volume controls; separate bass and treble playback tone controls. Fast forward and rewind at about 75 ips. Electronic eye record level indicator. Amplifier has separate channels for recording and playback; amplifier and speaker may be used for straight phono, radio, or public address. Speaker is 8-in. WEIGHT in case 50 lbs.

arrangement desired. Other recorders are assembled as complete, single units, generally mounted in carrying cases.

Finally, how much fidelity is required? The range of equipment available today is unlimited. Some units are adequate for speech only; others provide a frequency range which extends beyond the limits of hearing. If the tape equipment is to be used primarily for recording romps in the rumpus room (*i.e.*, voice) then a top frequency of 3,500 cycles may be adequate. If preservation of baby's first yowls is the objective, then the less the fidelity, the better (they will sound yowlier!). If, on the other hand, the plan is to record accurately live music programs received on an FM tuner, then a frequency range up to at least 12,000 cycles per second is required.

Compatibility with Present Equipment

The questions of price and application are paramount. After they have been settled, it is necessary to make certain that the type of recorder tentatively selected can be adapted to the audio equipment at hand. Almost any recorder *can* be adapted to an existing system. A careful study of the equipment specifications given in this article,

MAGNECORD model PT-63-A and PT-63-J: Both units about $350 each. Separate recorder mechanism and amplifier.

SPEEDS 7½ or 15 ips. by changing capstans. HEAD single track. REELS normally to 7-in.; adaptor for 10½-in. Recording mechanism unit incorporates erase and bias oscillator. The record amplifier and playback compensating amplifier are in a separate unit. Fast rewind; fast forward available. RESPONSE: 50 to 15,000 at 15 ips. to 7,000 at 7½ ips. Amplifier unit illustrated above, left, provides 10 watts output to drive external speaker; monitor speaker included in case. Record level meter. Separate record and playback volume or gain controls. Separate equalization for playback at 7½ or 15 ips.

Magnecord manufactures a considerable variety of tape recording and playback equipment, including professional consoles in the $1000 class. Speeds from 3¾ to 15 ips are available; two-and three-head recording and playback units; continuous loop equipment, various input and mixing amplifiers.

and of manufacturers' literature, will reveal how much rearrangement may be necessary.

One further suggestion: obviously, tape performance is not better than the audio system used with it. Nevertheless, that should not serve as a limitation on the quality of the recorder selected.

[1]Elements of Single and Dual Track Magnetic Recording. A. C. Shaney. Amplifier Corp. of America. 1950.

Technical Specifications

Manufacturers' literature abounds with technical specifications for every piece of equipment. Because it is important to know what they mean in terms of results to be expected from a specific unit, a fairly complete glossary is given below. These technical specifications can be divided into major classifications: 1) electrical, and 2) mechanical.

MASCO model D-37: Under $250 complete with microphone. Amplifier and speaker built in. Portable.

SPEEDS 3¾ and 7½ ips. HEAD dual track. REELS to 7-in. INPUTS for microphone and for radio-phono. OUTPUT jacks for external speaker, headphones, and external amplifier-speaker system. AMPLIFIER OUTPUT is 5 watts. SPEAKER, built in, is 6-in. RESPONSE: 80 to 5,000 at 3¾ ips.; to 8,500 at 7½ ips. CONTROLS: volume and tone. Hum level 50 db below full output. Signal-to-noise ratio 40 and 45 db at 3¾ and 7½ ips. respectively. Record level indicator. Playback equalization separate for each speed. Rewind speed about 70 ips. WEIGHT: 34 lbs.

Masco manufacrures several other models, fundamentally the same as the D-37; some include AM radio.

PENTRON model PB-A-1: *Playback only*. About $90 with amplifier and speaker built in. Portable.

SPEED 3¾ or 7½ ips. HEAD dual track. REELS to 7-in. RESPONSE: 50 to 8,000 at 7½ ips. AMPLIFIER OUTPUT is 5 watts; SPEAKER 5¼-in.

Model PB-1 is tape mechanism and tape *playback* preamplifier only.

Pentron also manufactures model 9-T-3 recorder which sells for about $180. SPEEDS 3¾ or 7½ ips. HEAD dual track. REELS to 7-in. INPUT jacks for microphone (crystal supplied) and radio-phono. OUTPUT jacks for external speaker and for headphones or separate amplifier-speaker system. SPEAKER, built in, 6-in. AMPLIFIER OUTPUT is 5 watts. RESPONSE: 50 to 5,000 at 3¾ ips., to 8,000 at 7½ ips. CONTROLS for volume and tone. Fast forward and rewind at about 150 ips. Flutter less than 0.5%; signal-to-noise ratio, 50 db. WEIGHT 26 lbs. Portable.

FREQUENCY RANGE: This term refers to the range of frequencies which can be handled efficiently by the recorder, with a minimum of deviation. The better recorders today usually have a response at least within ±3 db over a range of 50 to 10,000 cycles. Standards adopted by the National Association of Broadcasters call for response of ±1 db between 100 and 7,500 cycles. Outside the 100 to 7,500-cycle range, these standards state that response deviations may exceed ±1 db at a rate of approximately 3 db per octave. In other words at 7,500 cycles deviation can be ±1 db but at 15,000 cycles the deviation can be ±4 db, the same being true at the low end.

The frequency *range* is determined largely by tape speed. Very roughly speaking, the range is 1,000 times the speed with which the tape passes the recording head. Thus a machine with a tape speed of 7½ inches per second (one of the standard speeds) will be able to record frequencies up to about 8,000 cycles. The *flatness* of frequency response — the ±1 db figure mentioned above — depends largely on the degree of equalization or compensation incorporated into the electronic circuits associated with the tape mechanism itself. Without compensation, the mechanical recording operation alone does not record or reproduce all frequencies with equal fidelity.

DYNAMIC RANGE: This is a ratio which expresses the relation between the loudest and softest passages which can be recorded. It is usually expressed in db. Whereas a good disc recording can handle variations in power of 10,000 to 1, or 40 db, a magnetic tape can produce ranges of 60 db. However, this dynamic range is usually contracted by the recording and playback equipment. Consequently 40 db is accepted as a practical value for all reasonable applications.

AMPLITUDE VARIATIONS: This is the variation in output level which can be expected when a constant input signal is fed to the system. These deviations from original are caused by many factors including imperfections in the tape and changes in distance between the tape and the recording or playback head, sometimes known as transverse weave. A maximum normal deviation of 1 db is considered acceptable.

POWER OUTPUT: If no external amplifier is used, an output of 1 to 5 watts is usually adequate. If an external amplifier *is* used, power requirements depend on the amplifier. Usually, an input to the amplifier of about 1.0 volt will be sufficient.

TOTAL DISTORTION: The total distortion of a magnetic recording system includes all distortion introduced by the recording amplifier, the tape, and the playback amplifier. Such distortion should be kept below 5%.

ERASING: The process of removing previously recorded program material — erasing — is accomplished by demagnetizing the tape with a direct current, a permanent magnet, an alternating current, or a supersonic signal. The supersonic signal method is considered best, and provides maximum erasure with minimum background noise.

BIAS FREQUENCIES: Biasing in tape recording is done to

PRESTO Recording Corp. manufactures professional tape and disc recording equipment. Their model SR-950 studio tape recorder operates at 7½ and 15, or 15 and 30, ips. and handles up to 14-in. reels of tape. Price is $2,785 complete with record and playback amplifiers. Separate tape transport mechanisms are available around $750, with mixer-amplifiers at about $400. A tape drive mechanism which can be attached to a 16-in. transcription turntable is a recent innovation.

take advantage of the most efficient and undistorted magnetizing range that is available from the magnetic head. Although no fixed standards have been set, the purchaser should compare the bias frequency with the highest frequency of the recording system. The former should be approximately five times that of the latter to avoid undesirable beat frequencies caused by the interaction of high frequency signals with the bias frequency.

There are mechanical specifications which must be examined in regard to tape recorders, for they are as important as the electrical specifications. Before continuing

RECORDIO model 2-A-10: About $150 complete with microphone. Amplifier and speaker built in. Portable.

SPEEDS either 1⅞ and 3¾ or 3¾ and 7½ ips. HEAD dual track. REELS to 7-in. INPUTS for microphone and for radiophono. OUTPUT jack for external speaker. Record level indicator. Fast forward and rewind. WEIGHT under 20 lbs.

the glossary of terms, it would be wise to discuss two major considerations separately: tape speeds and single track vs. dual track recording.

Because the *movement* of the magnetic tape past the magnet in the recording or playback head is the basis of magnetic induction between them, much experimentation has been done on the relation between tape speed and audio quality. The most common tape speeds in use today are 1⅞, 3¾, 7½, 15, and 30 inches per second (abbreviated ips.). The slowest speeds are generally confined to applications where wide frequency range is not essential, such as the recording of speech. The fastest speed is generally considered as necessary only in certain professional work.

Most recorders combine two of these speeds, one twice as great as the other. The usual combinations are 3¾ and 7½ ips., or 7½ and 15 ips.

The second major distinguishing feature is the provision for single track or dual track recording. The "track" corresponds to the groove on the phonograph record.

Some tape machines record a single track on ¼-inch tape, while others record two tracks. The principal difference is that dual track tape is economical of storage space and money for a given amount of playing time, because a single reel of tape serves twice as long. Single track tape, on the other hand, is easier to edit, which may be an important feature for the amateur recorder. It is quite simple to cut and splice together single track tape, thus eliminating portions of the recording. However, there is no reason why, with a dual track recorder, more than one track *need* be recorded, should editing of a particular tape be important. But, a recorder with dual track heads cannot reproduce from single track tape, and vice-versa.

To accommodate these different methods of recording, different magnetic heads must be used. For some recorders, separate dual track heads can be purchased and interchanged with single track units. Others have mechanical adaptations of single track heads so that they can be physically raised or lowered to record or playback on the proper track. There is little or no difference in the cost of the recorder in either case.

Other mechanical specifications important to the prospective buyer are discussed here briefly:

LINEAR SPEED VARIATIONS: One of the basic and most important requirements of any tape recorder is that the speed of the tape as it passes the recording head be as uniform as possible. Any variations in this speed will cause distortion in the form of flutter, wow, or drift. When the variations reoccur at a relatively high rate, say 10 times per second, they are commonly referred to as flutter. Wow usually refers to recurrent deviations which take place at a slow rate, in the neighborhood of ½ to 1 times per second. A very slow rate of change in speed occurring at random is known as drift. Any such distortion is generally the result of poor design or operation of the tape-driving mechanism.

SONAR model PTM tape mechanism: About $225, carrying case extra. Tape transport mechanism only.

SPEED 7½ ips., or 7½ and 15 at extra cost. HEAD single track. REELS to 10½-in. Wow and flutter less than 0.25% at 7½ ips. Can be mounted in any position.

No electronic equipment is included with this unit. Addition of RPA-1 record playback amplifier (about $220) enables equipment to be used with microphone or radio-phono inputs, and to be fed into external amplifier-speaker system. 5-in. monitoring speaker supplied with amplifier; also headphone jack. Record level meter.

Sonar also makes other tape equipment, including complete semi-portable unit with built-in amplifier and speaker, and tape preamplifier unit.

TAPE TENSION: This indicates the pull exerted upon the tape after it has passed the capstan. The capstan actually drives the tape. The reels are merely handling devices, providing only rough compensation for the variations which they themselves introduce. However, these reels, or more properly the motors which drive them, must provide adequate and fairly even tension to prevent tape slippage or irregular tape feed. If the tension is too high, plastic tape will stretch. A pull of 3 to 9 ounces is usually employed.

SOUND MIRROR: Around $225 complete with microphone. Amplifier and speaker built in. Portable.

Brush makes several different models operating at 3¾ or 7½ ips., single track, with and without amplifier and speaker. Tone and volume controls included on all, also inputs for microphone and radio-phono. Fast forward and rewind at 75 ips. 8 in. speaker on model illustrated. Weight 34 lbs.

PLAYING TIME: This specification is often used as a selling point. It is *always* a function of tape speed and reel size. In single track mechanisms the playing time is naturally continuous and uninterrupted. In dual track mechanisms, however, the *uninterrupted* playing time is dependent upon the type of reversal employed at the end of recording or playing back the first track. If this reversal is automatic, twice the normal *continuous* playing time is obtained. If the flip-flop system of reversal must be used, the *uninterrupted* playing time is the same as for single track units. By the flip-flop system is meant a manual procedure which involves interchanging and turning over the reels before the second track can be used. The *total* available playing time, however, is double that of single track units.

HIGH TAPE SPEEDS: High tape speed in either direction is usually referred to as fast forward or rewind. It is often expressed as a ratio between the high speed and normal playing speed. Another method of expression is the indication of the total rewind time for a given length of reel.

RUBBER DRIVE WHEELS: Most recorders are equipped with rubber wheels to drive the various rotating mechanisms. Because rubber deteriorates under the influence of heat, it is important to provide ample ventilation below the chassis, particularly if the amplifier is located in the same compartment. Do not, under any circumstances, let oil get on the wheels. If they become glazed from use, wipe them off with a little lighter fluid. Rubber driving wheels should be arranged so that the pressure against the driven wheel is removed automatically when the mechanism is not in use. If not, the rubber wheels develop flats, causing flutter distortion.

STANCIL-HOFFMAN model Minitape. $249 with microphone. Recording unit only; battery operated.

SPEEDS 7½ and 15 ips. or 3¾ and 7½ on special order. HEAD single track. RESPONSE 100 to 5,000.

The Minitape is one of a series of professional units manufactured by Stancil-Hoffman, and is specifically designed for field recording. Accessories include a tiny monitoring amplifier which operates into a hearing aid earphone. Other Stancil-Hoffman equipment includes tape transport mechanism providing response ±1 db from 50 to 15,000 cycles at 15 ips., accommodating 14-in. tape reels, and holding flutter or wow to less than 0.1% at 15 ips. Another model of same mechanism provides response of ±2 db from 40 to 30,000 cycles at 30 ips. Available accessory equipment includes input mixing amplifiers, recording and playback amplifiers and equalizers, and power supplies.

In the foregoing part of this article, we have tried to cover the essential technical elements involved in tape recording, and to review a representative group of tape recording units currently available. It should be pointed out that it has not been possible to include *every* piece of equipment manufactured, and that many of the manufacturers whose equipment has been illustrated produce other types and models of tape equipment.

Prices and specifications reported are those in effect at the time material was collected for publication.

WEBSTER-CHICAGO model Web-Cor. $180 complete with microphone. Amplifier and speaker built in. Portable.

SPEEDS 3¾ and 7½ ips. HEAD dual track. REELS to 7-in. INPUTS for microphone and radio-phono. CONTROLS: record level, playback volume, bass-treble tone. Electronic tube record level indicator.

Installation and Operation of a Magnetic Tape Recorder

IT IS all very well to write an article about tape recording equipment, to review the various kinds of recorders available today, to discuss the technicalities of the art, and to arouse enthusiasm over the possibilities of home recording. But when a recorder has been purchased and brought home, then what happens?

We decided there was only one way to answer that question: to get a tape recorder, bring it home, and watch very closely what happens. We did just that — and this is the story of our experiences, difficulties, problems, and achievements.

Selection of a Particular Unit

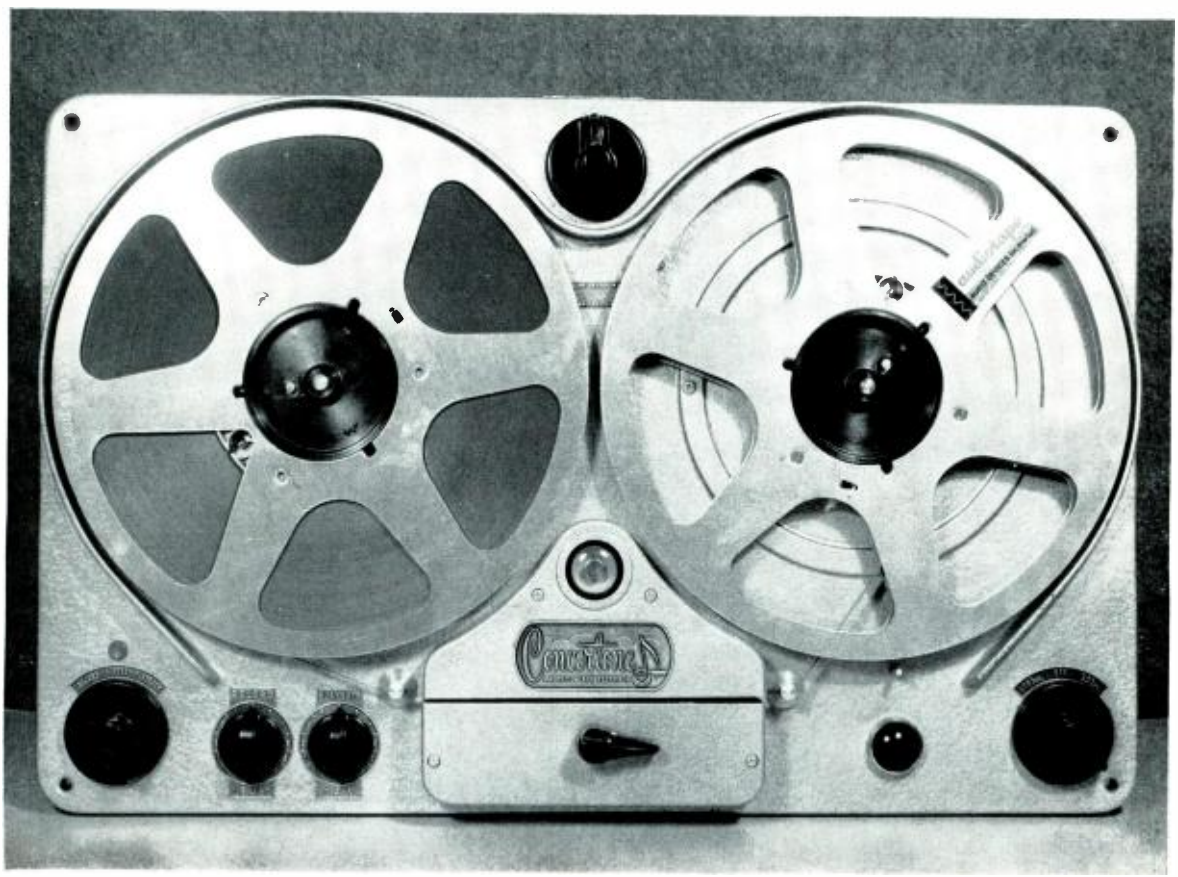
Our first inclination was to get a typical "packaged" recorder, one of the kind that has a microphone already attached with built in amplifier and speaker, so that it is only necessary to plug it in the AC outlet, thread the tape, and start talking. Then we realized that in so doing, we would skip a good many possible complications. A unit which fitted into our existing high-fidelity system ought to bring to light any troubles in the way of interconnections and any lack of fidelity which would show up on an A-B test over a wide-range system.

Nor did we think it quite fair to take a professional recorder as our test unit, because the cost of such equipment puts it beyond the budget of the average person.

We settled finally on a Concertone for a number of reasons. For one thing, it appeared to require the plugging in of only two wires to connect it into our high-fidelity system. Moreover, it was available as a single chassis *without* a built in amplifier and speaker, but *with* the necessary recording and playback preamplifiers and compensating circuits attached to the chassis. Thus, since we had a good amplifier and speaker system, the Concertone seemed to require no duplication of equipment already at hand, nor was it necessary to buy any additional accessories.

Under any circumstances, the Concertone would be typical of the semi-professional class of recorders. With minor variations, our experiences with it would be repeated with other units in this class.

Fig. 1. For our experimental installation of a tape recorder, we chose a Concertone (Berlant Associates, Los Angeles, Calif.). It operates at 7½ and 15 ips. and accommodates reels up to the 10¼-in. NAB size, shown with adaptor hubs on the recording unit below.



Specifications for Concertone

Because we knew we were going to discuss this unit at some length, the specifications for it were omitted from the group reported on previous pages. Briefly, they are as follows: SPEEDS, 7½ and 15 ips.; HEADS, both dual and single track units available; separate erase, record, and playback heads; INPUT, plugs for radio-phono and low-level microphone; REELS, to 10½-in.; OUTPUT, connection direct to amplifier-speaker system; RESPONSE, 50 to 9,000 cycles at 7½ ips.; to 15,000 at 15 ips.; CONTROLS, separate volume controls for record and for playback. Electronic eye record level indicator. Signal-to-noise ratio better than 50 db. Flutter and wow 0.1% at 15 ips. Additional accessories available include carrying case with or without monitoring amplifier and speaker, and console cabinet. WEIGHT of chassis only 50 lbs.

Setting Up the Tape Recorder

After unpacking the Concertone, we looked it over thoroughly and set it up immediately for photographing. Fig. 1 shows the appearance from the top, with two NAB 10½-in. reels and adapters in place. Fig. 2 is the same view, minus the reels and tape. Fig. 3 is an overall view of the underside of the chassis. Easily visible are the three motors, the power supply at the lower right, and the record-playback amplifier, erase and bias oscillator, and other electrical components on the sub-chassis at the upper left. Fig. 4 is a close-up view of this sub-chassis to show input and output connections and various control shafts.

We decided to make a temporary base for the chassis. A template for cutting out such a base is stencilled on one of the pieces of corrugated board used in packing the recorder, and this should be very carefully followed. Here we made our first mistake.

We thought we could make a plain rectangular frame into which we could set the recorder for the time being. We measured the base plate and made the inside dimensions of the box about ¼-in. smaller all around, so that the lip on the base plate would sit firmly on our box. No dice. The clearance between the equipment mounted under the chassis and the edge of the base plate is only about ¼-in. in several spots. The template must be followed exactly, even to the inside corners which are angled in such a way that there is wood available in the right spots for screwing down the base plate.

Another session in the workshop produced a piece of ¾-in. plywood, with the center section cut away to fit the template, and about 3 ins. larger all around on the outside. A new rectangular box was made, to fit the plywood base. This time, everything went together nicely.

We would recommend that the purchaser of a tape unit such as this follow our steps in making a temporary subbase for use until the requirements of the specific installation are clearly defined. If the installation must be final, right from the start, then a few suggestions are in order For one thing, we have found it desirable to have the subbase (our piece of plywood) hinged to the rectangular box which we built. This facilitates getting at the underside of the chassis to make connections to the input and output plugs. The Concertone *can* be lifted out, but it is heavy and there is nothing on the top of the chassis which provides a good grip. We finally drilled some 1-in. holes in the back edge of our sub-base. They serve the dual purpose of providing ventilation and giving us something into which we can slip a finger when we want to lift up the sub-base.

Another problem to be considered before the final installation is made is the question of portability. If the tape recorder is going to be installed and left alone, that's one thing. But if there will be occasion to move it to other locations, then provision should be made for shifting either the metal base or plywood sub-base to a carrying case of some sort.

While we are on the subject of mounting the equipment, we should discuss another problem which we ran into much later in our chronological story. That was noise.

When we used a microphone with the recorder, and turned the gain way up, we found we were picking up a grinding sound. Examination revealed that the plywood on which we had mounted the tape recorder served as a nice sounding board. Then we had put that on a solid box which made the noise worse. As if that wasn't bad enough, we had put the whole contraption on a large, box-like cabinet!

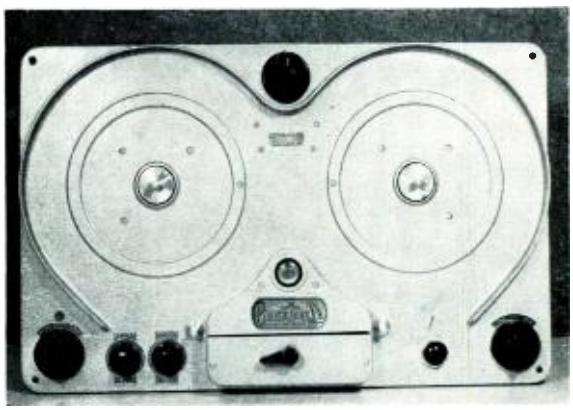


Fig. 2. All major operating controls are along the front edge of the recorder. Three heads are enclosed in the housing at center.

After all, there are three motors operating in the Concertone, and although they run with amazing quietness, they can be heard. When conditions are just right (or wrong!), that sound can be amplified to a point where it becomes background noise when a microphone is used close to the recorder.

The ideal answer is shock mounting, but if that is not possible, sponge rubber at judicious spots will relieve the situation. A few pieces of heavy felt would probably serve equally well.

From the foregoing, the conclusion might be drawn that a good many mounting problems were encountered. Actually, most of them were brought on by our own carelessness and haste to get the equipment into operation.

They are mentioned in detail here because, though they were unnecessary difficulties, others might run into the same troubles.

One final point in planning the installation of the recorder: the Concertone should be operated in a horizontal position. If necessary, it can be tipped slightly, but not more than 30° from the horizontal. Other machines are designed to operate in a vertical position, and they should be used in this position unless the manufacturer's directions specifically state otherwise.

Operating Controls

Once we had the recorder firmly anchored in its cabinet, we made a very careful study of the control knobs and their functions. These are all plainly visible in Figs. 1 and 2. Although the exact positions of the knobs will probably not show in the illustrations, all are in an "off" position in Fig. 2, whereas in Fig. 1 they are positioned for recording at 15 ips. The only operating control on the top edge of the base plate, as seen in Fig. 2, is the FAST WIND CONTROL. When the pointer on the knob is at 6 o'clock, it is inoperative. When turned clockwise to point toward 9 o'clock, the tape will wind onto the left hand supply reel at high speed. When the pointer is at 3 o'clock, tape will wind onto the right hand (take-up) reel. This control is interlocked with other controls and will be discussed in greater detail below.

Along the bottom edge of the base plate are the main operating controls for the recorder. In the left-hand corner is the FUNCTION SELECTOR, with a small push button directly above it. In its 12 o'clock position, the recorder is at standby. In effect, it is short circuited so that program material being fed into the recorder goes directly into the amplifier.

When the function selector is pointed toward 11 o'clock, its record position, material being fed into the machine is recorded on tape, and the recording volume level is controlled by the RECORD LEVEL knob, immediately to the right of the function selector control. In order to turn the function selector to its record position, the little push button must be depressed to release a safety catch. Since the tape is automatically erased before recording, when the machine is in the record position, this safety device prevents accidental erasing of programs already recorded.

The third position of the function selector is at 1 o'clock, which is playback. In this position, the erase and record heads are made inoperative, and material on the tape can be played back through the high-fidelity system. Playback volume is controlled by the third knob from the left, marked PLAYBACK GAIN.

It should be pointed out at this time that a program can be monitored, or listened to, as it is being recorded. As tape feeds through the successive heads, it is first erased, then recorded, and then passes the play-back head. If, as the recording is being made, the playback gain control is advanced clockwise, the sound which comes from the loudspeaker is that of the recording, not of the original.

In the center of the base plate is the recording head itself. The slot through which the tape passes bisects the head; above the nameplate is the tuning eye which indicates the recording level. This is inoperative except when the function selector is in the record position; then the eye lights up, forming a wide-angled V. When sound is being recorded, the V will begin to close as the record level knob is turned clockwise. The recording level should be adjusted until the eye almost closes on the loudest passages of the material being recorded.

Below the tape slot in the recording head is the TAPE DRIVE control. When it points toward 9 o'clock, as in Fig. 2, it is inoperative. When it is turned counterclockwise (down through 6 o'clock, *not* around through 12 o'clock) and over to a 3 o'clock position, as in Fig. 1, the tape drive mechanism is started. This is the operating position for either recording or playing back.

To the right of the recording head assembly is a pilot light, and in the far right hand corner of the base plate is the SPEED SELECTOR control. In its center or 12 o'clock position, the entire tape recorder is off. At about 10 o'clock, the tape is driven at 15 ips.; at about 2 o'clock, tape speed will be 7½ ips. The speed selector must be turned to either one of these speeds before any of the motors or amplifier circuits will operate. Furthermore, it should be returned to its off position whenever the recorder is not in use, since in this position various rubber rollers are retracted to avoid forming flat spots.

Connecting the Recorder

After studying the basic functions of the controls on the Concertone, we decided it was time to connect it into our high-fidelity system and try it out on an actual program. This proved to be simplicity itself.

An examination of Fig. 4 will show that there are three RMA jacks along the top edge of the amplifier chassis. In our set-up, we had a wire running from our FM tuner and phono selector switch into our hi-fi amplifier. This we disconnected and plugged into the LOW GAIN socket on the recorder. We connected a new wire from the recorder OUTPUT socket to the amplifier. A third wire was run from the microphone to the socket marked HIGH GAIN. Obviously, this third wire is not necessary if the recorder is not to be used with a microphone. If such is the case, the high gain input socket should be shorted to ground. When the Concertone was unpacked, a shorted RMA plug was already in place in the high gain socket.

These are the only connections which need be made. Adding this recorder to a hi-fi system was extremely simple.

Incidentally, the shorter the connecting wires, which should be shielded cable of course, the better. A wire not more than 8 or 10 ft. long is maximum for the low gain input. Wires longer than 15 ft. should be avoided on the output side, if possible. With these connections made, we were ready to try our first recording.

Tape Recording in Practice

We started our experiments by threading tape from a 7-in. spool through the head assembly slot and onto a take-up reel on the right side, and we played that reel back and

forth through the machine, recording, playing back, winding forward and back at high speed, and learning the action of the controls under all operating conditions. It is recommended that this same procedure be followed by others, as it is the best way to learn how a tape machine operates. It may be helpful, however, to report some of our experiences.

First, it will soon be found that threading the tape is no problem, but attaching it to the take-up spool is not so easy for the butter-fingered! The tape we used had a small piece of scotch tape attached to its leading end. This we maneuvered around until it adhered to the hub of the take-up reel. This worked all right for a while, but eventually we found that the easy way to do it was to slip the tape into the take-up reel, push it gently into one of the three drive slots on the hub with a pencil and, while holding the tape with the pencil, revolve the reel about 1½ turns until the tape had caught on itself.

This is the procedure for plastic reels. For 10½-in. NAB reels, as shown in Figs. 1 and 2, first an adaptor hub must be dropped into place, then the big reel, and then the threading done. On NAB reels, there is a special gimmick for attaching the end of the tape. The tape is looped back on itself for a couple of inches, the loop slipped over the pin as in Fig. 1, and the spool turned until the tape is snug. Once we had practiced a few times, it was simple enough.

In threading the tape through the machine, care must be exercised to make certain that the tape on the supply reel does not loosen and drop off. This seems to happen more easily with the big 10½-in. reels than with the smaller plastic ones, primarily because the tape on the big ones is loaded almost to the very edge of the reel.

Another precaution in threading the tape through the slot in the head assembly is to make certain that it is threaded through evenly all the way. We found that, after we had reused the tape half a dozen times, the first couple of feet became a bit crinkled. Then there was danger that the tape would catch on one of the felt pads, inside the head assembly, which are used to hold the tape against the heads when the machine is being operated. If the take-up reel was revolved by hand a couple of times, the tape tended to ride up in the slot if it had not been properly threaded.

Once the tape had been threaded, we played with the controls. It was noted at once that the fast wind control, at the top in Fig. 2, was interlocked with the tape drive control. The tape drive control must be in the off or 9 o'clock position before the fast wind control is turned; conversely, the latter must be in the 6 o'clock position before the tape drive lever is moved from 9 o'clock to 3 o'clock.

We found it took 65 seconds to fast-wind a 7-in. reel in either direction and about 80 seconds for a 10½-in. reel. We were very much intrigued by an automatic slow-down system which made the reels shift from extreme high speed to almost a dead stop as the end of the tape approached. This prevented damage to the tape.

Next, we found that the tape drive control should be switched from off to on *rapidly*. When we did it slowly, or paused halfway, the take-up reel turned rapidly and

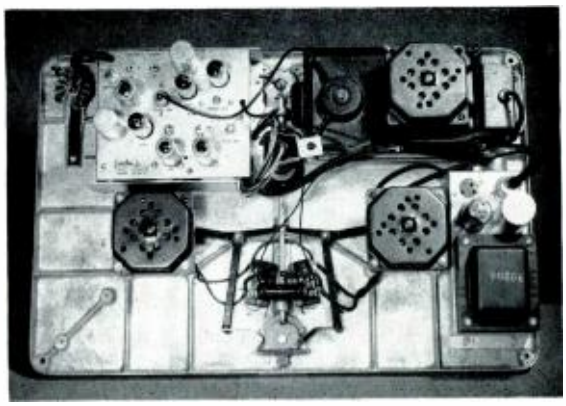


Fig. 3. View of underside of Concertone tape recorder chassis.

the brakes were released from the supply reel. Then as we went on to the on position, the tape slowed down abruptly and the supply reel coasted on, letting the tape fall out of the reel. This does not happen when the tape drive control is turned from on to off, because then the brakes are applied to the supply reel before the motor on the take-up reel stops pulling.

Rather than go into a more detailed discussion of this phenomenon, we advise the beginner to try it. Nothing serious will happen beyond a minor snarl of tape, and in this case seeing is learning.

Recording a Program

There is nothing more to the mechanical operation of the recorder than has been outlined above. As in the discussion of the installation of the unit, it may seem that undue emphasis has been placed on troubles and complications. What is actually surprising is that there are so few problems to report! Once a little dexterity can be acquired in threading the tape, a reel can be changed in less than a minute.

Fig. 4. Close-up of the recording and playback preamplifier subchassis shows input and output connections in upper left corner.

For our first recording session, we chose an FM concert station as our program source. The recorder had been connected into our hi-fi system as described previously, and the speed selector control turned to 7½ ips. The tape drive control was at its off position, and the function selector at standby. The volume control on our hi-fi system was adjusted to moderately loud room level. The tape drive control was turned on, the function selector switched to record, and the record level knob adjusted until the eye kept blinking but not closing. Then the playback gain knob was advanced until we could hear what was being recorded on the tape. From then on, we experimented back and forth. The reader will want to do the same with his equipment, but notes about a few tricks may be helpful.

Suggestions for Making Recordings

For true high-fidelity results, a tape speed of 15 ips. is recommended. We recorded a program by Leonard Rose, the cellist, broadcast over television. At 7½ ips. the cello tone was unnatural, fuzzy in the highs, and lacking in richness. At 15 ips., it was next to impossible to tell the difference between the live and tape recorded reproduction. Fidelity of recording can be checked very easily with the Concertone. Simply adjust the playback volume level until it matches the level when the function selector switch is in the standby position. Then switch back and forth from standby to record; any differences will be immediately apparent.

It should be noted that a good many programs, either live or off-the-air, do not require the extra fidelity of 15 ips. The type of material, or the subversive activities of the engineers in the broadcast studio, may obviate the need for reproduction of frequencies above 8,000 cycles, which is the approximate limit at 7½ ips.

Getting the recording under way smoothly can be done in several fashions. We like to get the tape running, with the function control in the record position, and *then* turn up the record level control from zero to its proper position (which we have found to be about 7 for our operating conditions). In this way, the music, or whatever, fades in. Similarly, when a program is brought to a close, we turn down the record level to zero, and then turn off the rest of the controls.

If the machine is started with the record level up, function selector at record, and then the tape drive is turned on, there is a fraction-of-a-second "glurp" sound while the tape gets under way. It's about the same as starting a phonograph by putting the needle in the middle of the record, turning up the volume control, and *then* starting the turntable motor.

Unwanted material can be eliminated while recording simply by flipping the function selector from record to standby. If, for instance, a program is being picked up off the air, and voice announcements are not wanted, the recorder can be switched to standby during that momentary pause at the end of a musical selection, before the announcer starts talking. Tape motion can be stopped during the time that the announcer is on, but it should be started again just before he finishes. Then, when he finishes, the function selector can be switched back to record.

There will be, of course, a break of a few moments silence during recording under these conditions. There will be silence *provided* nothing has been recorded previously on this part of the tape. If the tape is being reused, the previous recording will be left unerased during the time that the function selector is in its standby position. Erasing occurs only when the function selector is in the record position.

Erasing sections of recorded material is possible, but requires practice and exact knowledge of the time it takes to start and stop the machine. The steps involved are as follows: play over the section to be erased several times, until thoroughly familiar with every sound, both preceding and following the beginning of the section to be erased. Select some noticeable sound which occurs a few seconds before the erase section, and another a few seconds after the erasure should end. Then, with a stop-watch, time exactly the number of seconds between the first "sound marker", the beginning of the erase section, the end of the erase section, and the final sound marker. When ready to erase, turn the function selector to playback, and adjust the record level knob to zero. Back the tape onto the supply reel for a few feet ahead of the first sound marker. Start the recording, playing back the sound. Start the stopwatch when the first sound marker occurs, and be ready for action. A fraction of a second before the stopwatch indicates that the erase section is to begin, flip quickly to record position. Again, a fraction of a second before the stopwatch indicates the end of the erase section, flip back to playback. After a few experiments, it will be apparent just how long that "fraction of a second" should be. It will be different for each speed at which the recorder is operated.

That fraction of a second is required because of the fact that the playback head follows the erase head. And this fact necessitates the stopwatch; erasing has been accomplished before playback can occur.

EDITOR'S NOTE: In the next issue of HIGH-FIDELITY, we shall discuss the recording of live programs with a microphone, and will report on various types of microphones for use with recording equipment.

For those who would like to study the technique — and technicalities — of tape recording in more detail, several books can be recommended. *Magnetic Recording* by S. J. Begun (Rinehart Books, Inc., 1951) devotes several chapters to history and theory, but the major part of the book is given over to a detailed study of equipment, magnetic recording components, and accessories.

Elements of Single and Dual Track Magnetic Tape Recording, by A. C. Shaney (Amplifier Corp. of America, 1950) is another excellent and all-around treatise on the subject. Both books are definitive texts which are must reading for the serious tape enthusiast.

The Brush Development Company has issued several pamphlets, including *How to Edit and Program Tape Recordings* and the *Soundmirror Book of 101 Uses* which are most helpful in guiding tape recording activities.

RECORDS in REVIEW

J. F. INDCOX • C. G. BURKE

NOTES ABOUT RECORD REVIEWS

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

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

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

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

AUBER: *Fra Diavolo*

Irma Beilke (s), Marie Luise Schilp (ms), Hans Hopf (bne), Arno Schellenberg (bs), Lorenz Fehenberger (t), Gottlob Frick (bs), Kurt Boehme (bs), Karl Wessely (t). Chorus of the Dresden Opera and Saxon State Orch.; Karl Elmendorff, cond. Urania 2 12-in. URLP 204. 1 hr. 29 min.

Presenting our only completely recorded example of French *opéra comique* of the fresh period before the form travestied itself, this is a projection of a dimpling, tuneful score carrying an agreeably preposterous and inconsequential fable. Elmendorff, an old hand known to us as a conductor of Wagner, keeps the orchestra gaily bubbling, and the cast are adroit in a singing comedy which molded the style of Arthur Sullivan. Scribe's French would of course have been preferable, but the injury inflicted by the use of German is limited to the historical aspect, external to the music and the action. Reproductional quality is remarkable in a coalition of bright limpidity and the depth at which the Germans used to excel, enforcing a strong impression of actual theatre. This is consistent: a few harsh interjections, soprano or choral, caused by faulty microphone placement, are momentary and rare, and confined to sides 1 and 2. The album is equipped with a short annotation, the German text, and an English translation of low quality.

It is to be noted that Urania has restored two features valuable to music-lovers, once initiated and then abandoned by other companies: a statement of the duration of the discs and the names of the supervising engineers, who, thus put on their mettle, are unlikely not to produce their best. — C.G.B.

BACH: *The Musical Offering*

Nine instrumentalists. Herman Scherchen, cond. Westminster 12-in. WL 5070. 48 min.

The only detail of execution on which a critic may be dogmatic in a work lacking reliable expressive indications is the mere competence of the players. Here they are competent, and almost terrifyingly "present" in the three-dimensional sound on the disc. The writer knows no one who listens to this music with continuous pleasure, and to him the thirteen sections are remarkable for steadfast dullness. — C.G.B.

BACH: *Sonata No. 4 in D*

See BRUCH

BARTOK: *Deux Images for Orchestra*

New Symphony Orch.; Tibor Serly, cond. Bartok 10-in. BRS 305. 18 min.

Early Bartok, written in 1910, and easily understood music for most listeners. "In Full Flower" (side 1) is a short pastoral tone picture, whose first and last section is almost Debussy-like in its orchestration and feeling, though the middle section of the work moves well away from this idiom. The dance movement of the second side, "Village Dance", is Bartok falling back, for inspiration, on the Hungarian folk dance, with its fiery movement and rhythmic impulse.

The acoustics of Kingsway Hall, where the recording was made in 1950, bring out most strikingly the rich instrumentation of both sides. Particularly well recorded are the percussion and cymbals, which come over true and clear. There is a somewhat veiled tone to the strings, which may be a recording characteristic, rather than mike placement. I found it necessary to reduce the bass compensation on side two; otherwise, a well balanced record. Surfaces noise free. — J.F.I.

BEETHOVEN: *Piano Sonatas No. 5 and 6, Op. 10, Nos. 1 and 2; and No. 25, Op. 79*

Wilhelm Backhaus. London 12-in. LLP 393. 33 min.

Nos. 5 and 25 are not elsewhere on LP, and thus welcome in performances of controlled manly poetry; but the piano-tone is recalcitrant at the upper end at *mf* or louder, clanging then against a good round bass. — C.G.B.

BEETHOVEN: *Sonata No. 10 in G Major, Op. 96*

Tossy Spivakovsky, violin; Rudolf Firkussny, piano.

VIOLIN FAVORITES:

Tossy Spivakovsky, violin; Arthur Balsam, piano. Both on Columbia 12-in. ML 4402. 47 min.

Here are strange bedfellows indeed, a Beethoven sonata and the trivialities of Kreisler, Sarasate and Paganini, not forgetting Tchaikovsky. One wonders on what grounds Columbia assigned them to such close company. The fact they are back to back serves as an additional comment on the incongruity of this coupling.

Spivakovsky has no need to call upon his "consummate taste" or to be "astonishing and thrilling" (to quote critics) in his discoursal of this less than top drawer Beethoven. The assumption that Beethoven wrote it in a hurry is borne out by its content. The violinist does bring an excellent tone and fine feeling for the work, playing it as well as Kreisler did in the past. Firkussny gives him sound support at the piano. Excellent recording of both piano and violin tone, plus fine balance between instruments.

The *olla-podrida* of the obverse side is dispatched adroitly by Spivakovsky, with just the right amount of virtuosity these pieces call for. For the record, this mish-mash is made up of: Kreisler, *Caprice Viennois;* Tchaikovsky, *Valse Scherzo, Op 34;* Paganini-Sipvakovsky, *Sonata in G major, Op. 3, No. 8;* Paganini, *Caprice No. 24, Op. 1 for unaccompanied violin;* and Sarasate, *Introduction and Tarantella, Op. 43.*

On this side the violin is again well reproduced, but the piano sounds leaden, and Balsam's accompaniments are not much lighter.

Surfaces uneven . . . the Beethoven side suffering from fuzziness. — J.F.I.

BEETHOVEN: ***Quartet No. 12 in E Flat, Op. 127*** **●** ***Quartet No. 13 in B Flat, Op. 130***

Pascal String Quartet. Concert Hall 2 12-in. CHS 1209 and 1210. 36 and 38 min., respectively.

The performances are so heart-felt and presciently adjusted to the versatile moods of these wonderful confessions that a strong effort should be made to bring the tonal values into balance. Readers who wish to have these sensitive interpretations would be prudent in making sure that their equipment can subdue the scream from the violins. — C.G.B.

BERLIOZ: ***Damnation de Faust***

Georges Jouatte (t), Paul Cabanel (bne), Mona Laurena (ms), André Pactat (bs). Passani Chorus and Orch. (Paris); Jean Fournet, cond. Columbia 3 12-in. SL 110. 1 hr. 56 min.

A brief and tardy but enthusiastic puff for a profoundly inventive masterpiece in a fine cohesive performance capable of discouraging quick supersession. The recording was contrived from 78's with great skill, and although it naturally betrays some of the restraints and has the rumble of the method, it is surprisingly big and clean.

Text is supplied only in translation, a slipshod procedure. — C.G.B.

BIZET: ***Carmen*** **(Complete Opera)**

Solange Michel, Raoul Jobin, Michel Dens, Marthe Angelici, soloists. Chorus and Orch. of L'Opéra-Comique, Paris; André Cluytens, cond. Columbia 3 12-in. SL 109. 2 hr. 9 min.

The new complete Carmen, recorded for Columbia in Paris by members of the Opéra-Comique, is certainly one of the finest operatic releases to date, and in the person of Solange Michel introduces to American listeners a new major vocal talent.

The recording is a triumph for Columbia's engineers, who have captured so faithfully the orchestral sound and, by means of perfect balance, produced the closest approximation to an actual theatre performance presently available on records. Cut at brilliantly high levels, with a noticeable absence of blasting or peaking, this is a further example of the startling improvement in recorded sound found on Columbia in the past few months. Only once does the recording seem a trifle off balance: the opening of the second act where the dance in Lila Pastia's inn is a trifle too close and loud for one's ears. However, in over two hours of listening this constitutes a very small degree of error.

The role of Carmen has proved a stumbling block in the past to many singers, who shall be nameless here. In this recording Solange Michel gives the most satisfying vocal portrayal of the gypsy girl in many moons. A true French mezzo, of ample range, the voice is used without effort and with great artistry to project every facet of the absorbing character. So well equalized is the voice from top to bottom that there is no need to resort to the atrocious chest tones of many Carmens of recent memory. Jobin, as Don Jose, cannot match her in artistry or persuasiveness, yet manages the best singing one remembers having heard from him on records. There is still a tendency to force, though not as noticeably as in the past, and I could wish for a deeper conception of the role than he offers, but it still remains a stylish performance. As Micaela, Marthe Angelici is excellent, for this is a vapid and rather thankless part, with only the "Je dis que rien" aria of the third act to attract any vocalist. Here it is most tellingly sung. It might be well to point out that the role is one invented by the librettists, as a vocal and dramatic contrast to the earthy Carmen, since it does not appear in Mérimée's novel. Escamillo is well sung by Michel Dens and minor roles are acceptably portrayed by artists of the company, who understand the essential style necessary here. While it must be admitted that the direction of Cluytens is hardly breath-taking, the performance is nicely paced and well controlled and is probably better than the majority of performances one has seen, or listened to, here in the past twenty years. The French custom of using dialogue, where no music was written, is observed here, and I find it adds piquancy and variety to the pacing of the work.

One minor complaint: I find the publication of an English translation of the text, as issued with this album, singularly useless when the recording is being sung in French. Why not a booklet with French and English texts, side by side?

The surfaces on my copy were not without some crackling. — J.F.I.

BOCCHERINI: ***String Sextet*** **●** ***Sinfonia Concertante*** **●** ***Sextet for Strings and Wind***

London Baroque Ensemble or members thereof. Westminster 12-in. WL 5077. 38 min.

Not the least of Westminster's favors to music-lovers is the recording of enough Boccherini to give an impression of his diverse talent. Here are three works of arrestingly imaginative tone-color obtained by simple means, their inconstant, sensitive moods realized in an interpretation of mellow expertise — three Boccherinis, in effect, of whom he of the *String Sextet* may not be patronized. The recording has the best current virtues, plus a most persuasive balance *with* a differentiation of timbres. — C.G.B.

BOYCE: ***Symphonies Nos. 1, 4, 6, and 8***

London Baroque Ensemble; Karl Haas, cond. Westminster 12-in. WL 5073. 39 min.

The Handelian shape without the backbone, lightsome and enjoyable. More undulant and lingering than the Zimbler version of all eight on Decca DX 105 (2 12-in.) a highly proficient job with which readers may wish to make their own comparisons. The present recording has a warmer and broader tonal hue. — C.G.B.

BRAHMS: ***Hungarian Dances, Nos. 1 to 6***

Boston Pops Orch.; Arthur Fiedler, cond. RCA-Victor 10-in. LM 67. 17 min.

The Reiner edition of eight (including three recorded here) on Columbia ML 4116 was widely acclaimed for its nervous and penetrating finesse. Arthur Fiedler plays with the easy, untroubled splash we expect from the Boston Pops whereas Reiner made miniature masterpieces out of the familiar material. Reiner now records for Victor; so if we cannot admire we may at least acknowledge the subtlety of the decision which disdained him. We can wait. — C.G.B.

BRAHMS: ***Quartet No. 1 in C Minor, Op. 51, No. 1***

SCHUBERT: ***Quartet-Movement in C Minor***

Amadeus String Quartet. Westminster 12-in. WL 5084. 40 min.

A devotional, disciplined intensity characterizes the work of the Amadeus Quartet, who paint both compositions with a deeper color, a more soaring line and a greater dynamic contrast than we find usually. Remarkable and admirable, with good acoustic qualities save in some extrinsic sheen intermittently in the violins. — C.G.B.

BRUCH: ***Concerto No. 1 in G minor, Op. 26***

BACH: ***Sonata No. 4 in D for Unaccompanied violin***

Alfredo Campoli, violin. New Symphony Orch.; Royalton Kisch, cond. London 12-in. LLP 395. 50 min.

The soloist is no stranger to the Bruch *Concerto*, having recorded it around 1937 for English Columbia, with a symphony orchestra under Walter Goehr, though I do not recall it having been released in this country. His big, suave tone, at times reminiscent of Elman, is wonderfully appropriate for this highly romantic and showy work, and the technical problems seem to hold no terrors for him. Its Mendelssohnian melodies are played with clarity and an absence of the "schmaltz" that in the past has made the work sound over-sentimental. The orchestral accompaniment under Kisch's direction seems only adequate.

Campoli's unaccompanied Bach is a less happy affair. True, the tone has been made slightly dryer, as befits the work, the execution is clean and the technique is more than adequate. But the performance is stolid and lacking in insight, with the result that the work never seems to move.

It is unfortunate that more attention has not been paid to the balance between soloist and orchestra in the Bruch. The violin is so close to the microphone that, at times, the orchestra sounds as if playing in another studio. I found it necessary to reduce the bass considerably on this side, which produced an unbearably thin and brassy tone from the violins in the middle register. The surfaces here varied. The Bruch side crackled badly . . . the Bach being almost noiseless. — J.F.I.

BRUCKNER: ***Symphony No. 2 in C Minor***

Bruckner Orch. of Linz; Ludwig Jochum, cond. Urania 2 12-in. URLP 402. 1 hr.

The composer's caressing lyricism is as evident as his rejection of urgency, and there is the basis of a controversy now seventy-five years flourishing. This disc contains as sympathetic an exposition of one of the nine Symphonies as can be heard; and the orchestral sound, projected as if from a distance, clean, sure, dynamic and deep, is of consistently high order except in its softening by long reverberation. — C.G.B.

BYRD: *Mass for Five Voices* (*A capella*)
Fleet Street Choir; T. B. Lawrence, cond. London 10-in. LPS 372. 27 mins

Nonesuch Singers; Ronald Dale Smith, cond.

***Organ Music.* John Reymes King, organ. Both on Allegro 12-in. ALG 3021. 46 min.**

William Byrd (1543-1623), possibly the greatest of all English composers, and one of the most neglected, is finally being given his due by the recording companies. His Masses for three and four voices, previously issued, are now joined by his intensely moving and ambitious *Mass for Five Voices*. This is a work of impressive stature, subtle craftsmanship, great plasticity, and above all of nobility and reverence. It comes as a shock to learn that the first known performance did not occur until 1899. It is suggested that Byrd, a Catholic, needed to exercise caution not to offend his patron and friend, the Protestant Queen Elizabeth . . . and this may be so . . . but it hardly explains the temporary desuetude into which this powerful work fell, if one can call 300 years "temporary".

Each of these groups is a presently practising choir, the Fleet Street group in London, the Nonesuch singers in Bristol, and the difference in recordings makes for an interesting study. There is no indication as to where the London disc was recorded. My guess is a medium size studio, for the sound is quite blooming, confined and lacking in spaciousness . . . singers very close to mike . . . almost too much so, for the intrusion of sibilants is quite pronounced. The Allegro recording emanates from the Lord Mayor's Chapel in Bristol, which I judge to be fairly large. The sound has good extension, highly suitable for the music, and I prefer the voice placement here. There is also a difference in pronunciation to be remarked on these records. The Nonesuch group uses what I understand to be the accepted Latin pronunciation for the Roman Mass, *i.e.*, "proschedit" . . . "exchelsis", etc. . . . which for the Fleet Street Choir become "prokedit" . . . "excelsis", etc. Since I listened to these recordings, section against section, my comments will follow that procedure. A refers to the Allegro disc, L to the London recording.

KYRIE: L) A beautiful blending of voices is at once apparent, the tone possibly too sweet for some listeners' tastes. Firm soprano attacks. Until I became adjusted to the sibilants they distracted my attention.

A) Also good blending of voices; tone lighter and dryer. A better church atmosphere than (L). Some weakness in sopranos.

GLORIA: L) Starts at "Et in terra pace", good voicing, with a full and glorious final outburst.

A) Begins with intonation of the "Gloria in excelsis Deo". High notes not very well sustained, also some rather tentative attacks by sopranos. Sudden rushing of tempo at "Cum spirito sanctu" . . . why?

CREDO: L) A bad defect of this recording is the sudden break in the Credo at "Et in supultus est", making it necessary to turn over the record for following phrases. This was necessary, of course, to get the complete work on a 10-in. disc. Some subtle change in vocal coloring throughout. Note the remarkable change in feeling at "Qui propter" at which point only three voices, alto, 2nd tenor and bass are being used. The communion of voices here is arresting.

A) A somewhat less successful overall effort, due mainly to the vocal insecurity of sopranos, which causes the section to come apart a little.

SANCTUS: L) An undue prominence of the basses here tends to throw the section slightly off balance. The voicing, though, is admirable.

A) Less exalted in feeling, and shallower in tone . . . again wavering sopranos.

BENEDICTUS: L) I find the voices tending to boom a little here, in a churchy way, not previously noticeable.

A) Lighter in texture, but beautifully clear delineation of the vocal line in all voices.

AGNUS DEI: L) The most movingly sung section in the whole work, with lovely phrasing, good balance; deeply felt throughout.

A) Good work here also, but somewhat spoiled by the tentative opening soprano phrases. Not as rapturous in feeling as (L). Also, on my copy, some blast at second Agnus Dei.

If my preference is slightly in favor of (L), I can readily understand that for many the more ecclesiastic sound and dryer tones of the (A) recording will be more acceptable. A cause for complaint against London is the omission of any texts, such as are supplied on the Allegro record. These, however, contain some printing errors, and an omission of the "Deum de Deo" which precedes "Lumen de Lumine" in the Credo. On my copies London's surfaces were noisier than Allegro's.

On the obverse side of the Allegro recording the following short organ works of Bryd appear: Veini Creator Spiritus, Lullaby, A Grownde, Miserer (3 voices), Ut Re Mee Fa Sol La (Variations), The Carman's Whistle, and Pavana and Galiardo (The Earle of Salisbury). They are played in a commendably straightforward manner, without any attempt to inflate their charm and with excellent clarity of their inner voices. It would be of interest to know where, and on what organ these were played. There is no information to this effect in the notes. — J.F.I.

CILEA: *Adriana Lecouvreur*
Giacinto Prandelli (t), Plinio Clabassi (bs), Aldo Bertocci (t), Saturno Meletti (bne), Carla Gavassi (s), Miti Truccato Pace (ms). Chorus and Orch. of the Italian Radio; Alfredo Simonetto, cond. Cetra 3 12-in. Album 1216. 2 hr. 5 min.

Based on one of Scribe's most successful melodramas, this tragedy has enjoyed intermittent periods of esteem, presumably founded upon a dramatically superb and musically excellent third act which unrolls a progressing excitement right up to the sinister curtain. Generally the music recalls that of Cilea's contemporary, Puccini, although it is less emotionally suspect than the confections of a composer who could write *The Girl of the Golden West*. The orchestra is a richly varied embroidery handled with skill by the engineers, who have preserved a very nice relationship among dynamics, including true *ppp's* as well as *fff's*, while denying undue prominence to soloists or chorus. The performance is very capable, the company behaving as a unit with no one outstandingly excellent or provokingly inadequate — the conductor is the dominating element. Text and literal translation are furnished with the album: the hero is Maurice de Saxe, sword and Marshall of France, victor of Fontenoy, englished in the libretto as "Maurizio" from the Italian "Maurizio". Guglielmo T. Sciermano! — C.G.B.

CIMAROSA: *Overtures*
See GLUCK

COLERIDGE-TAYLOR: *Petite Suite de Concert*
See LUIGINI

DEBUSSY: *Ariettes Oubliées*
See FAURE

DELLO JOIO: *New York Profiles* (*Suite for Orchestra*)
Orch. of the Musical Arts Society of La Jolla; Nicolai Sokoloff, cond. Alco 10-in. 1001. 22 min.

A short four movement suite of impressions of the metropolitan scene, by one of the younger contemporary American composers. Given the four titles: The Cloisters — The Park — The Tomb — Little Italy — the work provides no surprises, except perhaps in the richly orchestrated, sombre colored and moving third section, written in the form of a Chorale Fantasy. This is the best realized and developed section, quite beautifully played by the orchestra under Sokoloff. The Little Italy movement has moments of rhythmic interest but appears to be too short and underdeveloped.

Good orchestral reproduction. Recorded on clear red vinylite, surfaces particularly quiet. — J.F.I.

DOHNANYI: *Suite in F Sharp Minor, Op. 19.*
London Symphony Orch.; Sir Malcolm Sargent, cond. Columbia 10-in. ML 2172. 29 min.

A melodious, romantic and sprightly work realized with exuberant sympathy in a recording of excellent tonal values vividly and honestly representing the orchestra.—C.G.B.

DVORAK: *Legends, Op. 59, Nos. 1, 2, 3, 4, 7, & 8* ● *Symphonic Poem, The Wood-Dove, Op. 110*
Orch. of Radio Berlin; Fritz Lehmann, cond. Urania, 12-in. URLP 7010. 43 min.

The *Legends* here and there resemble the *Slavonic Dances*, although more loosely constructed. The *Wood-Dove*, darkly colored and elegiac, lyric and mystic, improves with successive hearing. Both are draped in the resourceful orchestration which seldom failed the composer, and played without bombast. The bass, deep and even, is worth special comment in an excellent recording nevertheless plagued by a persistent background rumble which veils the woodwind. — C.G.B.

DVORAK: *Strains from Moravia, Op. 32*
Marta Fuchs, Margarete Klose. Urania 10-in. URLP 5002. 29 min.

Twelve of the thirteen folk-semblances are recorded here, German being used by the highly talented soprano and contralto who have made many records in the past for

other companies. Text and translation are furnished. Unfortunately, the tonal results of improper microphone placement are decidedly unpleasant. — C.G.B.

DVORAK: ***String Quartet in E Flat, Op. 51***
The Boskovsky Quartet. London 12-in. LLP 387. 32 min.

A lyrical and sunny work from Dvorak's so-called Slavonic period, and one of his most popular works. Only in the first section of the second movement, sub-titled "Dumka", is there any hint of sadness. This is short-lived, however, for the lovely but mournful melody of the opening is quickly followed by a gay tune which later, in the rhythm of the Furiant, brings the movement to a close. The sub-titling "Dumka" derives from the Slavonic folk ballad of that name, a form that is alternatively elegiac and madly gay. Following the romance, a noble and serene movement, Dvorak once more has recourse to his native folk music. The finale makes use of a gay and sprightly dance form, the Czech Sckocna, which eventually leads into a scintillating Coda to conclude the quartet.

The spirited and well-integrated playing of the Boskovsky Quartet matches the infectious joyousness of the work. Full play is given to its inherent humor, and for the darker moments, they reserve some warm and luscious tones, without ever descending to the sentimental.

The recording is first rate and surfaces are quiet. However, the persistent hum in evidence throughout is annoying, and detracts a good deal from an otherwise excellent release. — J.F.I.

DVORAK: ***Symphony No. 2 in D Minor, Op. 70***
Berlin Philharmonic Orch.; Ernst Schrader, cond. Urania 12-in. URLP 7015. 35 min.

Dvorak was a more stalwart symphonist than most of us know: this, chronologically, is the seventh (the *New World* being the ninth of nine), resourcefully constructed and skillfully scored. The Berlin Philharmonic seems to have recovered a good deal of its pre-war euphony, and Schrader is certainly not the first-comer in a rhythmic work like this, whose vigor does not hide a thoughtful architecture. Sonically the disc requires the more-or-less customary compensation and adheres to good domestic standards. — C.G.B.

FAURE: ***Les Melodies de Venise, Op. 58***
DEBUSSY: ***Ariettes Oubliées***
Hugues Cuenod, tenor. Jacqueline Blancard, piano. Both on Vanguard 12-in. VRS 414. 39 min.

Once one's ear has become attuned to the curiously reedy quality of Cuenod's voice, this recording becomes a pleasurable experience, for he is a singer of discernment and artistry, completely at home in this field.

The poems of Verlaine give these two song cycles a common factor, and in four cases the same poem has received musical attention from each composer, which adds to the interest of the record. If the Debussy appears to be the more successful effort, as it does to me, it may be in part ascribed to the above-mentioned quality of the voice. The Fauré, more introspective music, calls for a more caressing tone than he can command. Intelligent and sympathetic accompaniments are played by Jacqueline Blancard.

The piano tone, apart from being slightly heavy in the bass, is well recorded, while the balance between the artists is just right. Practically noise-free surfaces. — J.F.I.

GLUCK: ***Frühlingsfeier***
Chamber Orchestra of the German Opera House, Berlin, and Mozart Boys' Choir of Berlin; Erich Steffin, cond.
GLUCK-Mottl: ***Ballet Suite***
German Philharmonic Orchestra of Prague; Josef Keilberth, cond. Both on Urania 12-in. URLP 7018. 40 min.

Mottl's irresistible synthesis is the best introduction to Gluck. Keilberth is more observant of its versatile temper than other conductors have been on discs, and the massive sweep of the orchestra is superbly sounded provided the treble can be appropriately chastened. *Frühlingsfeier*, hitherto a phonographic maiden, is a simple, beautiful chorus of the kind we have accepted from Gluck as Grecian: it is sung to perfection in a generally excellent, occasionally harsh recording that requires high-frequency reduction and shrills badly in the final minutes. — C.G.B.

GLUCK: **Overtures to** ***Alceste*** **and** ***Iphigenia at Aulis***
CIMAROSA: Overtures to ***The Secret Marriage*** **and** ***The Horatii*** **and** ***The Curiatti***
London Symphony Orch.; Royalton Kisch, cond. London 10-in. LPS 353. 28 min. (Assemhled as "Famous Overtures — No. 2)
SUPPE: Overtures ***Poet and Peasant; Pique Dame; Morning, Noon and Night; Light Cavalry***
London Philharmonic Orch.; George Solti, cond. London 12-in. LLP 352. 27 min. (Assemhled as "Famous Overtures — No. 1)

Both records are significant, No. 2 for its great music and No. 1 for its sensational acoustic impact. The two magnificent Gluck *Overtures* have received full-bodied recording, somewhat strident on top, of a type familiar to us. Kisch hurries both works, effecting a diminution of the grandeur of their portent, a haste stimulating to the less majestic values of the Cimarosa. The four perennial dazzlers of the Belgo-Italo-Austro-Getman Suppé are played with appropriate gusto, but subject and manner are far less memorable than the conveyance, which is FFRR of the days before LP, with all its spaciousness and effortless sonority, the massed brass and winging strings woven into an encircling curtain of velvet and gold, a wall of splendid sound imprisoning the hearer. Unless the disc is a fortuitous freak we have here the beginning of a restoration of true FFRR, and shall have to revise our values. — C.G.B.

HAYDN: ***Concerto for Horn and Orchestra, No. 1***
Franz Koch, horn. Vienna Symphony Orch.; Anton Heiller, cond.

Concerto for Trumpet and Orchestra
Helmut Wobitsch, trumpet. Vienna National Opera Orch.; Anton Heiller, cond. Both on Haydn Society 12-in. HSLP 1038. 30 min.

Another wholehearted puff for a delectable disc. The dashing finale of the *Trumpet Concerto* is a compelling lure to the Symphonies and Quartets of the wonderful composer too conscientiously professional to write badly. The two *Concertos* are frothy stimulants to high spirits, played with a Viennese virtuosity somewhat surprising to our accustomed ears, since the horn technique occasionally suggests a trumpet and the trumpet a horn. Reproduction is very clean and will be solid as well when the bass is emphasized. — C.G.B.

HAYDN, ***Sonata No. 44 in G Minor*** **●** ***Sonata No. 45 in E Flat***
Virginia Pleasants, piano. Haydn Society 10-in. HSLP 3033. 28 min.

No. 44 is not entirely prepossessing in a staid, rather dutiful attack, but *No. 45* is gracious in a treatment of less restrained dynamics. It is also better favored in tonal appeal, the treble in *No. 44* sounding bell-like. — C.G.B.

HAYDN: ***Sonatas No. 48 in C*** **●** ***No. 51 in D***
Virginia Pleasants, piano. Haydn Society 10-in. HSLP 3032. 19 min.

The piano tone is very good, superior to the othet Haydn Sonatas recorded by this lady; but in gaining bass she has lost, in *No. 48*, vivacity. The tiny *No. 51* has been made more responsively by Charles Rosen for EMS as patt of a disc devoted to a Haydn miscellany. The Haydn Society does not increase its lofty stature by assuming six minutes-minus to be a Long-Playing side. — C.G.B.

HAYDN: ***Symphony No. 43 in E Flat*** **("*Mercury*")** **●** ***Symphony No. 50 in C***
Chamber Orch. of the Danish National Radio; Mogens Wöldike, cond. Haydn Society 12-in. HSLP 1041. 42 min.

The Symphonies may not be compared with Nos. 52 and 56; but the big, bold recordings of a small expert orchestra, reconstituting the auditory conditions of the premières, suave in strings and bright in wind, can no doubt make the lesser works preferable. *No. 43* is the Haydn of battered tradition — one of the five or six Haydns — graceful, correct and charming but a little roguish; while *No. 50* is the *pomposo* of the *Maria Teresia* and other ceremonial symphonies, entertaining but not unique. Technically, these are just about as good as any of the discs devoted by the Haydn Society to the twenty-nine symphonies of the master they have recorded; and the writer, who knows no bad Haydn, recommends them heattily as splendid projections of a good which is not best.—C.G.B.

HAYDN: ***Symphony No. 52 in C Minor***
Vienna National Opera Orch.; Anton Heiller, cond.

Symphony No. 56 in C
Vienna Symphony Orch.; Anton Heiller, cond. Both on Haydn Society 12-in. HSLP 1039. 42 min.

These two stern and startling symphonies have never been recorded before. Musical values are equal, but there is a discrepancy almost amusing between the acoustical

values of the two sides, those devoted to *No. 56* being coarse and repellent while *No. 52* is rotund and healthy. Haydnists will naturally want both: *No. 52* is emphatically worth the having. — C.G.B.

HINDEMITH: ***Sonata for Clarinet and Piano*** ● ***Sonata No. 3 for Piano***
Benjamin Tupas, piano. Sydney Forrest, clarinet. Lyrichord 12-in. LL 15. 36 min.

From the sound reproduction standpoint, this recording presents something of a problem, for while the piano tone is full bodied, close to the mike and resonant, the tone of the clarinet sounds extremely odd. In its lower register it makes like a bassoon, while in the highs it sounds quite oboish. This may be a peculiarity of the Forrest tone — not having heard his other recordings, I cannot say — but to my ear it is anything but pleasant.

The *Piano Sonata*, one of Hindemith's finest compositions in his later style, receives a rather stolid performance from Tupas, who uses extremely sluggish tempos, thus vitiating much of the power of the work.

The *Clarinet Sonata* fares only slightly better, but my interest in the work was considerably lessened by that clarinet tone. — J.F.I.

JANACEK: ***Suite for String Orchestra***
Vienna Orch.; Henry Swoboda, cond.

***Taras Bulba* (*Orchestral Rhapsody*)**
Winterthur Orch.; Henry Swoboda, cond. Both on Westminster 12-in. WL 5071. 45 min.

Besides being an important Bohemian modern composer, Leos Janacek (1854-1928) was also a teacher and writer on music and an avid collector and arranger of his country's folk songs. Very little of his music has been heard in this country, and that little has achieved but small success. The two works here recorded are examples of his early and late periods, the *String Suite* being composed when he was 23, while *Taras Bulba* dates from 1918, when he was 64. Though pleasantly scored and richly melodic, the suite bears the unmistakeable influence of both Smetana and Dvorak, his countrymen, and in the fifth movement a bow to Brahms can be observed. None of which detracts from a work which is musically interesting, if somewhat immature.

Taras Bulba, based on Gogol's story of the 15th century Cossack warriors, is a more individualistic work, sombre in mood, dramatic in content and tempestuous in writing. The three movements — Death of Ossip, Death of Andrew, Destiny and Death of Taras Bulba — graphically describe the fate of the Father, Taras Bulba and his two sons, in music of power and poignancy. The orchestral writing here reminds one occasionally of Sibelius, a Sibelius though of less gloom and despair.

The Westminster recording has captured the lovely string tone of the Winterthur beautifully in the *String Suite*, which Swoboda leads with authority and care. Only slightly less successful is the Vienna recording of *Taras Bulba*. The brass is good, though I don't care much for the sound of the bells or the cymbals as they come off this side of the record, and the string tone seems to lack the singing quality of the Winterthur.

Perhaps Westminster will turn their attention to his lovely Sinfonietta, after this interesting release. Usual noiselss surfaces from Westminster. — J.F.I.

LUIGINI: ***Ballet Egyptien***
City of Birmingham Orch.; George Weldon, cond.
COLERIDGE-TAYLOR: ***Petite Suite de Concert***
Queen's Hall Light Orch.; Sydney Torch, cond. Both on Columbia 10-in. ML 2180. 25 min.

Erstwhile open-air and Chautauqua favorites, melodious, innocuous, cheerfully played and recorded without any excess, the Coleridge-Taylor with marked expertise. — C.G.B.

MAHLER: ***Kindertotenlieder* ("*Children's Death*")** ● ***Lieder eines fahrenden Gesellen* ("*Songs of a Wayfarer*")**
Lorri Lail (ms). Orch of Radio Berlin; Rolf Kleinert, cond. Josef Metternich (bne). Orch. of Radio Berlin; Leopold Ludwig, cond. Urania 12-in. URLP 7016. 38 min.

These cycles may be the easiest approach to Mahler. They are certainly easy on this excellent disc whose limpid recording is exactly appropriate to the subtle and tenuous orchestral background provided with steady sensitivity by both conductors. The mezzo of Lorri Lail is one of remarkable beauty and purity under complete and continuous physical control. Some definite monotony of intonation is presumably the result of an overformalized concept of the unit of these songs. The *Wayfarer* side — first-class after severe treble reduction — is not so seizing but is not inferior. The baritone's dark simulation and the unmaudlin utterance of the orchestra are not less impressive for being direct. A superior disc.

German and English texts are supplied. — C.G.B.

MOZART: ***Piano Concerto No. 17 in G* (K 453)**
Ralph Kirkpatrick, Piano. Dumbarton Oaks Chamber Orch.; Alexander Schneider, cond.

***Violin Concerto No. 4 in D* (K 218)**
Alexander Schneider, violin; also conducting the Dumbarton Oaks Chamber Orch. Both on Haydn Society 12-in. HSLP 1040. 57 min.

The *Piano Concerto*, chastely conceived and beautifully delivered by all participants, may become a phonographic classic in this recording of crystalline nicety. Slower tempos and fluid line restore the long poem to an almost forgotten perspective abetted by the use of a small archaic piano and proportionate orchestra.

The soloist in the *Violin Concerto*, Schneider, conducts it: he conducted the obverse. The influence of the latter seems to be on the former, and what we have is a superb exposition of the linear purity of Schneider's violin in a leisurely projection of a work wherein we are used to ebullience, and of which the Heifetz-Beecham alliance on Victor LM 1051 is the happiest example. (It may be observed that since *No. 17* runs to thirty-three minutes, the *Violin Concerto* is in some measure a gratuity.)

As usual with this Society, the notes contain more than a trifle of pertinent information. — C.G.B.

MOZART: ***Symphony No. 28 in C* (K 200)** ● ***Symphony No. 34 in C* (K 338)**
Orch. of la Suisse Romande; Peter Maag, cond. Lond. 12-in. LLP 389. 34 min.

Sir Thomas Beecham's sponsorship of these coruscations will be remembered not to the advantage of the pleasant but easy-going performances here. However, performance is of meager import on this faulted disc, muddy and shrill at once, and bedeviled by oppressive background noise. — C.G.B.

MUSSORGSKY: ***Pictures at an Exhibition***
Julius Katchen. London 12-in. LLP 330. 29 min.

A conscientious pianist works hard and achieves dullness. Tone is distorted throughout. — C.G.B.

PAGANINI: ***Caprices Nos. 13 through 24 for Unaccompanied Violin***
Ruggieri Ricci. London 12-in. LLP 252. 35 min.

With this release the 24 *Caprices* for unaccompanied violin by Paganini are available in complete form, London having issued Nos. 1 through 12 previously on LLP 252.

This is positively an outstanding release for high-fidelity fans. London can be justifiably proud of the amazing reproduction of the violin tone, and for the almost eerie silence of the record surfaces, which are without a trace of hiss, hum or reverberation. Thanks to this combination, the illusion of the performer being actually in the room with the listener is uncanny. The higher the fidelity of the sound system, the better this recording will sound.

These, of course, were written to display the virtuosity of the composer, a fabulous performer, whose technique was prodigious — and legendary. That of Ricci is right here to assess and admire. No problems seem too difficult for him to surmount, flying staccati, double stopping, the whole bag of violin tricks are tossed off with staggering bravura. One admires his attacks, so clean and full of bite, his superb bowing, the remarkable variety of his tone. Particularly impressive is his playing of the presto in the second half of *No. 21* . . . the bowing and staccati in *No. 22* . . . the curiously plaintive tone of his descending runs at the beginning of *No. 23*. The most famous caprice in the set, of course, is *No. 24*, which served Brahms as the basis for his *Variations on a Theme by Paganini, Op. 35*, as well as Rachmaninoff for the *Rhapsody for Piano and Orchestra*. — J.F.I.

POULENC: ***Piano Music***
SATIE: ***Piano Music***
Francis Poulenc, piano. Both on Columbia 12-in. ML 4399. 43 min.

The first of a new Columbia series entitled "Meet the Composer" finds Poulenc playing several short works of his own, and of his compatriot, Erik Satie.

There is a certain old world charm in the

Continued on page 70

TOPS . . . for the JUKE BOX

By CARL ETON

IF YOU have a fondness for the Ten Top Tunes in the popular field, or if you feel that irresistible urge to rush out and buy an album of records from the current musical hit at the neighborhood theatre — take heed, if you will, of our recent eye-opening experience, as recited here.

Armed with a stack of currently popular records[1] picked from listings of top favorites in *Billboard*, we descended upon a friend of ours who has a particularly good high-fidelity system in his home. There was one disc in particular which we wanted to try on his equipment: *The Flying Horse* (MGM 30384). We had heard it on the player in the record shop and had thought, "If we could get this on a real high-fidelity system, it would be marvelous." The music had seemed really alive and brilliant, though it was badly hidden by the inadequacies of the small player in the record shop. After stacking the record changer, we settled back for an evening of light entertainment, with the music to provide a pleasant background for conversation.

We started with the album of *Showboat* tunes, recorded by MGM directly from the film. For some reason, the voice of Howard Keel lacked the full-bodied quality we expected. Instead, his singing sounded falsely brilliant and lacking in depth. Further, the high notes sung by Kathryn Grayson were sadly devoid in clarity of tone, and it was quite apparent that either the recording or the equipment, or both, were doing her voice no favors. This unexpected experience changed our intended evening of pleasurable listening into one of wide-open discussion and analysis of the quality of popular records — good and bad. After a short burst of conversation, we listened some more.

The next record to drop on the turntable was the David Rose recording of *The Flying Horse*. David Rose happens to be a favorite of ours, and we were looking forward to hearing this rather clever tune over a good playback system. Having heard it in the record shop, we were sure that, despite our earlier experience that evening, this selection would restore our faith in popular records.

However, the equipment did little to accommodate our fond hopes. Its rough treatment of the opening staccato notes and the vigorous violin choruses, typical of this artist's arrangements, demonstrated all too clearly that we had the wrong record, or else our host's vaunted hi-fi system was sadly out of order. We were particularly dismayed when the crash of cymbals we expected to hear seemed rather to simulate an empty garbage can rolling down the cellar stairs.

At this point our host became a bit restless. Perhaps he didn't like the music, for he's not a particularly avid supporter of popular selections. However, we were more inclined to think that he became aware of the black thoughts we were harboring about his audio system. At any rate, he suggested an investigation to determine whether or not his equipment had developed some undiagnosed ailments. And the results were very enlightening.

In his collection he had a semi-classical recording of Kabalevsky's *The Comedians Galop*[2] which has a melody and rhythm content very similar to *The Flying Horse*. This similarity was apparently restricted to the original music, however, for the two recordings sounded nothing alike. Whereas the David Rose recording was practically unlistenable, the Kabalevsky, as reproduced, had extraordinary brillance and fidelity.

However, we pointed out that *Continued on page 68*

[1]The following records were used for this test:
Cara Cara Bella Bella. Perry Como. Victor 20-4203
Good Morning, Mr. Echo. Jane Turzey Trio. Decca 27622
I Get Ideas. Tony Martin (Henri Rene). Victor 20-4141
Roller Coaster. Henri Rene. Victor 20-4148
Too Young. Nat Cole. Capitol 1449
My Truly, Truly Fair. Guy Mitchell (Mitch Miller and Chorus). Columbia 39415.
Shanghai. Doris Day (Paul Weston). Columbia 39423
Josephine. Les Paul. Capitol 1592
Melancholy Rhapsody. Ray Anthony. Capitol 1556
September Song. Stan Kenton. Capitol 1480
Laura. Stan Kenton. Capitol 1704
How High the Moon. Les Paul and Mary Ford. Capitol 1451
The Flying Horse. David Rose. MGM 30384
Dream. The Voices of Walter Schumann. Capitol 1505

[2]London LPB 146

THE MUSIC BETWEEN

By EDWARD L. MERRITT, Jr.

The articles on these two facing pages present a discussion of two large classes of music which we have not yet covered at all adequately in our Record Review section. We shall welcome suggestions from our readers as to whether or not we should try to review records in either the popular classification, discussed by Mr. Eton, or in the "Music Between" category, so ably described by Mr. Merritt. Or, as another possibility, shall we continue to have occasional articles of a general nature, such as these two, on either or both of the two classes? — Editor.

AFTER more than fifty years of recording and better than thirty years of radio. one of the principal types of music still stands without definite identification in the public mind. At first glance, that sounds like a massive generality, but on closer examination the truth becomes all too plain.

Mention music to the nearest person and he will answer according to his particular light, the choice being split largely between "classical" or "popular". Pressed for a further definition, he will often label popular music as, "that noisy trash on the radio" or damn classical music as "dull stuff on the radio Sunday afternoon" (thus paying honest tribute to the persistence of The Columbia Broadcasting System), and lapse into a satisfied silence.

Strange as such definitions may seem to music listeners, whatever their special bent, it is doubly so when one realizes that the type or class of music which pleases and entertains the largest portion of the adult audience is never clearly identified. Active participation by this observer for more than twelve years in the business of broadcasting has imparted some knowledge of the enormous public appetite for music, and a realization that the greater part of radio time is devoted to the particular type of music which is neither actually popular nor classical, for it lies between, yet draws from both. At its best, it is mood music. At worst it becomes, in company with much popular music, cheap and obvious. Its creators are some of the most gifted individuals working in the audio arts today. They possess both ears and imagination, and they are marked by the successful practice of their art in the fiercely competitive fields of radio and record-making.

Their music has been severally called light, middle-brow, salon, and standard. But its actual place in the musical catalog is difficult to define. None of these particular words really serves to demark its boundaries properly. "Light" suggests the opinion of the classical enthusiast for something not quite classical enough. "Middlebrow", the slightly supercilious reaction of either the classical or the jazz devotees. "Salon", an utterly damning name for the mediocre or palm-court type of background music. And "standard" refers to evergreen popular music which shows staying powers far beyond the normal.

THERE are, of course, still more words used to denote music other than the obviously classical or popular. But the fact remains that the public, the mass consumer of music, derives its greatest pleasure from a definite category of selections which defy all attempts to label them. It is that great body of music lying between the masterworks of the concert repertory, and the daily out-pourings of Hollywood and Broadway.

Perhaps, in that last sentence, we have a name for it . . . the MUSIC BETWEEN. At least, for lack of a better name, that can be used here for purposes of discussion.

Newspapers and periodicals have traditionally devoted considerable attention to the review of popular records and various classical releases. However, space requirements, the preoccupation of disc manufacturers with the smash hits, and other considerations have all tended to play down the space and energy devoted to catalog items outside those immediate fields. The Music Between remains in the long-haul class. It is not affected by the immediate considerations of the pop hit. It can easily be put aside for a less hectic day. A recent opportunity to play through several outstanding discs with your Editor prompted his suggestion for a survey of this music in line with his intention to expand the record department of HIGH-FIDELITY.

Popular music, primarily melodic or rhythmic, depends in large part on performance to achieve full stature. Classical music stands or falls on the ability of the interpreter to re-create the intentions of the composer. But the Music Between, drawing from both, succeeds only according to the skill of the arranger. For the arranger is the one who draws together the divergent fragments of music and creates a unified whole.

Popular music, or pop music as it is known to the business, has been demonstrated by Arnold Shaw in his valuable little pamphlet, "Lingo of Tin-Pan Alley"[1] as breaking down into 1) novelty songs, 2) rhythm tunes, and 3) ballads. It is from the latter that most of the Music Between stems. Added to the basic melodic source of the ballad is often the mood and style of the classics, and so is created the alloy or musical amalgam with which we are now dealing. Of course, it is necessary to point out that this particular type of music embraces the whole palette of popular composition. In it will be found revue music from Broadway and Hollywood, show music from operetta and musical comedy, single songs and ballads, petty larcenies from the classics, ballet music, folk songs, waltzes, boggy, sentimental mood music from the radio and screen, just about everything imaginable leavened by the arranger's art.

THE recording studio and the radio are largely responsible for the enormous acceptance of the Music Between. And it is the insatiable appetite of radio which has brought this type of music into the public mind. In radio's early days, the musical fare was made up of the old-style recordings, novelty songs and ballads, plus the eternal dance band. Later on, with the rush of commercial acceptance, sponsors began to hunt for class. Serious music has one prime failing; it has too much class, and the melody often proves more than a little elusive. This led the program authorities of those early days to create orchestras of the big, stringy, sweet type which have reached their present-day excellence under the direction of André Kostelanetz and Morton Gould. These men are, additionally, gifted arrangers. Once the public had sampled the somewhat over-done approach to the popular ballad in which the involved harmonies served only to emphasis the original melody, it called for more. For its part, the recording industry was happy to oblige. So the middle ground in music grew. What was once a field for simple songs and classical music has become a parade ground for devices exploiting every possible taste in musical preference.

What began as a pseudo-class trick has now developed into a distinct musical expression, and an expression which holds a vast place in the public mind. Out of the old days of Tin-Pan Alley, the craftsmen of this new form have taken the best. They have clothed it with the efforts of their ablest talents and have produced an amalgam which, unlike many others, has a real value of its own. For the Music Between draws heavily on material called "standards" by the music business. These are tunes which have proven by their popular appeal to be more than ordinary. The roster of standards is drawn from the works of the greatest of all the popular composers. Reading down the list one cannot help but be impressed by such names as Irving Berlin, Richard Rodgers, Victor Herbert, Vincent Youmans, Sigmund Romberg. Primarily, these men worked as show composers. Their hit songs came from the scores of musical comedies and revues. They were largely situation songs or mood pieces. And they clearly demonstrated that their composers were men of talent, with a gift for melody and a strong feeling of mood.

This music is distinctly a product of the radio age. As such, it is a fit subject for discussion in connection with the high-fidelity reproduction of sound, for high-fidelity in sound reproduction offers a magnificent opportunity to display the genius of the arranger and his talent for handling the various choirs of the orchestra. The passage of melody and harmony through the strings and the woodwinds, the subtle changes of mood and tempo, and the variety of possible shadings can only be brought out by deliberate, selective emphasis through microphone placement and gain control. It is only through these means that those inner voices in the orchestral family are made audible. They are the voices which, even in the finest of halls, remain lost in the mass of the orchestral body.

In the first issue of HIGH-FIDELITY, your Editor contributed a short column entitled, "Around the Corner", in which he cast a tentative look toward the future. Among other points, he wrote this about record releases: "Record collectors will be pleased to know that the Record Section will be expanded greatly, and all releases of major importance will be reviewed both as to musicianship and recording technique."

To-day the recording companies vie with each other to supply the huge demand for this Music Between. The catalogues are full of outstanding examples, yet too often the best go unnoticed in the tidal wave of new wax released daily to the musical-loving public. For the present, it will serve to note a few discs of special interest, in this instance all taken from the London catalogue.

A Mantovani Program. London 10-in. LPB 127
Waltzing with Mantovani, London 10-in. LPB 381
Mantovani and his Orchestra. London 10-in. LPS 19

The first two albums are fairly recent releases as far as the United States is concerned. Each contains eight selections nearly evenly balanced between the well and the little known. Both are marked by obvious care in arrangement, studio set-up and technique which has become traditional with the finest of English recordings. These particular discs are an object lesson to less fastidious recording executives. They recreate the actual performance in a manner rarely heard by auditors in the flesh. Many domestic recordings of classical music fail to capture such ravishing sound. *A Mantovani Program* includes Destiny Waltz, Festival, The Bullfrog, Somewhere a Voice is Calling, Dreaming, Jealous Lover, Laughing Violin, and Legend of the Glass Mountain. *Continued on page 72*

[1]Lingo of Tin Pan Alley, BMI, New York, 1950; p. 17

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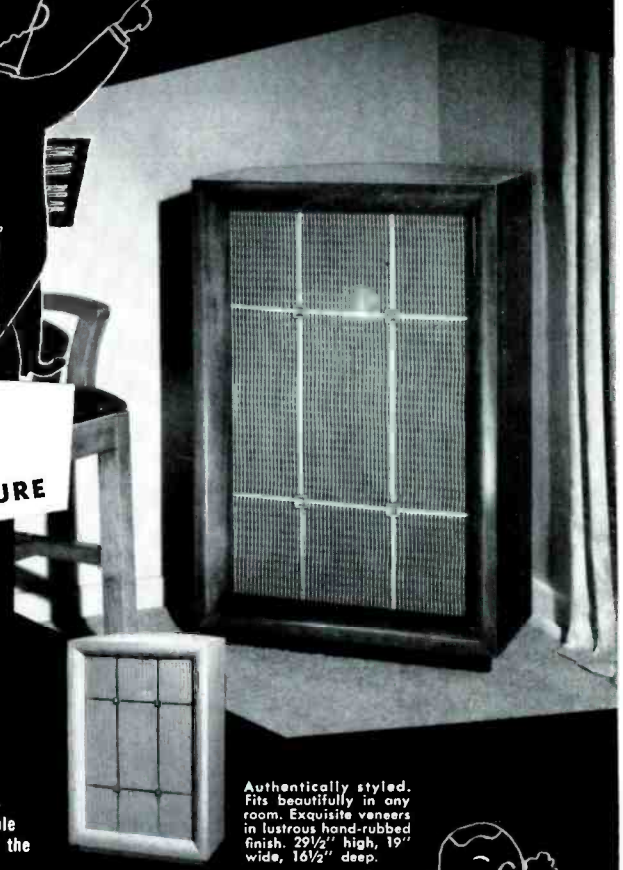

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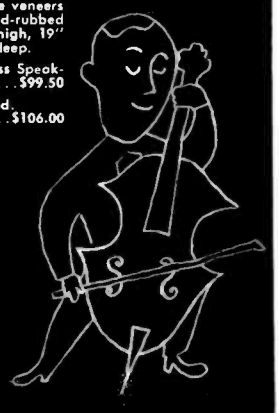

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SCHUBERT ON RECORDS

Continued from page 39

Symphony No. 8 in B Minor ("*Unfinished*")

London Symphony Orch.; Josef Krips, cond. London 10-in. LPS 209. 22 min.

Philadelphia Orch.; Bruno Walter, cond. Columbia 10-in. ML 2010. 22 min.

NBC Symphony Orch.; Arturo Toscanini, cond. RCA-Victor 10-in. LM 54. 21 min.

Salzburg Festival Orch.; H. Arthur Brown, cond. Remington 10-in. REM 149-15. 25 min.

Bamberg Symphony Orch.; Robert Heger, cond. Mercury 12-in. (Backed by Rosamunde Excerpts) MG 10034. 22 min.

Boston Symphony Orch.; Serge Koussevitsky, cond. RCA-Victor 10-in. LM 7. 22 min.

The last pair have difficulties disqualifying them from comparison with the upper four. Of the four, the Krips version is deep, moving, and withal lyrical; Walter's is mysterious and beautiful in its rounded phrasing; Toscanini's is rapid, perfervid and melodramatic with amazing dynamic scope; and Brown's is careful and undeviating, not unpleasant but hardly inspired. All are satisfactory from an engineering point of view: a sum of their virtues and faults gives the laurels to Victor and London with Remington and Columbia not far behind. All in all the Krips seems most desirable, but some judicious critics prefer Walter and some Toscanini, few having troubled with the Brown, which is, nevertheless, very commendable and $2.19.

Symphony No. 9 (EX. no. 7) in C ("*The Great C Major*")

New York Philharmonic-Symphony Orch.; Bruno Walter, cond. Columbia 12-in. ML 4093. 46 min.

Amsterdam Concertgebouw Orch.; Willem Mengelberg, cond. Capitol 12-in. P 8040. 48 min.

Bamberg Symphony Orch.; Robert Heger, cond. Mercury 12-in. MG 10075. 53 min.

NBC Symphony Orch.; Arturo Toscanini, cond. RCA-Victor 12-in. LM 1040. 43 min.

The last and greatest symphonic utterance of an incredible young man re-created for the phonograph by four eminent elderly conductors, of whom the youngest, Prof. Heger, plays the slowest (not without poetry in the first movement); and the eldest, Toscanini, plays the fastest—to a degree not palatable to Schubertians. The talented but unlamented Mengelberg leads it according to his individual wont, impressively often; Dr. Walter reads the score with the deep love and understanding it needs and has always had from this conductor. Thus this wonderful work is best realized by the two Germans touched with Vienna; and since the Columbia, an old LP as LP's go, is the best recording, a clear superiority is rather definitely pointed for the Walter disc. But the Mengelberg at its best — two-thirds of the time — is more eloquently persuasive and imposing than any of the others, and by far.

VOCAL

CHORAL SONGS: *Gott Meine Zuversicht* ● *Zoegernd Leise* ● *Der Gondefahrer* ● *La Pastorella* ● *Die Nachtigall*

Vienna Choir Boys. Capitol 12-in. (Backed by *Nine Folk Songs*) P 8085. 22 min.

CHORAL SONGS (Male Voices): *An Den Frühling* ● *Widerspruch* ● *La Pastorella* ● *Zoegernd Leise* ● *Nur Wer Die Sehnsucht Kennt*

RCA Victor Chorale; Robert Shaw, cond. RCA Victor 12-in. LM 81. 17 min.

In the two collections the *Pastorella* and *Zoegernd Leise* — a lesser-known Serenade — are common; and for emotional projection the Boys are easily preferable to their elders. Indeed, the Shaw group is proficient to obtrusiveness: the listener apprehends complacency in their regimented prowess. The effect is something like that of admiring a binocular to the exclusion of the view. In compensation the Victor recording is exceptionally full and resonant, while the Sängerknaben's infinite treble is not infrequently adulterated with metal.

Fahrt Zum Hades ● *Schaefer's Klagelied* ● *Fischerweise* ● *Die Maenner Sind Mechant* ● *Du Liebst Mich Nicht* ● *Des Maedchens Klage* ● *Wehmuth* ● *Seligkeit*

Herta Glaz, contralto; Joseph Rosenstock, piano. Renaissance 12-in. X 15. 30 min.

A decidedly unhackneyed and representative collection sung by Miss Glaz, who specializes in most of them, with understanding and no little beauty of voice. Dr. Rosenstock is more enthusiastic than polished. A tonal harshness contingent on the environment will be greatly lessened by reducing the volume.

There is no printed text.

Nur Wer Die Sehnsucht Kennt ● *An Die Nachtigall* ● *Im Frühling* ● *Im Abendroth* ● *Gott Im Frühling* ● *Die Gebuesche*

Genevieve Warner, soprano; Franz Rupp, piano. Columbia 12-in. (Backed by Mozart: *Six Songs*) ML 4365. 18 min.

In Miss Warner's pure high soprano this is all decoration. The experience is decidedly pleasant and not very profound: the silvery instrument is played, as it were, objectively; it is not impossible that a more forceful intonation where the text implies one could have wounded these pure exercises in delectable vocal delivery.

Offertories, Op. 153, 46, 47

Colette Lorand, soprano. Vienna Tonkünstler Orch.; Zoltan Fekete, cond. Mercury 12-in. (Backed by Mozart: *Exsultate Jubilate*) MG 10081. 24 min.

The youth, under twenty, works our of enthusiasm for Mozart, and in the second of these, in C, achieves fairly characteristic Schubert. Colette Lorand has the kind of fresh, sexual soprano considered ideal for liturgical music; but an alien treble shimmer (in the violins, mainly) competes with the voice, and no equipment brought into play was able to suppress it.

Schwanengesang

Ralph Herbert, baritone. Frederic Waldman, piano. Allegro 2 10-in. AL 16. 46 min.

Not conceived as a continuous cycle by Schubert, these last fourteen songs have the unity of supremacy, nothing in vocal music surpassing the expressiveness of their diversified emotion. Condescension is not meant and not implied in declaring this sensitive, intelligent relization to be that: the baritone is agreeable and under steady control, but is not in itself an instrument of outstanding beauty. The important piano parts are handled akin, and the recording is near and persuasive. Excellent; but there is no German text, and the English is in synopsis.

Songs after Goethe

Ralph Herbert, baritone. Frederic Waldman, piano. Allegro 12-in. AL 27. 36 min.

Thirteen of the pathetic, distant collaborations which Goethe never acknowledged, half very familiar, half not. The record is similar to that containing the *Schwanengesang*, by the same interpreters working in unpretentious, devoted, musical unity.

The texts are not printed.

Viola ● *Die Blumensprache* ● *Der Blumenschmerz*

Tiana Lemnitz, soprano. Michael Raucheisen, piano. Urania 12-in. (Backed by Cornelius: *Five Songs;* Wolf: *Three Songs.* The whole entitled Lieder Recital) URLP 7013. 21 min.

Rare items in the Schubert repertory. *Viola* exceeds thirteen minutes; *Die Blumensprache* is not much more than two. Lemnitz had a fine voice and still has in its lower two-thirds: we are a little unhappy listening to the top. German and English texts are furnished.

Die Winterreise

Hans Hotter, baritone. Michael Raucheisen, piano. Decca 2 12-in. DX 111. 1 hr. 16 min. (A version by Conrad and Krauson Vox PL 6090 was unavailable)

Never was bleakness so terrifyingly beautiful. These are twenty-four songs embracing the chill of death, sung in the richest, warmest baritone we know today, perhaps to death's detriment. The singer is not unaware of the wealth of his vocal endowment, and uses it in a deliberate effort to formalize, to instrumentalize, equilibrate into a baritone sonata the divergencies of Schubert's hopelessness. This is uncustomary treatment which risks denunciation as unimaginative by music-lovers trained to a more intense intonation. First-class tonal engineering, good notes and German text, with epitomes serving as translation.

Continued on page 81

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TOPS . . . for the JUKE BOX

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the comparison might not have been entirely fair since the *Comedians Galop* was on LP, which had necessitated a change of playback cartridge. So we then took two recordings of Yma Sumac's *Xtybay* album,[3] one on 78 and the other on LP. When he played them in an A-B test, we could barely distinguish any difference. Certainly, any noticeable improvement in favor of the LP recording was of minor consequence when compared with the vast difference between the popular and semi-classical records to which we had been listening.

Thus, there seemed no way to escape the preliminary conclusion that popular records were of inferior quality. We realized, however, that we may have accidentally stumbled on some lemons, but that idea became progressively more untenable as we continued to listen to the entire stack. As we discussed the matter further, we began to ask ourselves questions which might have a bearing on this observation.

If these records were as bad as they sounded, why are "popular" records popular? To project our own reasons for liking popular records into generalizations, it seems to us that the composition, arrangement, and presentation are all vital factors in the success of a popular recording. Of course, similar considerations occur to the buyers of classical records. However, in the latter case, variations between recordings due to arrangement and presentation are not nearly so pronounced as they are with popular pieces. The conductor of a symphony orchestra can never dare to take the liberties with the original music that are enjoyed by the leader of a popular orchestra.

What, then, does the classical music listener seek when he buys records? Our host answered this one with some observations of personal experience which we feel are typical: First, it may be a composition he wants to buy because he has heard it before, or because he wants to hear it for the first time. In the first instance he will be more critical because he has already heard it recorded. Hence he will listen very carefully to the quality of both the musicianship and the recording. On the other hand, if he merely knows of the existence of a composition on records, he may find that there is only one recording of that particular piece, and he will buy it almost without regard for quality.

Second, he may be primarily interested in the artist. Third, certain conductors have imparted their own individual interpretations to standard works. Therefore, his decision as to purchasing a particular record may be influenced by his opinion of the conductor's interpretation.

Finally, the classical music listener who is not already familiar with a particular composition will, in all probability, judge its merits and desirability on the basis of its sound quality. If an oboe solo sounds particularly clear and pleasing to him, he might very well decide to buy the record. Consciously or not, his choice is thus made on the basis of the good or bad recording techniques employed in making the record.

There is further cause for the classical-music listener's reliance on recording techniques as a criterion in buying records. He is not afforded the choice of distinctly different variations of a single composition which the buyer of popular records enjoys. For example, a Stan Kenton arrangement of *Laura* sounds entirely different from Paul Weston's interpretation of the same piece. On the other hand, the differences between two recordings of Beethoven's *Fifth Symphony* are, to the average person, relatively minor insofar as musicianship and interpretation are concerned. Hence, the average buyer who prefers classical music chooses his records largely on the basis of sound reproduction quality.

Although we have pointed out a few specific differences, there seems to be an overall similarity between the *basic* buying motives of both the classical and popular music lovers. Then why the drastic difference in the quality of the records manufactured to accommodate these two listeners? It seems there are at least three logical and realistic reasons for it. These involve economics, composition and artists, and reproducing equipment.

In the field of popular records, demand is a very unpredictable quantity — it arises suddenly, often soars to great heights, and then, just as suddenly, it disappears. Hundreds of thousands of records may be sold if the tune catches the public fancy. But the record manufacturers must wait until the demand is recognizable, and then act fast to produce the quantities needed.

This means mass-production procedures must be used in manufacturing and, under the pressure of the time element involved, short-cut methods and high-speed practices are often employed in pressing these records.

The situation in the case of classical records is quite different. Although there is much competition in the sale of such records, there is no Hit Parade angle involved. The demand for them is relatively steady. Therefore, more time and care can be taken in their manufacture, and selling is done on the basis of good recording.

With these thoughts in mind, let us return to the scene of the experience which started all this discussion. As we listened to the records we had brought with us, we found one or two that didn't sound too bad by comparison. These exceptions had one thing in common, however: they were tunes which called for special effects. For instance, Les Paul's recordings of *How High the Moon* and *Josephine*, and a recording of *Good Morning, Mr. Echo*, by the Jane Turzey trio, all stood up quite well under our aural scurtiny. Considerable care must have been taken in the recording techniques to achieve such special effects as the illusion of several guitars playing where only one exists, which is the case in the Les Paul records mentioned, or the unusual echoes heard on the Jane Turzey record. The quality of an entire record benefits when such attention is paid to the recording of certain portions of it.

Indirectly, the artists' influence on the quality of recording is sometimes quite apparent. For instance, it is a special event when a record manufacturer assembles the Boston Symphony for a recording *Continued on page 73*

[3]Capitol H244 on LP; CD 244 on 78

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RECORDS IN REVIEW

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seven movement *Suite Francaise* of Poulenc, with its evocation of early French dances, while the *Mouvements Perpetuels* sounds like a suitable accompaniment to an early Max Linder comedy. The alleged wit and humor of Satie's music always strikes me as being contrived, and I can be counted among the initiated who, according to Virgil Thomson, "find his works trifling".

Some of these pieces have received more knowing performances than those presented here by Poulenc, who doesn't strike me as being any virtuoso. They may be said to be definitive recordings in much the same way as Stravinsky's are of his works.

Piano tone is well reproduced on somewhat noisy surfaces. — J.F.I.

PROKOFIEV: *Suite from The Love for Three Oranges* ● *Suite from Lieutenant Kijé*
French National Symphony Orch.; Roger Désormière, cond. Capitol 12-in. P 8149. 39 min.

Love for Three Oranges dates from 1918, at which time Prokofiev was commissioned to write an opera for the Chicago Opera Company. The score was composed in less than nine months, to a libretto also supplied by the composer, freely adapted from the fairytale comedy of Carlo Gozzi. An ironical twist is that Mary Garden, that peerless interpreter of the sentimental and sensuous heroines of the French operas of Massenet, the very operas Prokofiev was here satirizing, was responsible for its initial presentation. The success it achieved in Chicago was not duplicated on its New York appearance. In that city it had ro wait until the revival of 1950 to make any impression.

The suite recorded here is that made by Prokofiev in 1924. The "Marche" and "Scherzo", well known to most listeners by way of the early Koussevitzky recordings, are joined by four other movements. "Les Ridicules" . . bitingly scored, with a strange little flute passage that might have come straight out of "Casse Noisette". "Scene Infernale", a movement of tension and turmoil . . . expressive in its violin writing against a turbulant orchestral background. "Le Prince et La Princesse" deserving of particular notice for the rather astringent but affecting melodies the composer uses to establish an extremely tender mood. The finale, "La Fuite", is a short but particularly acerbic and fascinating piece of orchestral writing, in which the violins carry the "Flight" theme against a bold and strident brass accompaniment.

Since the Koussevitzky recording of the Lieutenant Kiié suite disappeared from the Victor catalog, no replacement has been forthcoming of this richly humorous work, originally written for a motion picture in 1933. By means of extraordinarily skillful musical innuendo, the composer succeeds in transforming commonplace music into a hilarious burlesque of itself. The fantastic little introductory march makes one feel that none of the soldiers are in step . . . how could they be to such a travesty of all the marches ever heard. The overly sentimental Romance, full of satiric implications, with a main theme assigned to the double bass, of all instruments! Kijé's wedding, with its well known *tempo de galop* central melody is quickly followed by "Troika". If Offenbach once wrote a can-can to end all can-cans, this is music to end all troika scenes, with its abundance of rinkling bells, tambourines, cellos and sax. The finale, "The Burial of Kijé", is devoted to a recapitulation of these hilarious episodes, and it is with real reluctance that one leaves a work that shows Prokofiev in his most satirical but winning vein.

The recording is a feather in Capitol's cap. Here the brass really sounds like brass, the violins, now sauve, now biting, come out well, the triangles and bells tinkle merrily and clearly, the percussion really crashes. The woodwinds, with that peculiarly French quality, emerge most satisfactorily, too. It is rather surprising to find such luminous readings of both scores from Désormière, a conductor previously better known for his Debussy and Delibes. There is a trace of French refinement here, ir is true, but I like both works the better for a certain amount of under scoring.

The Capitol surfaces . . . forgive the obvious . . are capital. — J.F.I.

PUCCINI: *Opera Highlights*
Rosetta Noli (s), Rina Caballari (ms), Giuseppe Campara (t), Farrando Ferrari (t). Orch. of La Suisse Romande; Albert Erede, cond. London 10-in. LPS 325. 26 min.

The London project of presenting comparatively unknown young singers to the public in a series of LP recordings seems a laudable idea — if something of a commercial gamble. Rosetta Noli sings "Tu che di ciel sei cinta" from *Turandot*, and is joined by Giuseppe Campara in the Love Duet from *Madam Butterfly*, and in the Act I duet from *La Bohème*, "O soave fanciulla". She also sings the Flower Duet from *Madame Butterfly* "Scouti quella fronda di cliegio" with Rina Cavallari. Farrando Ferrari is heard in the tenor solo "Nessun dorma" from Act 3 of *Turandot*, while Giuseppe Campara sings the Act 2 aria from *La Tosca* "E lucevan le stelle". Most convincing, from a vocal standpoint, is Rosetta Noli, who discloses a soprano of much sweetness, though she pushes her high tones too much. Ferrari has a big voice, but the vibrato in the low tones and his tendency to sob *a la* Gigli spoil much of his singing. Campara forces uncomfortably and there is an impression of tightness in the recording of his voice. Under Erede's direction, adequate, but overdiscreet accompaniments support the singers. This, I take to be a question of balance, for certainly the soloists are too close to the mike as compared to the position of the orchestra. Recorded sound is not up to London's usual high standards, and there is some reverberation on my copy. Surfaces fairly quiet. — J.F.I.

RACHMANINOFF: *Concerto No. 2 in C Minor for Piano and Orchestra, Op. 18*
Julius Katchen, piano. New Symphony Orch.; Anatol Fistoulari, cond. London 12-in. LLP 384. 32 min.

The Rachmaninoff-Stokowski-Victor LCT 1014 is the interpretive classic not likely to be displaced as such; but acoustically it shows its fifteen years and must defer in

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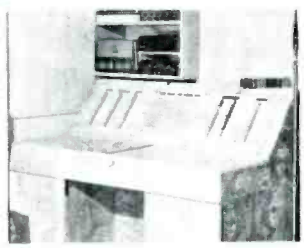

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MUSIC BETWEEN

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In the *Waltzing* set are such favorites as Wyoming, Under the Roofs of Paris, Kisses in the Dark, For You, Diane, Babette, Just for a While, and Charmaine.

Mantovani and his Orchestra is a collection of familiar short pieces by well known composers as arranged for orchestra by Mantovani. Debussy is represented by La Mer and Clair de Lune; Rubenstein, by Romance. The van is brought up by works of Victor Schertzinger Amy Woodforde-Finden, Cole Porter, and Offenbach, represented by One Night of Love, Kashmiri Love Song, Night and Day, and Barcarolle. The arrangement of these evergreen melodies is deft, the voicing rich and the performance smooth.

Reginald Kell and his Quiet Music. London 10-in. LPS 61

The world's finest classical clarinet on a beguiling excursion into the realm of the ballad. Reginald Kell is here joined by a well balanced group of instrumentalists for some low pressured readings of In the Gloaming, The Gentle Maiden, Killarney, Some Folks Do, Has Sorrow Thy Young Days Shaded, Gentle Annie, The Snowy Breasted Pearl, and La Paloma. Perhaps the greatest charm of this release lies in its revival of old folk melodies and some of the lesser known Stephen Foster songs, and their quiet, well reasoned performance. Not for those who like their music sharp and busy.

Music of Johann Strauss. Josef Kripe and the new Symphony Orch. London 12-in. LLP 10

Music of Franz Lehar. Franz Lehar and the Zurich Tonhalle Orch. London 12-in. LLP 8

Music of Old Vienna. Oscar Strauss and the New Symphony Orch. London 10-in. LPS 32

Music of Old Vienna. Rohert Stolz and Zurich Tonhalle Orch. London 10-in. LB 74

For those of us who enjoy music with the fabled touch of old Europe, these four sets make a wonderful treat. The Johann Strauss and Oscar Strauss albums are, from internal evi-

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MUSIC BETWEEN

Continued from page 72

dence, studio recordings from England and enormously faithful. Some might call them hard toned, but actually the contrast with many domestic cuttings may answer that particular objection. The ear is so used to receiving attenuated music from discs that such wide range, truthful recording comes as a shock. The Lehar and the Stolz are perhaps a bit different, but the acoustical properties of the Zurich Tonhalle no doubt share in the responsibility. The music itself is taken from the most popular pages of all four composers. The readings are obviously definitive with the composers on the stand, and, in the case of the Johann Strauss, performed by one of the most meticulous conductors around. All in all, a charming evening in Vienna.

A Stanley Black Showcase. **London 10-in. LPB 251**

In distinct contrast to the four preceding albums, this offering by the pianist, Stanley Black, and his orchestra comes pretty "straight". Here is music from Broadway and Hollywood — old familiars, every one played in first rate society style . . . no frills, no tricks, but beautifully recorded with the melody passing back and forth from piano to orchestra. In this collection: The Night is Young, The Man I Love, Easy to Love, Falling in Love With Love, Just One of Those Things. Soft Lights and Sweet Music, I've Got You Under My Skin, and Lover Come Back To Me.

TOPS . . . for the JUKE BOX

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session. and the selections played at such a session are those likely to continue in demand for a long period of time. In other words, when one of these classical aggregations has been organized, that is the time to make the best recordings possible. Also, when the decision has been made to record the work of such an orchestra, it is not necessary that the records be ready to put on dealers' counters the next day. Therefore, more care can be taken in

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TOPS . . . for the JUKE BOX

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both the recording and pressing operations, resulting in a vastly superior product.

The composition itself has a direct bearing on the situation. We encountered many records in which *forte* passages involving brass or strings were completely "mashed" (as one of our group rather inelegantly expressed it!) when they were played on a system capable of reproducing everything — good or bad — which is on a record.

This brings up the final facet in this discussion of the differences between classical and popular records: the equipment on which the records are most likely to be played. If a popular record is to be a success, it must pass the juke-box test. Here it will gain its popularity, for many a popular-record fan makes his preliminary buying decisions while hearing a record played on a juke-box. The record manufacturer, therefore, gears his recording techniques to meet the requirements of such equipment. The record must not only sound good, but it must also override the noise with which most juke-boxes must compete. A recording made to suit such conditions cannot be expected to be at its best in the home.

Another spot of original contact between popular records and their future buyers is the radio, and what a studio engineer can do for phonograph records is amazing. By cutting the highs and boosting the lows, he can make all but the worst records sound pleasing to the less critical listeners.

This brings us to consider still another piece of equipment used for record playing, *i. e.*, the table-model phonograph. If such equipment is not far above average, the owner will usually attribute much of the sputter and hash to his record-player rather than to the record. Generally speaking, both the player and the record are to blame for the performance. Oddly enough, they are sometimes so well matched in malfunction that the resulting sound is surprisingly good. This certainly seemed to be the case with *The Flying Horse*, when we first heard it in the record shop.

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RECORDS IN REVIEW

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that respect to every other version including the present, whose combined tonal presentation of piano and orchestra is large, impressive and technically the best we have, provided the high frequency swish accompanying the violins can be strictly diminished in reproduction. The performance by Messrs. Katchen and Fistoulari is very well integrated and expansively phrased, particularly in the long passages of curvilinear lyricism. It seems exact and fair to say that more satisfaction will be obtained from this disc than from any of its four rivals. — C.G.B.

SATIE: *Piano Music*
See POULENC

SCARLATTI: *Eleven Sonatas. Nos. 33, 142, 171, 255, 256, 278, 386, 388, 457, 475, 483*
Clara Haskill, piano. Westminster 12-in. WL 5072. 37 min.

Considering that Scarlatti wrote some 545 sonatas for the harpsichord, the selection of so small a number as eleven for transference to one LP record poses something of a problem. Assuming these to be the pianist's choice, I don't feel that problem has been solved too satisfactorily, for though these may be a representative cross section of the composer's work, it adds up to considerably less than the best of Scarlatti.

These sonatas, or sonatinas, are, of course, all short-sounded pieces, usually in the form of fugues, roccatas, or some dance mold, and not sonatas as we understand that term today. They abound in striking contrapuntal writing, lyricism, forward-looking harmonics, and are of startling variety. In addition they lay the foundation for much of the keyboard writing that was to follow, particularly that of Liszt and Chopin. Liszt, a virtuoso on the piano, as Scarlatti was on the harpsichord, enlarged on many of the latter's innovations in technique in playing, as well as helping to advance the popularity of Scarlatti during the last 19th century.

Haskill is in top form here, playing with warmth and finesse, understanding for the outline, and wonderful attention to detail. At no time does she try to obtain from the piano, harpsichord effects which have ruined many similar recordings. Her ornamentation is skillful but not fussy, her tone, at all times, beautifully controlled. I particularly liked her playing of *No. 33*, with its Chopinesque opening melody and the harmonics of the second section. Interesting too, for their rhythms and coloring are *Nos. 457* and *475* . . . reminders of the days Scarlatti spent at the court of Spain. The numbering is from the Longo catalog. Excellently quiet surfaces. The reproduced piano tone is excellent, save for an occasional overemphasis in the bass. — J.F.I.

SCHUBERT: *Quartet-Movement*
See BRAHMS

SCHUBERT: *Symphony No. 6 in C*
London Symphony Orch.; Joseph Krips, cond. London 12-in. LLP 21. 27 min.

A warm, cheerful and tender exposition of a

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AUDIO-PHILE'S BOOKSHELF

A list of books which will be of interest and value to you, carefully selected from the many publications related to music, records, and sound. Using our Book Service, you can have your choice by return mail. Just send the coupon with your remittance.

Aids to Listening

WHAT TO LISTEN FOR IN MUSIC — Aaron Copland, 281 pages, 5½ x 8.

The art of listening to music discussed by one of our best known and highly regarded contemporary American composers. Written from the composer's point of view, this work presents a fresh conception of just what we hear, and what we should hear, when listening to any piece of music. It is an invaluable aid to a more complete enjoyment of music. **No. 3**.....**$3.50**

RELAX AND LISTEN — John Hallstrom, 5¾ x 8½, cloth bound.

The author, an executive of RCA Victor Records, has written, in a humorous and down-to-earth style, a book which provides the average reader with a clear understanding of the basic nature of music, its major forms and their definitions and functions, and an acquaintance with many composers. He casts his definitions in everyday terms assuming no musical knowledge whatsoever on the part of the reader. The value of the book is further enhanced by a comprehensive phonograph record listing, organized with reference to the subject matter of the text, and a glossary of musical terms and pronunciation guide. This book will be an invaluable aid to those who are building record libraries as well as to concert goers. It is a fascinating reading experience. **No. 19**.....**$2.50**

LISTENING TO MUSIC CREATIVELY — Edwin J. Stringham, 479 pages, illustrated, cloth.

This book presents in an absorbing and ingenious way not only the history of music but a method by which the untrained listener can find pleasure and meaning in music, and develop his own critical capacity. Dr. Stringham covers all the forms of music, analyzing simply and clearly a specific example of each type, and making additional suggestions for listening. In so doing, he furnishes an excellent guide — with program notes, so to speak — for building a well-balanced record collection. Copious illustrations accompany the text. This book skillfully integrates biography, social history, and the other fine arts with the main stream of music. It should appeal to both the scholar and the novice. **No. 20**.....**$5.35**

Semi-Technical

MAKE MUSIC LIVE — Irving Greene, James R. Radcliffe, and Robert Scharff. Profusely illustrated, 7 x 11.

A complete guide to the installation of a quality reproducing system in the home, this book describes all you need to know to bring into your living room flawless sound reproduction. Written by three experts — a consultant on high-fidelity equipment, an industrial designer, and a home-building adviser — it includes detailed explanations on how to buy and select components, complete installation instructions for all equipment, data on types of woods, woodworking joints, hardware specifications and finishes, and methods of concealing components in existing furniture. **No. 15**.....**$4.50**

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ACOUSTICS OF MUSIC — Wilmer T. Bartholomew, 242 pages, illustrated, cloth.

The physical basis of musical tone is explained in this book in simple, everyday terms. Here is a clearly presented explanation of the link between sound waves and the artist's technique in producing them. The book explains the technicalities of sound origination for the musician and music lover. Language is simple and explicit throughout. *Acoustics of Music* fills the need for a book clarifying the fundamentals of acoustics, and gives to music lovers in readable form the materials for understanding acoustical problems of composition, performance, teaching, and appreciation. The various types of sound — percussive, vibratory, etc. — are discussed in separate chapters. Ample illustrations and a very complete bibliography make this book particularly useful. **No. 21**.....**$4.00**

Technical

THE RECORDING AND REPRODUCTION OF SOUND — Oliver Read, 364 pages, profusely illustrated, 6 x 9.

A complete authoritative treatment of the entire subject of sound, this book covers all aspects of recording including a complete analysis of recorders as well as full data on reproduction equipment such as amplifiers, speakers, microphones, and phonograph equipment. The completeness and accuracy, and the up-to-the-minute treatment which is given to the subject by this book, make it an indispensable volume for everyone interested in sound. **No. 7**.....**$5.00**

POST-WAR AUDIO AMPLIFIERS AND ASSOCIATED EQUIPMENT — compiled by Howard W. Sams & Co., two vols., vol. 1: 368 pages; vol. 2: 352 pages; both profusely illustrated, 8½ x 11, paper-bound.

Volume 1. The initial volume was the first publication to present a uniform and thoroughly accurate analysis of the important sound equipment appearing on the market following the war. It covers a wide variety of well-known audio amplifiers, FM and AM tuners, plus data on important wire and tape recorders.

Volume 2. A continuation of the excellent coverage of the preceding volume, this manual provides complete information on 104 well-known audio amplifiers and 12 important tuners.

These two volumes which include hundreds of pictures and diagrams will provide a complete and authoritative sound library for their owners. **No. 8** (Vol. 1).....**$3.95**
No. 9 (Vol. 2).....**$3.95**

ELEMENTS OF SOUND RECORDING — John G. Frayne and Halley Wolfe, 686 pages, 483 illustrations, 6 x 9¼, cloth.

Two experts in the field of sound recording present a technical discussion of the basic problems in recording and reproduction of sound. An excellent book for the designer, engineer, technician, and student, this volume covers the principles, methods, and devices involved in all types of recording and reproduction. Space will not allow a description of even the general topics discussed in this work. **No. 14**.....**$8.50**

Miscellaneous

SELECTIVE RECORD GUIDE — Moses Smith, 5½ x 8½, cloth.

Here a famous critic and former director of a recording company helps you select your record library, guiding you through the great emotional and aesthetic pleasures of recorded classical music. It is far from being a mere catalog of works obtainable — which might prove more bewildering than useful — but is a truly selective, and practical, guide. And it emphasizes economy, leaving out expensive and hard-to-get foreign records and expensive domestic records. Besides emphasizing economy, the author also emphasizes quality of performance and recording. He shows his preferences among recordings, besides supplying a running commentary on composers and their place in the historical scene, and on the music itself. This book will prove a wonderful discovery for all who wish to make a discriminating collection of classical records. **No. 16**.....**$4.50**

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file of easy melodies in an unexceptionable and unexceptional realization of the orchestral tone. — C.G.B.

SCHUMANN: *Kinderscenen, Op. 15* ● *Sonata No. 2 in G minor, Op. 22*
Jacqueline Blancard, piano. Vanguard 12-in. VRS 415. 40 min.

The disarmingly simple cameos of children's thoughts and dreams that comprise the Schumann *Kinderscenen* demand from the pianist an approach of sympathy and understanding for this most elusive sphere. Despite its many magical moments, the recent Horowitz release seemed lacking in these qualities. Jacqueline Blancard's playing has more intimacy, more inner compulsion and a better feeling for the content of the work. She does not, however, match the remarkable work of Cortot in these pieces, which, despite some slips, remains the ideal interpretation for me.

The *Sonata* receives a decidedly agitated reading, which blurs the outlines and causes the work to fall apart under her hands. Only in the second movement, Andantino, is she able to plumb the depths of the work with some lovely, relaxed playing.

The piano tone is well reproduced, though slightly too heavy in the bass in some sections. The closeness of the mike is occasionally unkind to some of the player's finger work, it emerging somewhat muddled in spots. Surfaces are quiet. — J.F.I.

SCHUMANN: *Symphony No. 1 in B Flat, Op. 38 ("Spring")*
Orch. of la Suisse Romande; Ernest Ansermet, cond. London 12-in. LLP 391. 31 min.

The very virtues of a recording extremely brilliant and successful in purely acoustical terms militate against the musical success of parts of this disc, so much painstaking care having been devoted to a clear production of minor orchestral detail that the main melodic line is frequently obscured by subsidiary aspects promoted to equality. It is impossible to be dogmatic on the respective merits of the three versions: this one has its own munificence of sound, but Leinsdorf on Columbia ML 2131 is persuasive, and Kelberth's recording on Capitol P 8129 is backed by the same composer's *Fourth Symphony*. — C.G.B.

SMETANA: *The Moldau* ● *From Bohemia's Meadows and Forests*
New York Philharmonic-Symphony Orch., George Szell, cond. Columbia 10-in. ML 2177. 24 min.

Dr. Szell's native affinity for the music of Bohemia extorts stimulating and straight forward performances of two works expressing the national aspirations of a nation now erstwhile. Of six recorded *Moldaus*, only this disc and Mercury MG 10013 include the *Meadows and Forests* in a logical combination. The Columbia is tonally massive while retaining a good deal of detail, and yet gives some impression of obscurity which resists analysis — C.G.B.

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RECORDS IN REVIEW

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SUPPE: *Overtures*
See GLUCK

TCHAIKOVSKY: *Francesca da Rimini, Op. 32* ● *Romeo and Juliet*
New York Philharmonic-Symphony Orch.; Leopold Stokowski, cond. Columbia 12-in. ML 4381. 40 min.

Paris Conservatory Orch.; Enrique Jorda, cond. London Philharmonic Orch.; Eduard van Beinem, cond. London 12-in. LLP 376. 39 min.

Both are reissues of editions not previously back-to-back. The present couplings are, of course, rational and to be applauded; although there are other *Romeos* and other *Francescas*, no LP but these contains the pair.

Such music can stand abuse that would stultify less rugged monuments. Hence, Stokowski has it. He whacks away here with glittering and spectacular results, not seriously challenged by the careful musicianship of the two London conductors. The recording is in all cases first-rate with the edge to Columbia; and it might be interjected that if *Romeo and Juliet* is thought of as *Henry V* or *The Destruction of Carthage*, the tumult will seem more condign and the narrative less shamefacedly melodramatic. — C.G.B.

TCHAIKOVSKY: *Swan Lake* **(13 excerpts)**
French National Symphony Orch.; Roger Désormière, cond. Capitol 12-in. P 8148. 46 min.

Nutcracker Suite ● ***Swan Lake*** **(6 excerpts)**
Same orch. and cond. Capitol 12-in. P 8140. 46 min.

A decidedly odd pair of discs. The *Swan Lake* occupying the reverse of the *Nutcracker* is excerpted from the more nearly complete *Swan Lake* on P 8148. Both records have been engraved with characteristics previously unencountered by this writer: very feeble bass and low volume with the higher frequencies pure, refreshing and unexaggerated. On an apparatus flexible enough to restore the bass and the volume, they can sound very good indeed; but not many systems are resourceful in the degree required. Performances are capable and conventional, not quite stolid, definitely not deft. — C.G.B.

TCHAIKOVSKY: *Symphony No. 5 in E Minor, Op. 64*
Berlin Philharmonic Orch.; Ferenc Fricsay, cond. Decca 12-in. DL 9519. 43 min.

Philadelphia Orch.; Eugene Ormandy, cond. Columbia 12-in. ML 4400. 46 min.

The tonal laurel is Columbia's in a juxtaposition of two good recordings of this parade of rich folktunes beset by excited fanfares. The Decca has a good sweep of strings and polished brass; the woodwind has not been placed to best advantage and high volume is needed to demonstrate the sonic merit. The Columbia is more brilliant and more de-

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tailed: it features a really superb registration of the bass. It is much more impressive technically, but pretty disheartening musically, in Dr. Ormandy's spasmic treatment which sounds messy. We now have seven LP versions of the work, and the favor of this critic is for the Decca and Fricsay, who, eschewing febrile fatuity, has smoothed its outline into a dignified likeness to create a cheerful and fairly serene entertainment. It is a curious and commendable reconstruction of a battered facade: it is a pity Dr. Fricsay did not have the singing, massed strings of the Philadelphia Orchestra to help in the refacing. — C.G.B.

TOCH: *The Chinese Flute, Op. 29*
Alice Mock, soprano. Martin Ruderman, flutist. Pacific Symphonetta; Manuel Compinsky, cond. Alco 12-in. Y 1006. 22 min.

Good example of West Coast recording, with fine clear and resonant orchestral tone, flute solos well recorded, a good balance observed between flute and vocal solos and orchestra, the percussion not too forward. The thankless soprano solo, with its cruel intervals, is well sung by Alice Mock. The orchestra under Compinsky plays the work for all it is worth. However, I find this piece of faded chinoiserie worth very little. Written in 1923, it is like so much of the music of its time — dull and pretentious.

The record surfaces are extremely quiet. I see no excuse for putting this small amount of music on a 12-in. record, when it could easily have been issued on 10-in. — J.F.I.

VERDI: *Don Carlos* (Scenes from Act 3)
Alois Pernerstorfer (bs), Georg Oeggl (bne), Alexander Welitsch (bs), Hilde Konetzni (s), Elizabeth Hoengen (ms). Vienna Opera Orch.; Erwin Baltzer, cond. Capitol 12-in. P 8144. 33 min.

The recording is somewhat dull in sound, and an occasional slight echo can be heard . . . sounds like an empty hall or theatre session. The orchestral tone is good, but badly balanced against the singers, who are too prominent. Strangely enough the orchestra sounds much closer to the microphone when alone, as in the introduction to the first aria on Side 1. Singing of high quality is here, with Pernerstorfer particularly effective, and Hoengen scarceley less so. Konetzni seems to have some trouble with her high notes in spots, though they do not detract from the overall impression of her work.

Hidden beneath the conductor's name on the liner notes is the notation "Sung in German" — this, despite the fact all aria titles, on the record and in the notes, are in Italian. Capitol does not offer any texts for the arias in question, either in German, Italian or English, an omission that should be remedied in future releases.

My review copy was afflicted with a periodic crackling, and hum throughout.—J.F.I.

VIVALDI: *The Four Seasons, Op. 8*
Reinhold Barchet, violin. Stuttgart Chamber Orch.; Karl Münchinger,

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RECORDS IN REVIEW

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cond. London 12-in. LLP 386. 40 min.

Provokes comparison with the Cetra edition (50004) conducted by Molinari and using a score arranged by the conductor. There is a dissimilarity of concept which may be inherently national. The Italians respond to the panorama of growth and decay with delicate lyrical outcries, while the Germans are inclined to be muscular and hearty in surveying the seasons' vicissitudes: the Latins contemplate the natural wonders, devoutly; the Teutons utilize them, athletically. (In general, that is.) Both are technically satisfactory, the Cetra surprisingly so since it is a dubbing from 78's. It needs strong bass reduction. The London is brighter and needs an extra measure of treble repression. Personal taste alone can dictate a choice between them. — C.G.B.

WEBER: *Concertino for Clarinet and Orchestra, Op. 26*
Alfred Buerkner, clarinet. Berlin Philharmonic Orch.; Ernst Schrader, cond.

Symphony No. 2
Orch. of Radio Berlin; Robert Heger, cond.

Overture to Euryanthe ● *Overture to Oberon*
Orch. of Radio Berlin; Arthur Rother, cond. All on Urania 12-in. URLP 7012. 42 min.

As miscellanies go this is a good one, dependent from a single composer sparsely represented on discs; but all miscellanies are a curse to critics straitened for *schreibensraum*. The *Concertino* is most valuable here, deftly played and well recorded; the *Symphony* guided by Dr. Heger — than whom none has a warmer response to early romanticism — needs considerable volume for its best effect and ends its spiral with an exaggerated shrillness adamant to compensation. The same terminal shrillness also afflicts *Oberon;* and the *Euryanthe* is in part fussily managed. — C.G.B.

MISCELLANY

FRENCH AND ENGLISH SONGS (XVI and XVII Centuries)
Hugues Cuenod, tenor. Hermann Leeb, lute. Westminster 12-in. WL 5085. 48 min.

Plaintive is the mood of most of this pretty special music (Besard, Dowland, Bartlett, Morley, et al.) delivered in the purest of contours by a tenor who is a marvel in the specialty. Translucent recording; a precious record in both senses. Complete texts are furnished. — C.G.B.

ROBIN, MADO (s): *Operatic Recital*
New Symphony Orch.; Richard Blareau, cond. London 10-in. LPS 255. 25 min.

Five coloratura showpieces sung in routine

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RECORDS IN REVIEW

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fashion by a new French soprano, Mado Robin. The voice is small and sweet, more secure in the higher register, the lower tones being thin with a tendency to whiteness. Though the range is ample, the voice lacks brilliance in the florid passages of these arias. Orchestral accompaniments, under Richard Blareau, are somewhat less than sparkling.

Sound is considerably below London's usual standard, being muffled, with loss of detail. For what London calls a "Recital", I find the balance between soloist and orchestra ideal.

Arias presented here are: Delibes, *Bell Song* from *Lakme;* Rossini, Una voce poco fa from *The Barber of Seville;* Verdi, Caro Nome from *Rigoletto;* Mozart-Adam, Variations; Ah, vous dirai-je Maman; Benedict, *Carnival of Venice.* Apart from the Benedict aria, which is sung in Italian, the remainder are in French. No texts supplied. — J.F.I.

SOUSA: *Six Marches* (and two other Marches)
Boston Pops Orch.; Arthur Fiedler, cond. RCA-Victor 10-in. LM 69. 23 min.

Spiritedly played although fast, in a meretricious kind of recording whose suggestion of high-fidelity is contrived by forward trumpets to indicate extended treble and long reverberation to imply profundity of bass. — C.G.B.

SCHUBERT ON RECORDS

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Certain small compositions forming minor parts of discs devoted to miscellanies have not been considered here because of limitations of space.

*Some compositions have been recorded but are not represented here because of the unavailability of the discs at the rather remote point where this survey was prepared. In two minor cases, the manufacturers were temporarily out of stock; in two others the manufacturers did not respond to requests to make the records available; and in the one major case, the manufacturer pleasantly agreed to place the discs at the disposal of the critic and did not. Here is the list of records not reviewed:

"Choeurs" (?) — Vox
Gesang der Geister über den Wassern — Vox
Mass in E Flat — Vox
Fantasy in C, Op. 16 — Vox
Sonata for Arpeggione — Vox
Moments Musicals, Op. 94 — Vox
Octet — Vox (also Stradivari)
Sonata in A, Op. Posth. — Vox
Sonata in A Minor, Op. 42 — Decca
Sonata in A Minor, Op. 143 — Decca
Sonata in B Flat, Op. Posth. — London
Fantasy for Violin and Piano, Op. 159 — Columbia
Grand Duo, Op. 140 — Vanguard
Symphony No. 4 — Vox

Acknowledgement is wholeheartedly made to the Long Playing Record Catalog of W. Schwann, almost indispensable for a compilation of this kind.

MORE FM

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Carolina 12, Kentucky 13, Tennessee 10, West Virginia 15.

It is clear from these figures that there is an ample number of stations to be heard at any location to justify the purchase of a good, but not necessarily expensive, receiver and antenna.

Despite the healthy growth and continued improvement of FM broadcasting, considerable prominence is given occasionally to newspaper and magazine articles which report that FM is dying out. Just how false these stories are can be judged from an incident which occurred this summer:

First, one of the broadcast magazines published an editorial describing FM as "the step-child among broadcast media", stating that: "Substantial engineering opinion supports the view that the fewer than 700 FM stations might well be accommodated in 2 megacycles or 10 channels. The remaining 18 megacycles (FM runs from 88 to 108 mc.) would provide 3 additional VHF TV channels." The editorial concluded with the statement that this "answer seems too obvious to argue."

The "substantial engineering opinion" was not identified in any way. When broadcasters and engineers capable of rendering well-informed judgement protested that a 2-mc. band could not accommodate the FM stations now operating, the same publication took another tack in a subsequent editorial, asserting that "FM is a trouble area now in sharp focus — much more so than most FM-ers realize. Simply stated, the FCC is pondering what it should do about the vast expanse of spectrum space assigned to, but not being used by FM." Then, in acknowledgement of the protests resulting from the previous editorial: "Maybe the answer might be in holding 8 mc. for FM, leaving 12 mc. to be diverted into 2 TV channels."

When this reference to the Federal Communication Commission, made as a statement of fact, was brought to the attention of FCC chairman Wayne Coy by Josh L. Horne, president of station WFMA, Mr. Coy replied in a letter that was released by the Com-

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mission as a Public Notice: "As I have told you repeatedly, the FCC is not considering the deletion of the FM band or any part of it. The FCC is not considering allocating the FM band or any part of it to any other service. The approximately seven hundred stations now operating in the FM band is real testimony to the strength of the service, particularly when one considers that many manufacturers do not make sets and none of them has carried on continuously aggressive sales campaigns.[2] In almost every area in the country there is an unfilled demand for FM receivers."

After all, the popularity of FM is measured by the number of sets sold. According to information released by the Radio & Television Manufacturers Association, FM set production for the first 6 months of 1950 was 16% above the total for the same period in 1949, and during the first 6 months of 1951, it was 22% above the first 6 months of 1950. That is a healthy growth in any business. Just since January 1949, nearly 3 million FM sets have gone into service, together with almost 1½ million TV sets with FM tuning.

[2]Editor's Note: Exceptions to this are Zenith Radio and the manufacturers of FM and FM-AM chassis for custom installations.

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MUSIC IN YOUR HOME

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finished job more than met the requirements. The antennas were erected on a 45-ft. pole, Fig. 7, which is about 140 ft. from the house, and partly concealed by trees. The town of Branford, about 10 miles east of New Haven, Conn., is definitely out of the so-called primary service area of New York FM and TV transmitters. Nevertheless, with a television receiver set up temporarily at the base of the antenna pole, very good signals came in on Channels 2, 4, 5, 6, 7, 9, and 11. FM signals from about 25 stations ranged in strength from very strong down to relatively weak, yet they produced full limiting. With this information as a basis, the next job was to get these signals into the house.

A Spencer-Kennedy wide-band television amplifier was installed a few feet up the pole. This provides a gain of about 20 db (a ten-fold improvement in terms of voltage) throughout both television bands and the FM band. From this point, two lines of co-axial cable were used to feed the TV and FM receivers. These lines were run in 2-in. Orangeburg pipe, together with control lines for the two antenna rotors, AC lines to the amplifier, and some spare wires.

Each antenna has its own rotor, yet the complete assembly is not at all cumbersome. The TV antenna and rotor were mounted on a piece of 1¼-in. steel tubing, in each end of which is a bronze bushing. Through these bushings passes a smaller piece of tubing which extends above the TV antenna and supports the FM antenna. The lower end of this smaller tube passes through the TV rotor, to a second rotor which turns the FM antenna. This concentric construction, making it possible to turn either antenna without affecting the other, makes a very neat appearance and is actually very sturdy. Also, it is easily disassembled, if necessary, for repair or replacement. A rain hood prevents water from getting in the top bearing.

The Workshop Associates double-V antenna provides excellent high-band TV reception in this location, and signals on channels 2, 4, and 5 from

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MUSIC IN YOUR HOME

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New York are usually quite good. WNHC-TV New Haven, on channel 6, delivers an excellent signal in this vicinity.

The television receiver, Fig. 6, was removed from its original store cabinet, and equipped with a rectangular tube. Some changes were made in the audio section. A 6-volt AC line from the filament circuit operates a relay which energizes the wide-band amplifier on the antenna pole. The amplifier is well protected from the weather and also well ventilated. In cold weather, some of the vents can be closed. It seemed wise to install a source of heat to prevent condensation in the case, and to raise the temperature in extreme cold weather. A 100-watt unit was used for this purpose, with a thermostat set to close when the housing temperature goes below 65°F. An AC outlet was provided at the pole for test equipment, soldering iron and so forth.

In regard to servicing, I have found that it is very wise to consider what might happen if this or that should need replacement or repairs at some future date. It is not difficult to visualize the procedure in advance, and to provide for accessibility, ease of removal, and replacement of various pieces of equipment.

The television receiver is accessible by simply removing the knobs and the wooden front panel which is held in by magnetic catches. The television receiver can be slipped out so that all servicing adjustments are easily reached. If it should be necessary to disconnect the television chassis for complete removal, this can be accomplished quickly.

The Capehart unit was mounted on a cradle and, by removing the front panel, easy inspection of the mechanism, motor and wiring is possible. In the event it should be necessary to remove the changer, this can be accomplished by disconnecting the AC and phono leads and sliding the entire cradle out. Plug connectors are also used on the Garrard changer and Rek-O-Kut turntable, either of which can be taken out in less than a minute.

The same scheme is followed with

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MUSIC IN YOUR HOME

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the FM tuner, amplifier, and equipment in the power supply section. In spite of the fact that this custom installation has a great many extra features and somewhat unusual circuits, I believe it would be considerably easier to perform a major operation on it than on factory-built radio-phonographs or television receivers where the works are crowded into the cabinets with obvious disregard of the service man's convenience.

I should like to repeat that while this installation can certainly be considered among the more elaborate designs, it illustrates methods and planning which can be scaled down and applied to meet any requirements.

TOPS . . . for the JUKE BOX

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We proved this point by playing a couple of these popular records on another system which utilized a small, single speaker and an inexpensive amplifier. The sound was considerably less annoying, but still was not as listenable as it had been at the dealer's shop. Hence, an axiom might be proposed here: the lower the fidelity of the playback system, the better these popular records sound — to the point, of course, where the player is worse than the record!

It is our hope that these remarks will not be construed as an uncompromising denunciation of the quality of popular records, or the mass-production methods by which they are manufactured. Rather, this account is offered as an explanation to those who ask: Why do popular records sound more pleasing on a table-model phonograph than on my hi-fi system?

No doubt, as time goes on, the quality of popular records will be improved. But for the present, it appears that the best way to use juke-box music on a high-fidelity system is to push up the bass, cut off the treble, and make the best of such a compromise.

AUTHORitatively Speaking

Continued from page 3

Also in the needs-no-introduction category is **John F. Indcox**, reviewer of records and man about music . . . a professional record collector of long standing, and now, it appears, a prognosticator. For, in the previous issue of HIGH-FIDELITY, he reviewed Bartok's *Suite from the Miraculous Mandarin* and remarked that it was a score "which one would like to see in the repertoire of one of our progressive ballet companies, for whom it would make an ideal subject." Evidently, HIGH-FIDELITY's readership includes members of the New York City Ballet, for they took Indcox at his word and gave the première of the *Suite* on September 6th at the New York City Center Theatre. Indcox is now convinced of the mightiness of the pen (though he insists everything is purely coincidental) and will either shy away from such suggestions, or make them fast and furiously!

Editors are difficult people to work with, and no one knows it better than **Alan Macy**. From 9 to 5, Alan is the business brains around the HIGH-FIDELITY office. He should, we realize, be allowed to go home at 5 o'clock and forget his troubles — and his past. But since his past includes extensive experience with the intricacies of radio, your Editor will not let him forget it. Instead, he cajoles and browbeats . . . insists that an author does his best work late at night . . . and eventually is presented with a remarkably concise yet clear discussion of a very complex subject: Tape Recording (page 45).

Carl Eton (page 62) is too polite a person to come right out in print and say that it was your Editor upon whom he descended one evening with a stack of popular records. He is a neighbor of ours who enjoys (he says) popular music. We have been encouraging him to fix a hi-fi system in his home . . . we shall let our readers guess whether Mr. Eton will build such a system, or whether your Editor will be converted to popular music.

To balance Carl Eton's thought-provoking article on popular music, we have Edward **Merritt's** stimulating contribution," The Music Between". Mr. Merritt has had many years' experience on the program-directing side of several of the Country's leading concert stations. At present, he is program director for WBSM in New Bedford, Mass. As for the listenability of the impressive armsful of records brought along by both Eton and Merritt, we feel that Merritt has the edge on Eton. The two articles will, we hope, stimulate an interesting explosion in the Readers' Forum, with the classicists on one side, the popularists on the other, and the Music Between exactly where it belongs: in the middle.

In closing this column, we must mention one contributor-to-be: **G. A. Briggs.** Those who have read his two books on "Loudspeakers" and "Sound Reproduction" will not need to be told how welcome an addition he will be to the list of authors represented

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ADVERTISING INDEX

HI-FI-PHRENIA

Continued from page 15

sible, even among the top-price items. This applies especially to amplifiers and speakers. There are some excellent models of each which simply do not belong together. One fine amplifier, for instance, is at its very best driving a rather crisp-coned speaker at rather low volume — small apartment level. Another excels, because of its damping-ability, when it's given a very compliant speaker and the power is poured on liberally. Neither distinguishes itself in the other's territory.

Before anyone gets panicky about edginess or mushiness in his rig's reproduction and decides his prime components are incompatible, there are other things he should investigate. When good components are used, the commonest sources of uncomfortable distortion are bad phono-cartridge equalizing and bad speaker housing. Here again, written queries to manufacturers furnish the quickest check. And, it must never be forgotten, the better the rig, the more mercilessly it will show up the shortcomings of records and broadcasts.

A constant threat to any earnest hi-fi enthusiast, especially if he hobnobs largely with others of the ilk, is hifiphrenia. This is a psychological ailment, marked by loss of contact with reality. Sometimes it becomes incurable: the sufferer *likes* his disease.

Principal symptom is a split-budget personality, as indicated by the practice of giving half the family income to the little woman, not out of generosity, but as justification for spending the other half on phonograph and tape equipment, FM tuners, and a succession of amplifiers and speakers. Those thus afflicted are harmless, happy people, and as the disease is incurable, no effort should be made to restrain them.

AUTHORitatively Speaking

Continued from page 87

in HIGH-FIDELITY. In the November issue, he will start a series of articles on the problems of sound reproduction in the home. We have already given his first manuscript a quick once-over, and can assure our readers — and his — that his characteristically original approach makes it one of the best pieces we have read in a long time.

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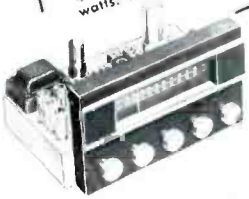

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