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Vol. 14 No. 1



Franco Corelli At Home

When you're doing your famous imitation of Enrico Caruso will your next tape recorder be kind enough not to hiss?

Panasonic invents a tiny cartridge tape recorder with a motor you can't hear.

There you are, pouring your heart and soul into "Vesti La Giubba." Giving it all you've got. And there's your tape recorder giving you all it's got, back.

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You get a capstan-drive, battery-powered recorder with 11 Solid State devices. One hour playing time at 1 7/8 ips. Fast forward and rewind. AC adaptable. Remote pencil mike that's button controlled to save you tape. 2 1/2" PM



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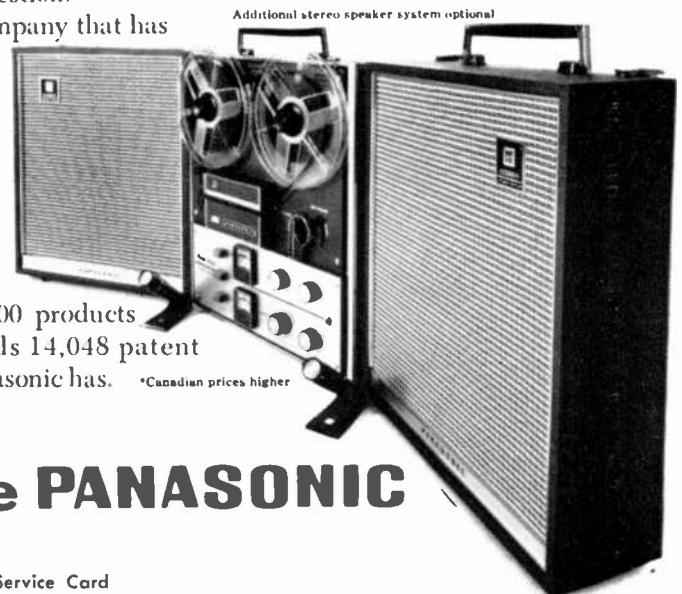


recorders together. We make tape recorders at Panasonic.

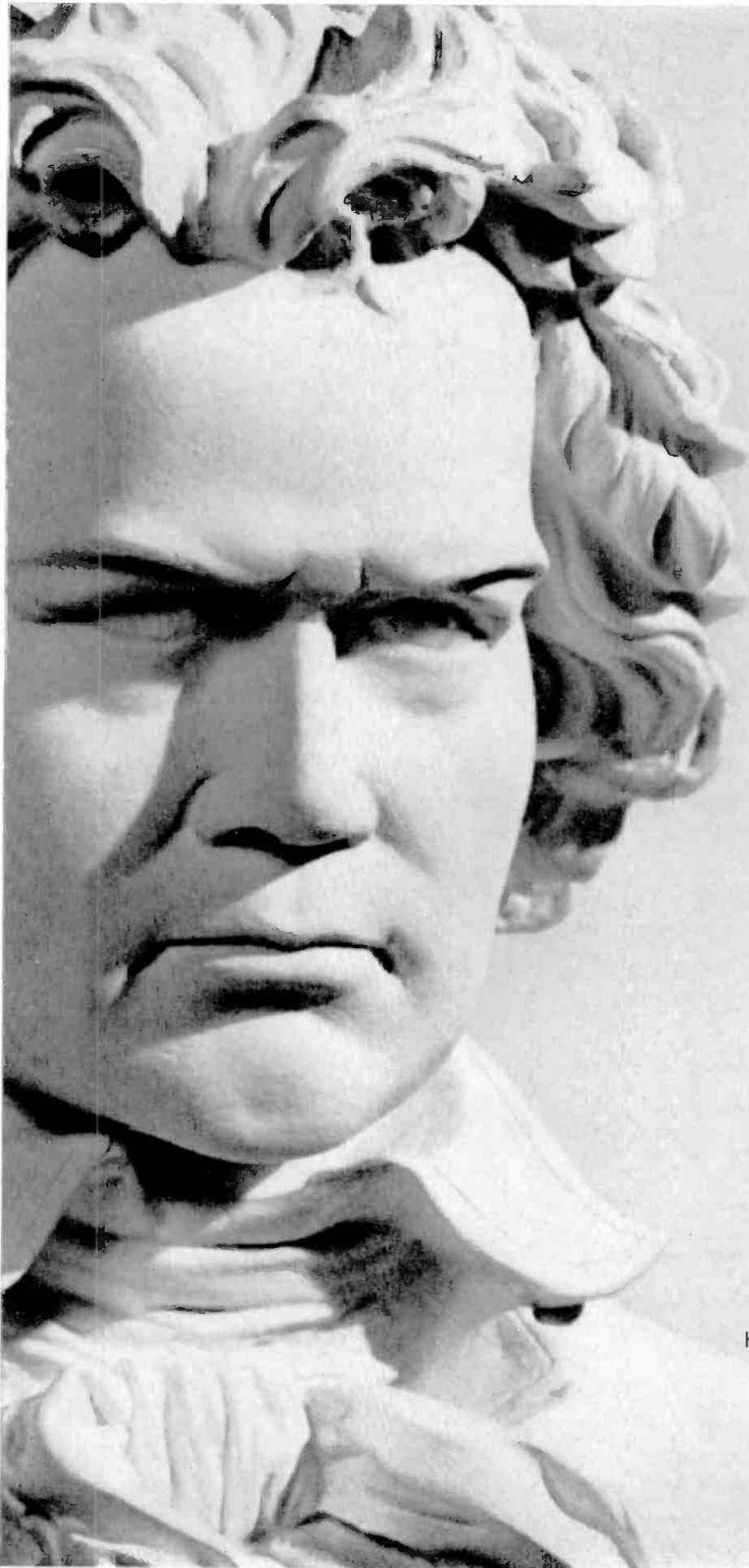
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How long will pre-recorded tapes of MYLAR last? Well, how long has Beethoven been around?

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I would also like to order the following tapes.....

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tape

recording

DECEMBER, 1966

VOLUME 14, NO. 1

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LETTERS TO THE EDITOR

New York, N.Y.

In your October issue of TAPE RECORDING in the Tape Reviews section, you reviewed a Joan Sutherland tape recording of arias from Bellini operas. I own this recording and I was very much in agreement with most of your comments. However, there is one rather jarring error in your review. You go on to mention Maria Callas and Renata Tebaldi as points of comparison with Joan Sutherland's interpretation of this literature. Callas, of course, is very much associated with the Bellini heroines having recorded and sung on stage *Puritani*, *Norma*, *La Sonnambula*, *Beatrice di Tenda*, *Il Pirata* and possibly a few others. *But* — Tebaldi? Tebaldi never sings Bellini and never has. She is not and never was at any time associated with the Bellini operas. I assume you intended using some other soprano's name and inadvertently inserted Tebaldi's. If this is not the case, then you are badly misinformed.

Sincerely,

Lawrence Spinelli

R.A. apologizes for the goof, Mr. Spinelli, and assures us the soprano he meant was Roberta Peters (a likely tale!). One sharp rap over the knuckles has been duly administered.—Editor.

Hyattsville, Md.

I am writing with regard to the article in your August 1966 issue on the \$6.00 Wireless Microphone. I obtained the module and essentially duplicated the set up you used. However, I only got 4 feet of range. Is there some secret to getting a reasonable distance? Has anything been left out of the article that I need to know to duplicate your wireless mike? I used fresh batteries and a good mike with moderately high output. It worked well for 4 feet, but I could not receive the transmission over 6 feet.

Secondly, I have little imagination. Could you tell me how to turn
(Continued on page 8)

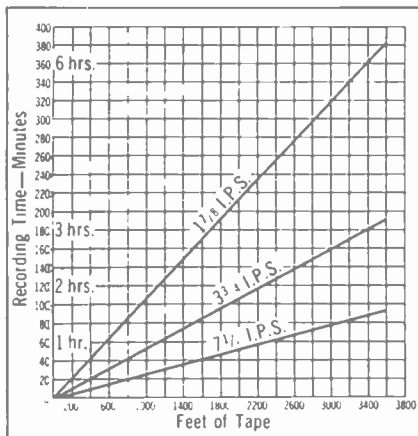
Tape Recording

Some plain talk from Kodak about tape:

Kodak
TRADEMARK

Uninterrupted listening pleasure... and the answer to a searching question

Recording a pop tune or even the whole top ten isn't much of a problem with standard sound tapes. But people always want more—like getting a whole Wagnerian opus on a single reel. Actually, the problem of long playing time involves two variables: how fast you run the tape, and how much tape length you get on a reel. The latter variable is a function of reel size and tape thickness. The following chart will give you an idea of running times with different lengths of tape:



Some like it slow. Taking it slow is the obvious way to get longer playing time. Halve the speed and you double the time it takes for the tape to run. This works very well up to a point. As a matter of fact, it is the historical trend—from 15 ips to 7½ ips to 3¾ ips and so on. But as you cut the speed, and thereby compress the recording, you make the microscopic perfection in the tape more and more important. Furthermore, at slow speeds the increased dependence upon short wavelength information and the concurrently reduced flux-carrying capacity of the tape makes head and equipment design more difficult. But even though improved quality slow-play tape recordings are strongly dependent upon improved equipment,

you are still ahead with the built-in quality of KODAK Tapes—high output tape Type 34A, with its output and noise advantages, or low-print tape Type 31A.

Some like it thin. The other avenue is to go to a thinner tape . . . one that packs more length on the reel. This too is an appealing idea—one that explains the proliferation of double and triple play tapes. So what's the catch? Well, for one thing, very thin tapes require careful habits on the part of the home recordist. Your recording/playback heads should be in good shape, as thin tape is more liable to physical distortion and breakage. Make sure that your recording equipment is in top shape so that it produces smooth starts and stops. You can help with a smooth start by turning the reels away from one another (gently, please) so as to take up any slack in the tape which may have occurred during threading. Also, forget the fast-rewind knob—store tapes "as played." Fast rewind can set up a lot of tension and often cause erratic winding. All this can result in "stretched" or "fluted" tapes. In a nutshell, treat thin tapes with loving care. When you record, be careful not to overload on input (if you have a VU meter, keep the needle slightly below the record level you would normally use for regular tape). Last but not least, make sure you get your tape from a reliable maker—like Kodak. It takes a lot of extra care in winding, slitting and over-all handling to come up with a superior triple-play tape like Kodak's famed Type 12P. Because of its highly efficient oxide, Type 12P gives you a signal-to-noise ratio better by close to 6 db compared to the other leading triple-play tape. Add to this the advantage of back printing (so you always know what type of tape you're using—even when it's in the

wrong box), and a dynamically balanced reel that reduces the stress and strain on a thin tape, and you can see why KODAK 12P Tape is becoming so popular.



KODAK Tapes—professional types and the long-playing variety—are available at most electronic, camera, and department stores. If you've had trouble finding them at your favorite store, Kodak would like to help. Simply tell us where you'd like to buy KODAK Tape, and we'll see what we can do about having these stores stock it. In the meantime, we'll rush you the names of nearby Kodak dealers where you'll be *sure* to find KODAK Tape; also, a very informative booklet "Some Plain Talk from Kodak about Sound Recording Tape." Just fill out the coupon below.

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Camera store
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Electronic supply store

Please send names of nearby outlets and my free copy of "Some Plain Talk from Kodak about Sound Recording Tape."

Name _____

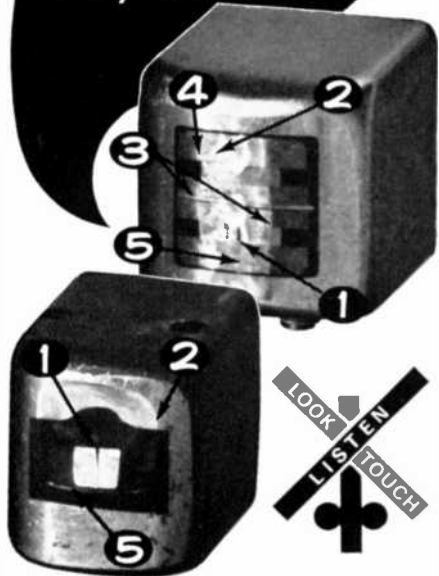
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"LOOK"—If you see: (1) the gap; (2) depressions, gouges, score marks, or; (3) angled wear lines either side of pole pieces—*replace the head!* **"TOUCH"**—Run fingernail up and down face of the head vertically, then slide your nail horizontally in both directions. If you feel (4) rough surfaces; or catch your nail on a (5) wear groove—*replace the head!* —OR **"LISTEN"** to our AT-100 Test Tape or play a pre-recorded tape with good "highs" as offered by Latin-type music or Violins. If the "highs" sound flat, mushy or distorted—*replace the head!*

Your tape head wears every time you use your recorder, and as it wears, the brilliant realism of tape is lost! Pressure pads and the magnetic tape itself, both cause wear. The oxide coating used on the tape is an abrasive which slowly grinds away the face of the head—and pressure pads cause uneven wear. For top performance, intimate tape-to-gap contact is imperative! Poor contact, due to wear, results in severe high frequency losses, erratic response and loss of output!

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LETTERS TO THE EDITOR

(Continued from page 6)

this unit into a bug?

Thank you,
William B. Adams

As was pointed out in the article, both transmitting and receiving antennas are highly directional and both must be oriented properly for best transmission. This will take some experimentation. While the length of antenna is not critical, the longer it is the better will be the transmission — up to a point. Another factor to consider is the frequency. If you've tuned the transmitter as described in the article, you should have no trouble with frequency shift. However, if you've selected a frequency very close to an FM broadcast station frequency, the broadcast will interfere with the operation of your wireless mike. To turn the unit into a bug, use the FMM-1 module—designed for high impedance mikes. Hook up a miniature crystal mike, use a small-size battery soldered into the circuit (instead of a battery clip) and select a fixed-value capacitor to replace the mica trimmer. This will reduce overall size. Antenna can be a length of hair-thin wire stretched along a baseboard, under a table, etc. By the way, use of this type of device is prohibited by law in most localities.—Editor.

Malverne, N.Y.

I must differ with the position you took in the October issue of TAPE RECORDING on the use of Hertz (abbreviated Hz) as a unit of frequency measurement. To foster understanding we need agreement and not disagreement. We should work toward, not away from, international standards.

The single word "Hertz" as an expression of the three-letter phrase "cycles per second" is a long overdue step in the right direction. It

tends to conformity rather than confusion. Hertz is a unit of measurement used in Europe for many years and its adaption by this country merely brings us into line with a mutual standard. Many units for measurement used in electronics are named for individuals: Volt (unit of potential) after Alessandro Volta; Ampere (unit of current) after Andre Ampere; Watt (unit of power) after James Watt; Farad (unit of capacitance) after Michael Farraday; Henry (unit of inductance) after Joseph Henry. So why not Hertz, a unit of frequency, named after Heinrich Hertz?

Very truly yours,
John F. Brooks

Nertz to Hertz. But if enough readers agree with you, we'll go along.—Editor.

Loughton, Essex, England

... when I read the appeal in your magazine previously, for tapes for the troops in Viet Nam, I compiled an 1800-foot, 7-inch reel and forwarded it as directed to the address in San Francisco. My name and address was recorded on the end of the last track, as a result of which I have now heard direct from a small isolated unit in Viet Nam requesting particular items which I have compiled and despatched. I am now sending them a copy of your magazine and will continue to do so with future issues.

Yours faithfully,
Charles H. Long

New Haven, Conn.

Will you kindly advise me where I may obtain Monotapes for a Webcor recorder? Thank you.

Sincerely,
N. Kravitz

Monotapes are no longer available from TAPE RECORDING MAGAZINE. Sorry.—Editor.

Tape Recording

tape

CLUB NEWS

We had a visitor all the way from Japan here at TAPE RECORDING offices in New York. Tohru Uchiike, president of the Japanese tape club W.I.T.S. (That's Waseda University International Tapespondence Society), wants to let you all know that they're very interested in taping with tape clubs in the U.S. and Canada. You can reach him at 300-4 Nishisugamo, Toshima-ku, Tokyo, Japan.

Teen Tape Club president John Rinker writes that the TTC will be sponsoring a contest for the next nine months. Prizes awarded will be nine pre-recorded tapes valued at \$7.98 each. For full details write John at 1906, N. 87th St., Omaha, Nebr. 68114.

Announcement of a new tape club comes from Norman Carlson. The club will be called Stanley Brothers Fan Club and will consist of bluegrass and old-time music by many artists. The format will resemble an amateur DJ radio program. Members will receive round-robin tapes about once every two months. Anyone interested write Norman at 217½ S. Grant St., W. Lafayette, Ind.

Jim Marting, an American teacher based in Canada would like to hear from tape clubs all over (especially foreign) about taped material he can use in his classes. Can anyone help him? Write Box 181, Revelstoke, B.C., Canada.

The Great Lakes Tape Club has two new overseas directors, Peter Noel Gill in New Zealand and Michael Dennis in England. Full membership is now offered in two countries as well as in the U.S. Home base address for the club is 13346 Sherwood, Huntington Woods, Michigan 48070.

The GLTC puts out a bi-monthly bulletin called Teen Talk. Current issue includes an excellent article on the forming and maintenance of a tape library.

New technical director of the New Zealand Tape Recording Club

(Continued on page 38)

Who would you put in the box?



“Dizzy”?



Beethoven?



Uncle Louie singing “Danny Boy”?



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Whatever your listening preference . . . “Scotch” Brand “Dynarange” Tape helps you create a new world of sound. Delivers true, clear, faithful reproduction across the entire sound range. Makes all music come clearer . . . cuts background noise . . . gives you fidelity you didn't know your recorder had.

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Franco Corelli's Christmas

by Ann C. Eisner



PHOTOGRAPHY BY ELLIOT LANDY

“Christmas for me is always a simple festa. In Italy we have the family together and we eat and drink and go to Midnight Mass together.”

To millions of kids around the world, Christmas is a time of starry eyes, high hopes for a shiny red tricycle or catcher's mitt, extra-good behaviour to be on the safe side, and images of turkey with the trimmings on Christmas Day. Unfortunately for many of us adults, we lose our childhood enthusiasm as the years pass. The religious significance of the holiday grows with the years, but the magic begins to fade.

But here and there are individuals who don't let the pressures of business or the problems of being a grown-up interfere with their enjoyment of life. One such is Franco Corelli, probably the handsomest leading man ever to step onto the stage

of the Metropolitan Opera and certainly one of the world's leading tenors. Corelli, who stands six foot one in his stocking feet, is a singer who breaks all the rules. He's largely self-taught, for one thing. At the age of 23—considered quite late in the life of a singer—Franco Corelli entered a contest and won. The year was 1953, and the prize included an appearance at the Rome Opera. Within a few years, he was singing at every major opera house in Italy, and became known as “Mr. Opening Night,” for his practice of appearing in the opening night casts in Rome, Naples, La Scala and elsewhere.

“Mr. Opening Night” continued his career in



the United States in the early 1960s, opening the seasons of the Philadelphia Lyric, San Francisco, Chicago and Metropolitan Operas. From there he went on to become a favorite with TV audiences across the country via guest appearances on the Ed Sullivan Show and Bell Telephone Hour.

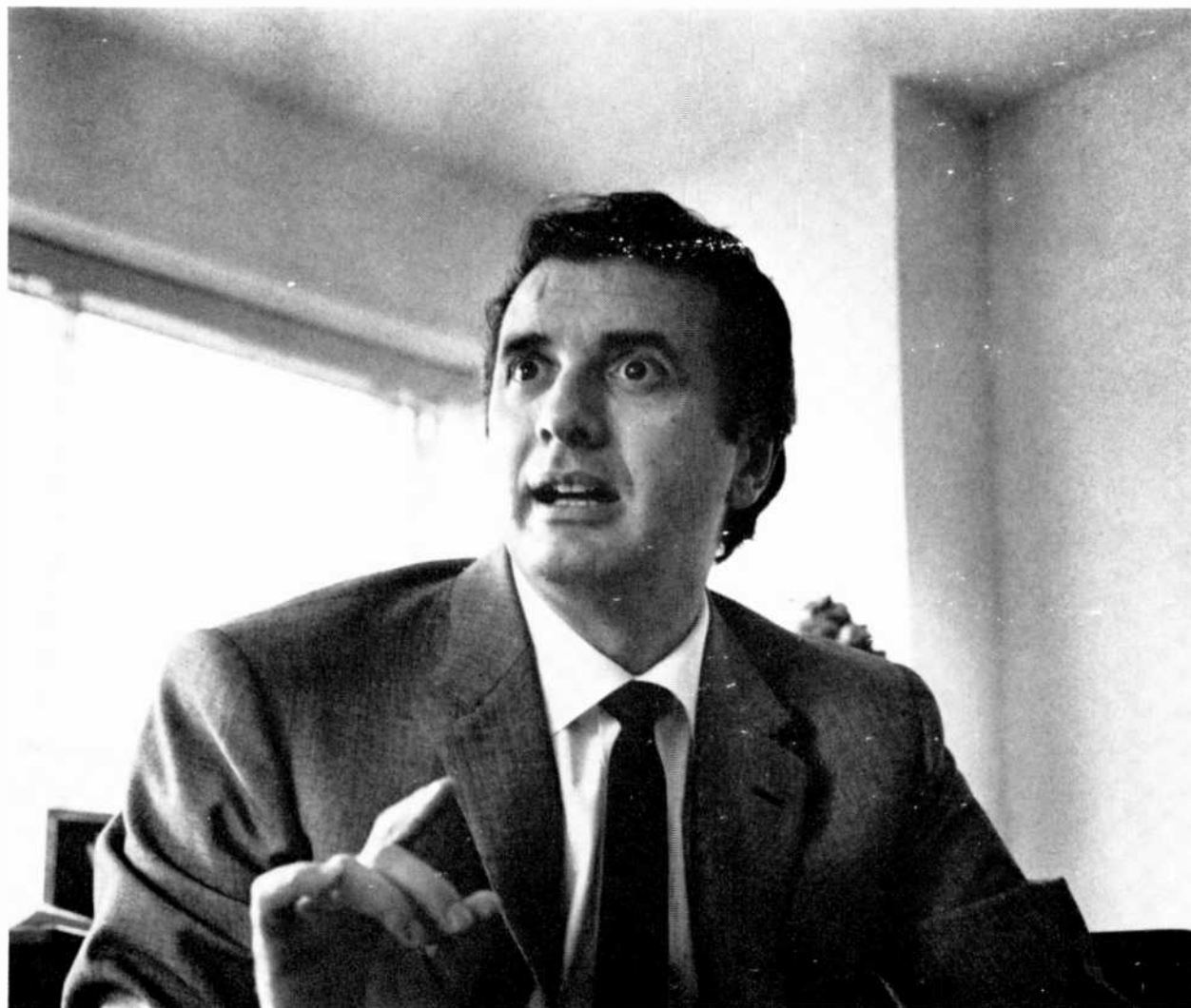
"Franco is just a little boy at heart despite it all," a friend told me just before Christmas. "If you want see somebody who *really* enjoys the holiday, go take a look at Franco Corelli."

In his midtown Manhattan apartment Corelli was just finishing a light Italian lunch when I rang the doorbell. Corelli smiled, said he'd be delighted and waved me to a comfortable sofa in

the living room. I settled. Mr. Corelli settled and then, hands gesturing and eyes lighting up, he began.

"Christmas for me is always a simple 'festa.' In Italy we have the family together and we eat and drink and go to midnight Mass. Usually we eat and drink too much. This simple Italian Christmas is the kind I like best. It is a time to be with the family. Very nice. And a little special this year for I will be in Italy. For many years, Christmas was for me just another day. When a singer is working, he must stay to a very strict regime. Sleep, eat and drink just so much. Rest and sing. This year will be a good Christmas—in Ancona.

Corelli's Christmas . . .



"Ancona is very nice. My city," his eyes lit up, and he continued, "It is on the Adriatic coast, not south and not north, I lived there until I was twenty and all my good memories are there. There is a quite beautiful sea and a marvelous sky. I remember when I was just a boy waiting on Christmas for Baba Natale—He's like Santa Claus. We have also La Befana who comes on January 6th, the feast of the Epiphany. La Befana is an old witch who comes in the night and fills all good children's stockings with toys and treats and all bad children's stockings with coal. I was very afraid many times that I'd wake up and find my stockings full of coal—but it did not happen.

"This year I will tape our Christmas—There in

Italy I have a very big system—an Ampex professional recorder. It is very important for me to have a good tape recorder for I use it all the time. I think tape is invaluable to singers. I tape all my lessons and afterwards I listen and hear objectively all the faults in my voice or phrasing. I use my recorder here—a big one and also a little one I can carry with me—to study with. I must relearn French since I've practically forgotten it. You can do that if you have a little recorder in your pocket to study with. Next year I will open the Met season singing in Gounod's "Romeo and Juliet," which is sung in French at the Met. So I must be perfect by then.

"I also have on tape all the Saturday broadcasts

“Mostly it is very difficult when people take battery recorders into the opera and tape the performances. There’s no control.”



I gave over the radio. They were given to me and are very good quality reproductions. Also I have heard some performances that fans have taped—but they are not so good.

“Mostly it is very difficult when people take battery recorders into the opera and tape the performances. There is no control. If the battery is weak, the performance is recorded too slowly and then when it is replayed the pitch changes and the quality of the voice changes. Then there is no control of volume so that sometimes it is too loud and is distorted and sometimes you cannot hear. In a recording studio there are technical standards—and everyone follows them. Engineers are constantly checking the sound level and the tone. In a

darkened theater you cannot check anything. Though I understand that the sound in the new Metropolitan is very good.

“It is quite an amazing building, the new Metropolitan Opera House at Lincoln Center I have been lost in it three times already—it’s very large. Maybe four times as big as the old house—or more.

“For singing it is very good. And the stage is really a mechanical marvel. Really four stages. When you have electric control over such things something always goes wrong—and this year it seems as if everything goes wrong in my performances of *La Gioconda*. In the beginning of the season one of the performances had to be cancelled completely because the stage was out of order and

Corelli's Christmas . . .



the sets are too complicated to operate by hand. Then just a few weeks ago the set got caught between acts. There is a ship that must be moved onto the stage and it wouldn't go. So the audience was kept waiting during an intermission that lasted over one hour (it was surprising to me that people didn't go home). Even then I had to climb over the rigging to get onto the boat at the last minute and almost missed my final note.

"As for the sound, as I said, it is supposed to be very good. I have only been twice out in the audience and really cannot judge. From the stage it sounds good—but from the stage it usually sounds good. Acoustics today is very different from one hundred years ago. The sound from a

new building may not be better or worse—just different. It has to be because the building techniques and materials are so different. Today we use steel structure and plastics—and we try to control the sound so that it can change. In the new Met the orchestra can be raised or lowered—and that alone changes the sound in the house.

"Yes, I have heard that there are rumors around that the stage is amplified. But I don't think it is so. I am quite sure that it is not so.

"As for roles that I sing—to me they are all the same. Cavaradossi, Andrea Chenier, Calaf. For me, it is interesting only the roles I have to learn—that I have not yet sung.

"Yes I sing very much at the Met and so I have



this apartment—I live here in New York for about four months of the year. I like it very much. It is different from Italy. But not so different. Italy is changing. There are more cars. More people. Life moves faster. Like here. Perhaps it is a way of life that started in America, but it is now becoming the way of life all over the world.

“That’s why, as a singer, I think it is important to take time out at the end of the year to think, to relax. Before I could not afford, but today I can. I promised myself that as soon as I could, I would go back to Ancona, where my friends and my memories are. Would you believe it? I look forward to Midnight Mass there with almost as much excitement as I did when I was going to school. We

don’t have snow in Ancona, and to some of my friends from New York, it’s not the sort of Christmas they’re used to — something like spending Christmas in Los Angeles must be, I think. But to those of us who grew up there, there’s no other place in the world where Christmas means so much.”

It’s difficult to think of anyone as tall, athletic and handsome as Franco Corelli as “just a little boy at heart”—and the idea may come as a shock to his fans who are used to thinking of him instead as a romantic hero, with the integrity of an Andrea Chenier, the bravery of a Mario Cavaradossi and the romantic soul of Faust. But if you ever get the chance, mention “Christmas in Ancona” to him—and step back to watch the reaction.

Sound With Your Slides

by Donald Crabb



Once you know what material you have to work with, a script begins to form in your mind. Most people arrange travel slides chronologically.

Anybody who tells you that putting sound to your slides is easy is pulling your leg. It's work. It requires careful planning, time, access to good equipment and occasionally an expenditure of money. But believe me, it's worth it.

The only equipment you need for the finished show are a tape recorder (we use a Wollensak 1515), a screen, a unit such as the Kodak Carousel 800 slide projector (there's a reason for that which we'll get to later) and a small reading lamp. To prepare a tape which incorporates not only sound effects, background music and narration, but also beep signals to change slides automatically, you'll need an automatic control of some type, such as the Kodak and a second recorder, preferably, stereo. To prepare the master tape, you'll need a collection of tapes—preferably containing sounds or interviews pertinent to the slides, background music and occasionally recorded sound effects, to bridge any gaps in your personal library. You'll need either a mixer of your own or access to one, in order to blend all the sounds together, a good microphone, and a tape editing block.

The first order of business is to arrange your slides in the order in which they'll appear in the final show. For our shows, we have the advantage of selecting photographs taken by our photo unit all over Britain. Even so, I find that I have to discard dozens of fine pictures because they stray from the points I want to make. To sharpen some of these points, I have to have a photographer take additional shots with a tentative script in mind.

However, when laying out a slide show think in terms of movie style sequences, moving in on your subject from a general view to a particular close up. An occasional montage of disassociated shots is sometimes effective but the show must be sequenced in order for you to develop the narration.

Once you know what material you have to work with, a script begins to form in your mind. Most people arrange travel slides chronologically—in the order in which they took them. That usually means

There are hundreds of commercial slide presentations produced in the United States every year—to sell products, to present a program, to educate or simply to entertain. But anyone who has been fortunate enough to see Donald Crabb's slide shows on behalf of Britain's tourist industry will remember them for their imaginative use of photography and sound, a skillful blending of street sounds, interviews and music with slides which make them meaningful. TAPE RECORDING asked Crabb to explain how it's done.

a shot out the hotel room window, a couple of shots in a museum, then a shot in a church, a couple of street scenes and another church. What I try to do is to integrate all the church shots together, all the shots of "Swinging London"—Soho night clubs, Carnaby Street, Liverpool Sound—together, and to do the same with sound.

The next step is to commit the script to paper—and you find yourself writing and looking at slides simultaneously. Divide your paper into three columns. The first one, occupying about two inches across the top of the page, is headed "Audio." Here you note the sound effects and music you plan to use, with the exact amount of time you plan to allot and any instructions about fading in or out, cleaning up a particular sound, etc. The second column, a very narrow one, indicates the number of the slide that's on the screen. Head your third column "Narration," for the script.

I find that there are times when I want to use a sound or a slide again, for emphasis. And one of the more effective things in our shows are the apparent zooming in on an object, a hand or a



British Travel Association's Don Crabb blends sound and music into prerecorded narration.



London Transport Roadmaster provides sounds.

face in an overall shot, for emphasis. It costs more to play around with transparencies than with sound (you usually can emphasize a sound or cut it apart yourself). We spend \$2.50 to \$3 for a straight copy of a transparency, \$2.50 to \$3.50 for a simple enlargement, or magnification of detail. There's another, much cheaper way of highlighting detail: you can use a sheet of draftsman's cutouts (painted black) to feature a highlight in a bullseye, a star, half-moon or just about any shape you choose (draftsman's cutouts, available from large art-supply stores, are plastic sheets with standard shapes such as squares, rectangles, stars and triangles). You simply select the shape you want, mask the slide, and rephotograph it.

Slides stay on the screen an average of eight seconds. But you may want to flash several on the screen momentarily, to give a panoramic effect, or a feeling of movement. Or you may wish to linger over a particularly beautiful view. All of this must be noted in the script.

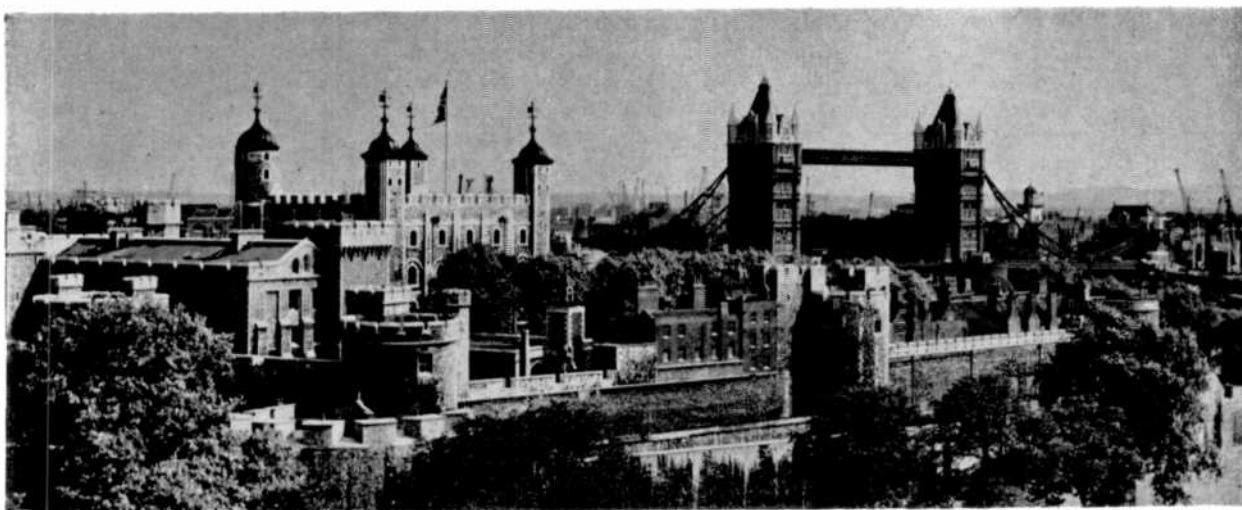
Once you've got the script on paper, your work with the slides is over—at least temporarily. Now, you're ready to go to work on the sound track. The first step is to record your script—straight through, without the breaks you've indicated for music, sound effects or just to hold a particular slide on the screen. Later, you'll cut that tape apart and insert blank tape long enough to permit the insertion of music or sound. The reason for doing it this way rather than reading a bit, then recording some music or sound, then reading some more, is that you have a smooth flow, with no unnatural breaks. It's more likely to sound natural than if you do it in stages.

The next step: audition your sounds and music. If you plan to use interviews, check to be sure that the voices are as clear and sharp as you can make them. I do it in a professional studio, but you can do the same thing at home with your bass and treble controls. If you're using a sound effect like a train or a church bell, try to clean it up as much as possible, cutting out (if possible) extraneous noises like automobile horns, people talking or sirens. This kind of editing can best be done on a larger recorder equipped with a splicing block, although if you have lots of patience and some editing experience, you can do it on any home recorder.

Now you're ready to blend the two. If you have a mixer available to you, it's easy to blend in sound effects and interviews from a tape recorder, and music from a phonograph or turntable with your previously-recorded sound track. When you do, be sure you follow the notes written into your script how long each sound runs, where to fade in, where to fade out, what to emphasize, and so on. If you don't have a mixer of your own (plans for building one appeared in *TAPE RECORDING* for December 1965), it may be possible to accomplish something similar by feeding the signals from the phonograph into one channel of a stereo tape recorder, the commentary into another. Then play the two channels monaurally into a single channel of a second recorder while adding your taped sound effects to the second channel. Then play this tape into the left channel of your alternate recorder. The volume may be adjusted on each channel as you record, and you can stop and go back if you miss a cue. The trouble is that the results don't sound as good as when you work through a multi-input mixer, and each time you rerecord one of the tracks, you lose about three db in signal-to-noise ratio. Since your commentary is now two generations removed from the original recording, it doesn't sound as crisp and clean as it did at first.

Mixing is the key to a good sound track. It pays to have the right equipment and take time to do the job properly.

Once your sound track is prepared, you're ready to sync your slides to the tape. Put the slides in trays in the proper order, set up your recorder and projector, connected by a device such as the Kodak Programmer for putting a beep tone on the tape (some recorder manufacturers such as Tandberg make sync units specifically for their recorders) and start the show. With most sync units, all you have to do is press a button when you want to change a slide. The button puts a beep tone on the right channel of a stereo recorder, which carries none



Scenic shots like this, which have no inherent sound of their own, benefit from addition of music.

of the sound track. If you hit the button at the wrong time, all you have to do is back up the tape, erase the incorrect signal and record a new one in the proper place.

I mentioned earlier that I prefer a Kodak Carousel 800 for my shows. That's because with it it's possible to use two, three or more trays of slides without any apparent break in the show. Here's how it's done. The Carousel slide tray normally holds 80 slides, and each tray must be removed and a new one substituted. We've avoided this by breaking the seal which covers slot number 81 on our trays. Into this slot goes what I call a changeover slide. It's intended to stay on the screen for anywhere from five to 60 seconds, to provide plenty of time to change trays.

I keep my changeover slide in a separate plastic tray inside each Carousel tray. When I'm getting ready to set up a show, I put the changeover slide in the projector, and mount the tray on top of the unit. Then I press the operating button once so that slide No. 1 is now in viewing position and the changeover slide is automatically moved into the "0" position in the tray. Turn the lamp off.

When you turn the lamp on, the show is ready to start. Normally, I start my shows with a dramatic sound effect like a boat whistle or the roar of a jetliner to capture attention, before the projector itself is turned on. From that moment until you reach slide #80, the operator has nothing to do except to sit back and enjoy the show with his guests. When the changeover slide appears on the screen, however, it's necessary to remove the first

tray and substitute the second. If you remember to leave time for this changeover, you can continue indefinitely in this manner, substituting a new changeover slide each time as the tray revolves. When you're finished with the show, remember to put all the changeover slides back in their separate containers so you can find them the next time you need them.

I record all of my shows at $7\frac{1}{2}$ ips. Because I find that even with striking travel photographs, it's hard to hold the attention of an audience for more than 32 minutes, a single 1200-foot reel of tape usually is adequate for one show. The faster speed provides the kind of sound quality which keeps music and special effects crisp and sharp, and you can always erase it if you decide to break up the show (this is one advantage of a projector which works from a recorded beep rather than metal tabs). When your music includes bands, as ours often does, you want plenty of bass, but without distortion. If you're recording the trill of a bird in the country on a spring morning, you want all the brilliance you can get.

If you can effect a pleasant counterpoint between your slides, sound effects and narration, with each in turn becoming dominant, the slides will come to life. Just simple traffic noise behind street scenes adds immeasurably to their impact. As far as voices are concerned the most evocative are the exchanges you have with the man in the candy store, the bus driver or the farmer you stop to ask for directions. When playing your slide show long after your vacation it will be the sounds more than the picture that will recreate the scene.

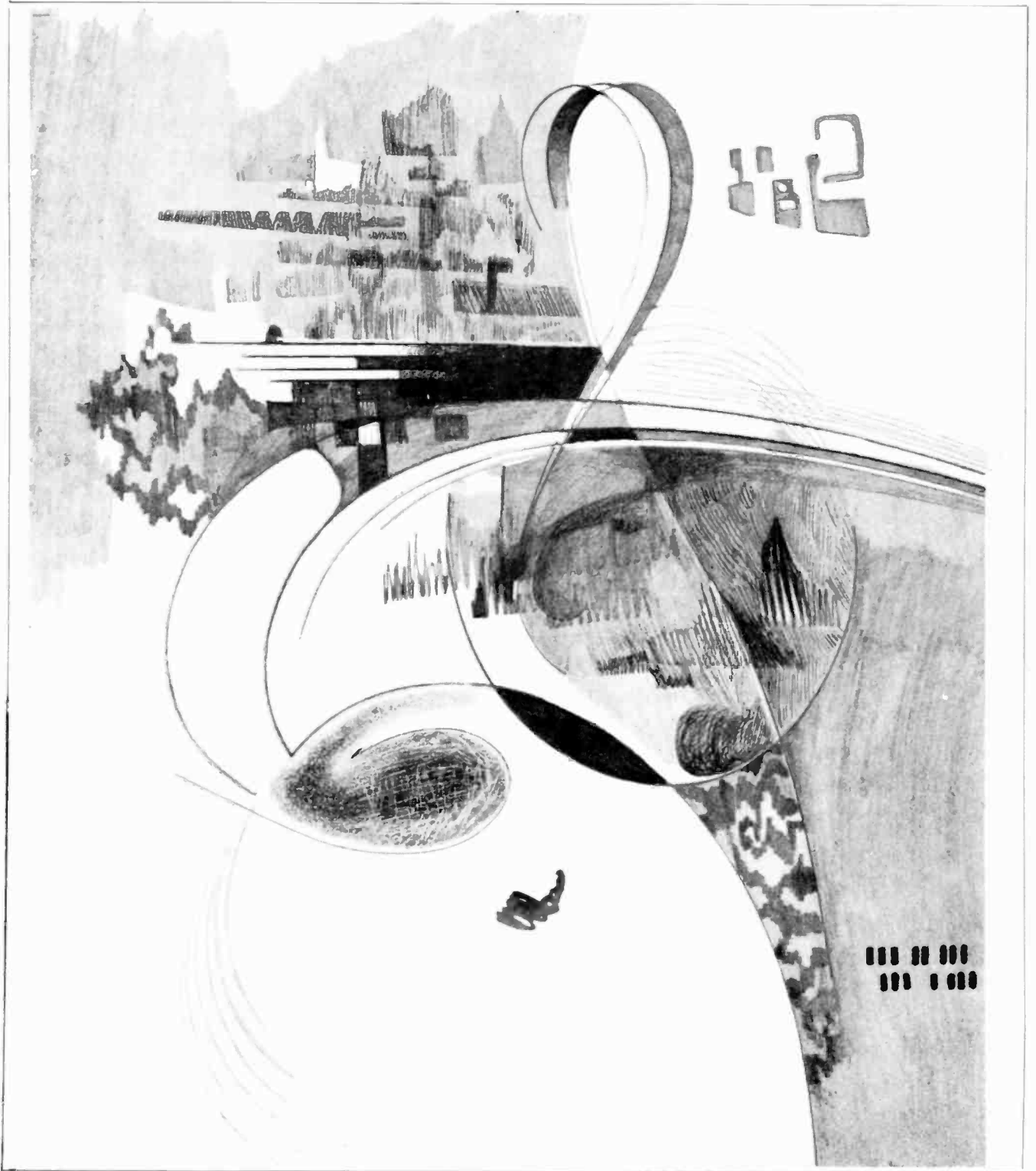
Wondering what to do with that leftover Christmas cash? Here are some suggestions. Moving clockwise, we have the Wollensak 4100 battery-operated cartridge portable; Concertone's Model 727 four-track stereo battery-operated recorder; a selection of prerecorded tapes; two Electro-Voice 676 cardioid mikes; Stanton 581EE stereo cartridge; two University Model 2000 cardioid mikes; more prerecorded tapes; the Concord Radiocorder battery portable and Telmar Pocketcorder.



'67 Gift Ideas

Start 1967 off right with (clockwise) the Capitol Stereo Modulator; Robins Tape Editing Workshop; three Editall splicing blocks and accessories; Koss car cartridge junction box; Panasonic RQ113S battery portable; Kodak splicing accessories, prerecorded and blank tape cassettes; a stockingful of Robins tape accessories; prerecorded tapes. In the center, Koss PRO-4A stereophones; London 8-track car cartridges; a pair of American D-40 omnidirectional mikes; and blank recording tape from Irish and Audiotape.





Electronic Music

by Vladimir Ussachevsky

Take one tape recorder, one electronic sound synthesizer, two high fidelity loudspeakers, amplifiers and a large dose of creativity; or string together several tape recorders, signal generators, filters, reverb unit and connect them through a mixing panel, not forgetting the creativity—and perhaps you will then have electronic music. Or at least, electronic sound—which may not always be the same thing.

Electronic music came into its own in the early 1950's, hard on the heels of the tape recorder and other sophisticated electronic phenomena which grew out of World War II. In brief, it consists of blends of sound created electronically in the laboratory and transferred to tape. As the classical composer blends the sound of a violin with a viola, cello and a second violin to create a string quartet; or groups of instruments to form a symphony, the electronic composer blends electronically generated or electronically modified sounds to form a musical composition.

“But is it music?” the traditionalists still ask, looking at a stage and seeing instead of a symphony orchestra or a few live musicians, only one or two tape recorders and a pair of loudspeakers. The man who asks usually is a concertgoer whose tastes are firmly rooted in Beethoven, Brahms and Tchaikovsky; or, lately, in Bach, Vivaldi, Telemann and Handel. He usually laments the absence of a so-called “recognizable” melody, conventional harmonic structures and a comfortable rhythm.

“Music,” says the Concise Oxford Dictionary, “is the art of combining sounds with a view to beauty of form and expression of emotion.”

How can you create music by adjusting dials on a synthesizer, running a tape backwards or at a speed other than that at which it is recorded creating synthetic sound effects and putting it all on tape, the traditionalist wants to know. The Oxford definition of music leaves plenty of latitude for sounds which are created electronically as well as those which are created by men scraping catgut with horsehair. Is the electronic composer any less a composer because he creates in the laboratory?

The first thing to realize about an electronic

composition is that it must conform to the same rules of structure and aesthetics as any other good musical work. Any work is worthy of aesthetic consideration if it produces a lasting impression and spurs the listener to try to understand the reasons behind the impression. Such a work doesn't give up all of its secrets on the first hearing, and it would also seem to me that the interest in such a work must be positive—i.e. the listener must want to hear such a work several times. If an electronic work evokes this kind of response, the sounds used to produce it are of secondary importance.

In recent years, electronic music has become so popular that it performs as the handmaiden to events, happenings, psychedelic experiences, movie soundtracks, even provides the background for television commercials. The result is that the electronic medium, still in its vigorous youth, has already acquired the unhealthy pallor of mediocrity in certain of these applications, akin to that mediocrity so prevalent in commercial music.

In fact, I sometimes wonder whether this sprouting of electronic music in art galleries and cafes and sponsored by the artless multitudes who have identified themselves with the habitual avant-garde isn't actually choking the growth of electronics music as a legitimate music medium. What purpose does it serve to debate the merits of electronic music within the avant-garde's framework of a no-aesthetic, which turns value into no-value, taste into no-taste, and order into no-order? This convenient escape into infinite flexibility gives all such “art” total freedom from responsibility. Only the electronic commercials need to be foolproof, and they usually are mercifully short.

The average concertgoer, long conditioned to music from conventional instruments and the human voice, usually tries to compare electronic sounds to these more familiar musical sounds. Such comparisons are useful as long as they are not too much off the black and white variety, and not dependent on sweeping generalizations about the “weakness” of electronic sounds and the even more baseless claim that noise has no place as a component of music.

Most of the serious music listeners have accepted Edgard Varese as a skillful and fascinating composer whose use of noise often creates structural grandeur, with an unmistakable character all its own. Of course, there is much more “noise” in most of the electronic works. However, a skillful and responsible composer welcomes an opportunity to lavish his skill on blending noise and other components into an overall design of real beauty. He can shape electronics sound to approximate a pitch, or shape it in the manner of widened pitch clusters

Editor's Note: This article was commissioned by TAPE RECORDING Magazine in answer to a number of requests from readers who expressed a desire to use their tape recorders to create electronic music. It's an interesting idea, but easier said than done. In this article, world famous electronic composer Vladimir Ussachevsky indicates the aesthetic problems facing the composer of electronic music.

Electronic Music . . .

(as by striking several adjacent keys on the piano at the same time), or he can use it to make patterns that possess the quality of a sharply etched line or of a prominent sculptured detail.

There's nothing new about noise-making by an orchestra. Percussion instruments, from pairs to dozens have been used by the baroque, classical, romantic and modern composers to make noise. Therefore, I'm puzzled as to why the highly sophisticated and highly varied application of possibilities—the making of scales and pungent sonorities from electronic noise and from electronic manipulation of percussive instruments—should upset concertgoers when they meet them in serious electronic works. They are nothing more than a natural extension of sound resources—as used in the same spirit, if not the same manner, as “modern” composers extended and, for that matter, many composers of the past have extended the sound resources of the conventional orchestra.

I think electronic music must be judged by exactly the same attitudes and standards as conventional music. Music is not inherently good because it's created in a synthesizer; nor is it bad. Throughout the history of music, it is skill and the professional attitude of the composer which must be taken into consideration. The enormously enlarged sound resources which became available with the capturing of the electronic and non-electronic world of sound on tape in themselves guarantee nothing and are **but the raw material** of a work of art.

There's an enormous gap between saying, “Isn't it a lovely sound!” and being moved to say, “Isn't it a lovely composition!” This gap can be closed by the process of composing, which is a tortuous sequence of planning, experimenting, choosing and rejecting and filling in the structural skeleton with material, some tightly integrated, some loose. Dynamic punctuations, overall dynamic line, tone color, and the spacing of small and large units of time, all play important roles.

There are many approaches to composing today, some of which entrust a lot of work to chance selections of materials and structural designs. Some composers include large sections in their works where performers are free to improvise with or without any directions. Others rely on random combinations of numbers to form chords and sequences. The latest fad is to include quotations from other composers within one's own composition. All these possibilities are open to the electronic music maker. In fact, a composer-controlled machine improvisation from pre-selected sound materials can yield fascinating segments that rival any spontaneous fantasy of a creator.

Nevertheless, without wishing to sound reactionary, I simply can't believe that the elusive touch

of greatness, a moving emotional experience, an intellectually satisfying encounter with an imaginatively conceived and executed composition can be achieved by complete reliance on chance methods of composition. It's fashionable to say that it really doesn't matter whether you obtain these objectives or not. Like Ferdinand the Bull, a listener is asked to take a whiff of a flower, and never mind a formal garden. Are we to rely on chance aesthetics as well?

Varese, an irascible and marvelous man, used to say that experiments belong in a basket. Varese was a thoroughly trained and sensitive musician. He had broad experience with every type of music. There was a consistency in his style and his structural concepts and a way of organizing his material that was unmistakable and convincing, whether he was using the instrumental or the electronic medium. I can think of several other composers similarly, and now I am ready with a formula. The aesthetic value of electronic music is in direct proportion to the skill which the composer exercises in choosing his materials and in shaping and combining them.

Perhaps what's missing from my formula is the mention of talent (unfortunately, electronic music has provided a fertile field for the cultivation of skill without talent). A quality superior to talent is enormous talent, and superior to both is disciplined enormous talent. The part which discipline plays is in balancing intuition with experience, and in making the composer respect the limits within which the evolution of a musical thought carries with it the elements of an aesthetic experience.

Bigger and better machines will be built for making electronic music, but no meter for aesthetics is yet in sight.

Electronic music, unfortunately, has overtones of automation about it. “Just how much creativity is there in simply pushing the buttons and twirling the dials?” “And if this is music, how far are we away from the composing machine?” Once upon a time, there were anguished cries about the piano's inferiority to the harpsichord. A critic spoke about the “tyranny of the tube”—a dictator now replaced by the subversive transistor. What nonsense! As if machines alone can dampen imagination!

As for the composers and their compositions, by all means don't fall into the trap of thinking that all electronic music is alike, and that the technical processes employed by the composer wipe out their individuality. An unskilled use of limited sound materials does exactly that, but if a composer stands out as an individual and is properly trained in the use of techniques and materials of electronic music, his contribution will be distinguishable from the written-to-order commercial

variety. One can find the earmarks of romanticism and classicism in electronic works. Certainly even among the composers who organize their musical thinking within the disciplines of serial composition, with conventional instruments as with the electronic medium, the skilled and imaginative composer makes materials and techniques his own. One only needs to listen to the music of such composers as Bulent Arel, Mario Davidovsky, Karlheinz Stockhausen, Milton Babbitt, and Luciano Berio—all variously dependent on serial

techniques—to recognize very significant differences springing from their individualized choice of electronic materials and their ways of using them.

Can a tape recorder make music? First listen to the works of these composers, and to other works from the growing repertoire available (some of it on prerecorded tape). Then—and not until then—make up your own mind.

Let your own aesthetic judgment make the choice.



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RALPH E. DYSON, 8181 Garfield, Apt. 8, Huntington Beach, Calif. 92646. Owns Sony, Concord, Telectro recorders, 3 3/4, 7 1/2 ips. Interested in automobiles, boats, sports and foreign cars, recording techniques and programming, stereo and hi fi sound effects, tennis, bowling, chess. Will answer all tapes, mono or stereo.

RON ALSHEIMER, 111 Main St, Waterville, N. Y. 13480. Owns Wollensak T-1500, 3 3/4, 7 1/2 ips. Concertone 808. Interested in stereo components and trading them. Interested in finding a female tapespondent about 16 years old.

G. KALISH, Box 786, Adelphi, Md. 20783. Will answer all 4-track mono or stereo tapes, 3 3/4, 7 1/2 ips. Interested in tape recording, music, photography, travel, games and sports, radio (CB, Ham, SWL), math, psychology, electronics.

GEORGE W. LILLIE, 112-29th St., NE, Cedar Rapids, Iowa 52402. Owns 6 recorders, mono, 7 1/2 ips. Operates sound recording service and can make and play all tapes. Desires to trade old time radio and comedy recordings with other collectors.

SID FINLEY, JR., Box 1709, Asheville, N. C. Owns Wollensak, stereo, 3 3/4, 7 1/2 ips. Interested in CB radio, motorcycles, music (Blues) tape recorders, novelties. Will answer all tapes.

NEWTON MITCHELL, JR., Star Rte. One, Box 102, New Braunfels, Texas 78130. Owns Sony TC-350, 3 3/4, 7 1/2 ips, stereo or mono. 30 years old, owns ranch. Interested in ranchland management, livestock, land clearing procedures, audio, vehicle mechanics, popular music. Will answer all tapes in English.

RICHARD D. ARNOLD, P. O. Box 51, Tipton, Missouri 65081. Owns recorder with four-track stereo at 3 3/4, 7 1/2 ips and two-track mono at 3 3/4, 1 7/8 ips. Interested in taping, 35mm slides of other countries, record collecting, audio.

MISS GAIL GREINER, 30 Garden Court South, Garfield, New Jersey 07026. Owns Ampex 1070, 7 1/2, 3 3/4, 1 7/8 ips. Stereo or mono. Interested in comedy, school, animals and people. Wants to tapespond with children between ages of 8 and 12, especially in foreign countries.

PER C. JACOBEN, 362 Richmond Dr.,

Apt. 7, Millbrae, Calif. 94030. Owns Ampex 460 and UST-4, 7 1/2 ips. Stereo only. Interested in opera, classical and some folk music. Also in photography and travel, especially England, Sweden, Denmark and Norway. Speaks a little Danish. Will answer all tapes. Would especially like to hear from someone who has done live stereo recording.

KEN PLANT, 1137 Walpert St., Hayward, Calif. 94541. Interested in music, photography, humor, people and general discussion. Will answer all tapes. Would like to swap tapes.

HARRY SHAW, 3275-B Magnolia, Lynwood, Calif. 90262. Owns Ampex 4460 and Bell 323, 3 3/4, 7 1/2 ips. Stereo. Interested in classical, opera and some popular music and Broadway shows. Would like to tapespond with service men in Europe or Orient.

ALAN FISCHER, 2331 Washington Ave., Bronx, N. Y. 10458. Owns Tape-sonic 70DSF, 70ESF, Uher4000S. 4-track stereo. All speeds. Interested in opera.

GENE SHIRLEY, 1212 Centralia Rd., No. 41, Lakewood, Calif. 90713. Owns Wollensak T-1500 and Viking 88. Mono and Stereo, 3 3/4, 7 1/2 ips. Interested in acquiring copies of old radio programs, especially comedy and drama.

WALTER GILLINGS, 115 Wanstead Park Rd., Cranbrook, Ilford, Essex, England. Owns Veritone, Venus, Webcor 2130, Sanyo MR-110. 2-track mono, 1 7/8, 3 3/4, 7 1/2 ips. Interested in journalism, sound magazines for the blind, science and science fiction. Would especially like to hear from former s-f correspondents. Adult.

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Juilliard's Tape Archives

by Robert Angus

These days, there's nothing unusual about the use of tape recorders and audio equipment in the instruction of music. But, when Juilliard set up its recording studio and taped archives back in the spring of 1951, the idea was very new indeed. At the time, some instructors feared that electronic gadgetry might take over the classroom—a fear which has proved to be groundless, since the emphasis even today at Juilliard is on live performance.

What the school has done in the past 15 years, however, is to install tape playback systems in four classrooms; create a listening room within the library containing 16 component turntables and a tape deck each with multiple earphones; install control rooms in all concert and recital halls, and create a recording studio with its own control room. The product of all this activity has been a tape archive which includes performances by many of the outstanding musicians who perform in New York each year as well as such distinguished Juilliard alumni as John Browning, Van Cliburn and others.

When the archive was begun, the commercial record catalogues were by no means as comprehensive as they are today. Students interested in a contemporary ballet or piano sonata or opera generally had to settle for a copy of the score. It was impossible to hear a performance of the work because none had been recorded commercially. To ameliorate the situation, the school has for some years scheduled concerts Wednesdays at noon and on Friday evenings which featured modern work because none had been recorded commercially. masters (as well as more conventional fare) performed by faculty members, by students and former students and by guest performers. As early as 1948, some effort had been made to preserve some of these performances on transcriptions. But it was not until 1951 that Juilliard introduced proper equipment and proceeded to record the concerts in a systematic way.

For 15 years this noted music school has been recording performances of its students - and these archives contain invaluable material from outstanding musicians and distinguished alumni such as John Browning Van Cliburn

the decision to concentrate on tape goes back to the establishment of the archive

The recording studio offered a number of fringe benefits to students and faculty without intruding on the classrooms. Students who wanted recordings of their own recitals could have them at nominal cost without the need for setting up all kinds of special equipment. Students could even use the studio to practice for a final examination (again at a nominal cost), making tapes and listening to playbacks of them as they practiced. The studio facilities can be used by a teacher who brings an entire class in to listen to a recording from the archives (or any other recording, for that matter).

The studio has made it possible for a teacher to prepare in advance a program of excerpts from a number of works. These are used in the classroom to illustrate composing techniques (particularly in modern works), to arrange material for listening tests or in some instances to show examples of keyboard or interpretive technique. If any student is sufficiently interested in the techniques of recording and electronics in addition to his music, there is a spot for him in the studio. He can gain experience in both fields. The fact is, however, that while there are spots for several part time student employees, the school usually is unable to find students with the necessary qualifications and interest in both electronics and music.

What goes into a recording setup such as Juilliard's? The studio itself is a soundproof room large enough to house a chorus or orchestra; or to seat an entire class listening to playback. It includes a complement of mike booms (the microphones themselves, all expensive professional models, are locked up when not in use), a high fidelity component loudspeaker playback system. Separated from the studio by a soundproof wall and double-glassed window is a control room which includes a control panel-mixing system for blending sounds from several microphones; two console Ampex tape recorders and a third portable Ampex; the necessary amplifiers and component monitor speakers; and two Fairchild disc cutters and Rek-O-Kut playback systems. Duplicates of this equipment are located in the recital hall control room and concert hall control room, both of which were constructed originally as movie projection booths.

Juilliard has been doing all of its recording at 7½ ips monaurally on standard brands of recording tape. While the recordings are not made for commercial purposes, they do meet professional stand-

ards. In recent months, some taping has been done stereophonically; and it is expected that when the school moves to Lincoln Center in 1968, most recordings will be made in stereo.

Each concert is filed away on tape. At present, the tapes are indexed by composer and title only, which makes it difficult to find the performance of, say, a Van Cliburn. The reason is that most requests are from instructors or students for a specific composition. The studio is equipped to make dubbings of the recordings for students or faculty—again at a reasonable fee. To guard against competition with commercial recordings, these dubs are made available only to currently registered students or faculty.

Only four classrooms currently are equipped with tape players. It's expected that after the move to Lincoln Center, virtually every classroom will contain a tape player. The decision to concentrate on tape goes back to the establishment of the archive in 1951. It was felt at that time that tape recorders produced truer fidelity than acetate discs; and that tape would prove more durable than discs. Instructors have found that taped excerpts, such as those used for examinations or examples, are more convenient for instructors to use than discs, since the teacher doesn't have to hunt through an entire L.P. side to find just the spot he wants. Spotting is hard on records because some spots become worn much sooner than others. At present discs still are being used for spotting by students in the library because there is such a large collection. But it's quite possible that eventually these may give way to tape as well.

The move to Lincoln Center may mean a variety of changes in Juilliard's sound services in addition to the use of stereo. Because the school will have full-fledged drama and dance departments, the use of videotape is under serious consideration. This would make it possible to play back instantly a recording showing an actor's facial expression or use of gestures; the appearance from a vantage point in the audience of a corps de ballet. The inclusion of tape players in virtually every classroom undoubtedly will stimulate the use of recorded examples—even in a school which places such strong emphasis on live performances.

The Juilliard Archive will serve as a complement to Lincoln Center's existing Rodgers & Hammerstein Archive of Recorded Sound. While the former concentrates on commercial recordings of popular and classical music, drama, poetry and miscellaneous materials, Juilliard's includes performances of literally hundreds of compositions which are not "commercial"—many of them performed by outstanding musicians.

tape

REVIEWS

Beethoven

Missa Solemnis, New Philharmonia Orchestra and chorus, conducted by Otto Klemperer. Soloists: Elizabeth Soderstrom (soprano), Marga Hoffgen (alto), Waldemar Kmentt (tenor) and Martti Talvela (bass). Angel Y2s 3679, \$11.98. (33 $\frac{1}{4}$ i.p.s.)

Music Performance ●●●●
Recording ●●●●

Every now and then a reviewer is confronted with a tape that virtually intimidates him. He backs off and thinks: "What can I possibly say? Dare I even THINK of saying anything about something so great?" Well, this one is not QUITE that great.

However, it misses that level merely by token of the recording, which, even allowing for a slower speed, is much edgier and has a louder hiss than many tapes recorded at 33 $\frac{1}{4}$ i.p.s.

But the music and the performances, Ah! Klemperer is at his best, drawing out a big, dynamic performance from the orchestra. The chorus is totally supportive at every turn. The soloists are in top form, with Talvela especially good.

A postcard is enclosed for a free text leaflet. We hope the text is as good as those supplied with other works of this type. —F.P.

Beethoven

Rasumovsky Quartets, Harp Quartet, played by Juilliard String Quartet, Epic E3C 840, \$11.95. (33 $\frac{1}{4}$ i.p.s.)

Music Performance ●●●●
Recording ●●●●

This tape should be a welcome addition to the serious chamber music lover's collection.

First off, the three quartets dedicated to Russian ambassador Rasumovsky are brilliant music of Beethoven's "second" period. The Harp quartet, a later work, is also splendid.

Secondly, the Juilliard readings are warm, sensitive, yet incisive. And consistent.

Three, the recording, though not of the highest order, is, at 33 $\frac{1}{4}$ i.p.s., excellent.

Four, Epic has done right by the listener with a time-index column on the back of the tape box. Set your digital counter to zero, then fill in the numbers of various points on the tape. This will help identify the various quartets and their individual movements in future playings.

Five, the price is right — even without liner notes. —F.P.

Bach

Sinfonias in D, F, S.1045, 1071; Harpsichord Concerto No. 6 in F, S.1057 and Handel Harp Concerto in Bb, Op. 4 No. 6. London Baroque Ensemble cond. Haas 33 $\frac{1}{4}$ ips. Vanguard VEE 1919, \$7.95.

Music Performance ●●●●
Recording ●●●●

There are far too few recordings by the London Baroque Ensemble on stereo tape, and for that reason alone, this is a valuable addition. The recording is not new (it was made by Pye in England as long as seven years ago), but the sound certainly is satisfactory. Ampex Stereo Tapes evidently has taken this into account by offering the collection in 33 $\frac{1}{4}$ ips format, rather than 7 $\frac{1}{2}$ ips—and, as best we can tell by checking against our Pye LP, with no loss in sound quality.

The music here is mostly familiar in other forms—although the Sinfonia in D appears here for the first time. The Sinfonia in F is an altered version of the First Brandenburg Concerto while the Handel Harp Concerto was composed originally for organ, and is occasionally heard in that form in churches as well as in the concert hall. The sixth harpsichord concerto is a transcription of the Fourth Brandenburg Concerto.

If you're only casually interested in the baroque and have these works now in their more familiar forms, you may think twice about adding this tape to your library. If you're a baroque beginner, however, this is an excellent place to start. The price is right, and there is no more sympathetic interpreter of the period than Karl Haas. The serious listener will find a number of differences between these and the better-known works. Use of the harp by Handel reveals a totally different range of tonal colors, for example; while the harpsichord accomplishes the same thing for the Brandenburg. The Sinfonia in F lacks one movement and a polonaise of the Concerto, and substitutes several instruments to alter the overall tone. —R.A.

Gounod

St. Cecilia Mass. Czech Philharmonic Orch. & Chorus cond. Markevitch with Irmgard Seefried, Gerhard Stolze and Herman Uhde, Deutsche Grammophon 7 $\frac{1}{2}$ ips DGG 9111, \$7.95.

Music Performance ●●
Recording ●●●●

Here's an item we never expected to see on stereo tape—and we're all the more grateful to Ampex Stereo Tape for providing it. The Gounod Mass is not

one of the composer's best-known works, nor one of the great classical Masses. But it does have its moments, and Markevitch has capitalized on them. Indeed, here is an excellent example that a fine conductor, working with first-rate orchestra, chorus and soloists and receiving the benefit of the best in recorded sound, makes a work sound much better than it really is. The recording is rich, warm, full-blooded—without being rich, brilliant. The stereo focus seems to be a seat toward the rear of a moderate-sized hall, and the sound tends to envelope the listener.

A word about the performers: the soprano is the outstanding soloist in this work, and Mme. Seefried carries it off extremely well. The other soloists are not nearly as strong, but then they don't need to be. As for the orchestra, it offers some extremely beautiful playing—particularly by the strings in the Offertory. The chorus offers bite and attack which shows up to best advantage in the unaccompanied sections of the Domine Saluum.

Not an absolute necessity in everybody's collection, but if you want the work, this is the recording to have. —R.A.

Richard Strauss

Ein Heldenleben Berlin Philharmonic Ord. cond. von Karajan, 7 $\frac{1}{2}$ ips. Deutsche Grammophon DGG 8025, \$7.95.

Music Performance ●●●●
Recording ●●●●

This recording dates from 1959—but you'd never guess it from the brilliant, sparkling sound Deutsche Grammophon has put on tape. The sound is as good as the more recent Victor recording with Erich Leinsdorf and the Boston Symphony, and to these ears, the interpretation sounds a hair more incisive. Von Karajan brings a sweep and majesty to those portions of the score which call for it, and a deft, light touch to the humorous portions—the bickering of the music critics as interpreted by the Berlin Philharmonic is something to behold!

This work tends to pomposity—and in the hands of some less skillful conductors, it even sounds ridiculous. But Von Karajan gives his hero just the right amount of nobility.

A word about alternate versions—there are two, including the Leinsdorf already noted. While we prefer the present tape to it for performance (but only slightly), the Victor tape offers Beethoven's Eroica symphony for only \$2 more, and presents both works without interruption. The third taping, on Everest, is completely outclassed by these two. —R.A.

Tape Reviews . . .

De Los Angeles

La Vida Breve (de Falla), Collection de Tonadillas (Granados), *Victoria de Los Angeles*, Ines Rivadeneyra, Ana Maria Higuera, Carlos Cossutta, Victor de Narke, Gabriel Moreno, Luis Villarejo, Jose Maria Higuero and Juan de Andia. Orquesta Nacional de Espana under Rafael Fruhbeck de Burgos. Chorus under Orfeon Donostiarra. Angel Y2C 3672. \$11.98.

Music	••••
Performance	••••
Recording	••••

The musically literate will have no such problem, but the first-time listener approaching La Vida Breve sans program notes could find it a frustrating experience. And that is how we must approach this otherwise superb and exciting reading of de Falla's brooding, haunting musical drama featuring a fine cast, masterful chorus, and a dynamically-batoned great orchestra, all recorded at a new high level of quality for the 3¼ i.p.s. speed.



Victoria de los Angeles

Capitol's reluctance to provide at least token notes is unforgivable. Why should the listener have to wait several days for an elaborate, giant-sized (actually LP-record sized) text, the while wondering who's who and what's what, and what is La Vida Breve all about?

It apparently is not to save the purchaser's eyesight, judging by the hard-to-read catalog sheets (so generously) enclosed with the tape. Come, come, Capitol, where is your public relations sense?

Beyond the great vocal and orchestral performances, the recording is notable in terms of balance between the performers and the orchestra. Neither the soloists, the chorus nor the orchestra are over-

powering at any point in the performance.

La Vida Breve's dance segments are vital and moving, with much sonic realism. The recording engineers have apparently tried to bring the dancers into the living room—and they come quite close.

While waiting for his La Vida Breve text, the first-time listener can console himself with the transparent Tonadillas. These utterly charming pieces may enchant the listener enough to forgive Capitol (at least partially). If the music doesn't, Victoria de Los Angeles will.

A rumble akin to that of a phonograph turntable was noticeable in most of the Tonadillas—but attenuation of the bass control quickly disposed of it.

This tape belongs in every collection of fine music. —F.P.

Orchestral

Concert in the Clouds, includes *Hungarian Dances 4 and 6, Southern Roses, Cradle Song, Variations on a Rococo Theme, etc.* Various orchestras and soloists. Ampex Mercury-Phillips, CW-2, \$23.95. (3¼ i.p.s.)

Music	••••
Performance	••••
Recording	••••

Eleven composers, 17 compositions, 11 artists, and three hours of playing time. Music enough to fly by all the way from New York to California, if you're going via American Airlines.

The program, excerpted from 11 albums in the Mercury and Philips catalogues, is a nice balance of light, medium and heavy weight classical music, including three vocal items, all well performed.

Purists might object to a collection of this nature. However, it is groupings like this that stir people's interest in classical music. Look what happened to the world of classical music after Freddy Martin recorded Tchaikovsky's first piano concerto and the Grieg piano concerto, back in the early forties. More power to Ampex for its efforts to bring great music to a mass market via "sampler" collections such as this one. —F.P.

Prokofiev

Romeo and Juliet, ballet music. Philharmonia Orchestra conducted by Efram Kurtz. Angel YS 36174, \$7.98. (3¼ i.p.s.)

Music	••••
Performance	••••
Recording	••••

"They" said it couldn't be done. But Capitol-(Angel) did it. Did what? Come up with a group of tapes on five-inch reels. The industry excuse for not producing such tapes heretofore was, in effect, "You get the same kind of dis-

tortion and wear as in a phonograph record playing in the last inch of grooves. "Nonsense! This tape sounds exactly as good at the very end as at the beginning. And we suspect, so do others in this size, too.

Ampex, RCA, Columbia, Decca, et al, please wake up. This is the age of crowding, bookshelf-storage-living . . . These tapes take up just a shade more than half the space of 7-inch reels, 25 versus 49 square inches—a big saving.

Kurtz's reading of the Romeo and Juliet ballet music is first rate. The recording is better than most at 3¼ i.p.s., with lot of presence and a wide dynamic range.

Despite the small box size, Capitol-(Angel) has graciously provided brief liner notes that don't require a magnifying glass to read. —F.P.

Wagner

Die Walkure, Birgit Nilsson, Regine Crespin, Christa Ludwig, Hans Hotter, Gottlob Frick, James King, Vienna Philharmonic Orch. cond. Solti. London LOY 90122, 7½ i.p.s., \$33.95.

Music	••••
Performance	••••
Recording	••••

With this tape, London and Ampex complete the cycle which is Wagner's Ring of the Nibelung. Actually, the four operas which comprise the Ring have been available for some time on disc, but it took London and Ampex to provide all four on tape with the same conductor and music. (The complete Ring appeared briefly on discs for the first time in the early 1950s on the Allegro label with unified cast, conductor and orchestra. This set disappeared when Regina Resnick, one of the soloists, discovered that it had been pirated from broadcasts of grooves. Nonsense! This tape sounds a complete Ring one of the most costly projects in recording, it represents a considerable risk to the company attempting it of not being able to sell enough copies to cover costs.

So it's a double pleasure to be able to report not only that it's been done; but it's been done superbly. Die Walkure is currently available on tape in a star-studded recording by RCA Victor—yet the new recording manages to surpass both the singing and the sound on Victor's highly satisfactory version.

For those who find Wagner in general and the Ring cycle in particular a bore, this tape will do little to convert them, for Solti's tempos are decidedly on the slow side. Solti's use of the Vienna Philharmonic brass, however, is such as to perk up the ears of any audiophile. It's crystal clear and attention-getting each

time.

It's hard to believe that Gottlob Frick is 60 this year, for he sounds fresh and forceful as Hunding. Frick, for all his advanced years, is probably Germany's outstanding Wagnerian bass, with a dark sometimes menacing tone just right for this role. Tenor James King was new to me; it is a pleasure to report that his voice, though not strikingly beautiful, is firm and well-focused. He's also a fine actor who sings more consistently, if less spectacularly, than Jon Vickers on Victor. If there is any complaint among the men, it is a hint of raggedness in the voice of Hans Hotter, now in his 50s, and one of the great wotans. Interestingly enough, Hotter first recorded the role nearly 30 years ago—and his voice today indicates it. Still, he's enough of a singing actor to dominate the tape whenever he's on stage.

Among the women, there are three great voices—Birgit Nilsson, reigning supreme as Brunhilde, Regine Crespin as Sieglinde and Christa Ludwig as Fricka. Mme. Nilsson repeats her Victor performance; there is little to choose here between the versions. Christa Ludwig is perhaps a notch below her fine performance in London's *Gotterdammerung*, but is a fine singing actress able to match Rita Gorr's Victor performance. And Regine Crespin, who has no reputation as a Wagnerian, becomes perhaps the best Sieglinde since Lotte Lehmann.

All in all, this is a Walkure—and a Ring—to be proud of. —R.A.

Classical

Classical Workshop, Vol. Four, includes Respighi Pines and Fountains of Rome, Khachaturian Piano Concerto, Debussy Iberia Suite, Mozart Eine Kleine Nachtmusik, Tchaikovsky Violin Concerto, and Strauss Don Juan and Til Eulenspiegel, by various orchestras. Tape Mates TMS 111, \$11.95.

Music Performance Recording ●●●●●

Here is a real bargain. For \$11.95 you get three hours of music from the upper echelon of classical repertoire, most all of it in first rate readings, well recorded at 3¾ i.p.s.

The Respighi items are handled in a solid, straightforward manner by Sargent and the London Symphony; the Kachaturian is projected in an exciting way by both the unidentified soloist and the London Symphony under Hugo Rignold; and the Debussy gets a vibrant run-through by the Rochester Philharmonic under Theodore Bloomfield.

An unidentified fiddler does an excellent job with the Tchaikovsky violin concerto with Walter Goehr and the London Symphony offering able, driving support. And the Strauss tone poems are given fine, warm treatment by Stokowski and the New York Stadium Orchestra.

Only Mozart comes off with a less-than-inspired reading by the Viennese Chamber Concert Ensemble under Wilhelm Sommer. This does not really take the edge off the overall topnotch bargain that this tape offers.

But please, Tape-Mates, let us know who the soloists are! —F.P.

Classical

Classical Workshop (Vol. V) Works of Brahms, Mahler, Richard Strauss and Wagner. London Symphony Orch., New York Stadium Symphony Orch., Munich Philharmonic, and Hamburg Symphony Orch. Tape-Mates, TMS 121, \$11.95. (3¾ i.p.s.)

Music Performance Recording ●●●●●

A program of five major works by four major composers on one tape is a somewhat left-handed distinction, and raises the question, does it all work out?

The answer is, yes. The Mahler fifth and Don Juan pairing on side one is quite compatible, as is the Tristan-Brahms/First Tannhauser grouping. And as a total three-hour program, all is (no pun intended) harmony.

The performances (except for the Brahms) are consistently straight-forward and traditional. As for the Brahms reading, one wishes it had more sparkle and vitality, and a crisper recording.

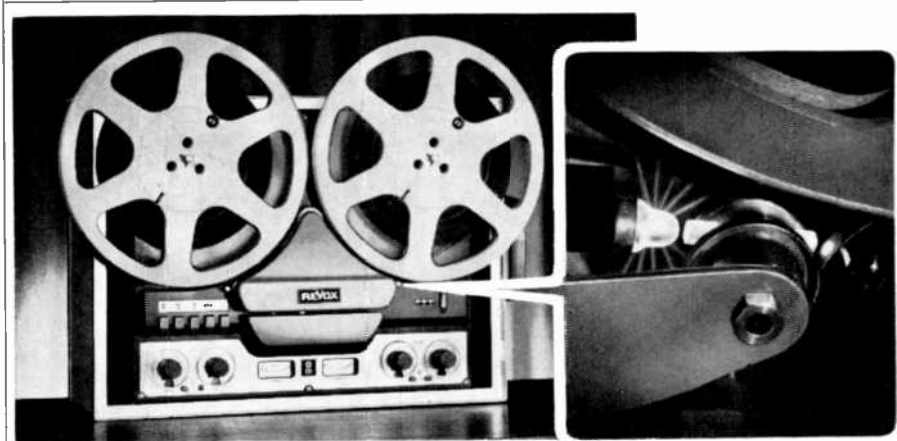
A good buy at the price. —F.P.

International

Music from Around the World, Vol. 1, played by R. Roger & His Orchestra, The Phantom Gypsies, George Voumard Orch and Humberto Suarez & His Cuban Orchestra. Includes Andaluca, Perfidia, Personality, Por Que, Dark Eyes, Ziguener, Caucasian Song, Beer Barrel Polka, Paris by Night, etc. Tape-Mates, TMS 106, \$11.95. (Three hours playing time.)

Music Performance Recording ●●●●●

The program material and the performances cannot be faulted — they are uniformly excellent, with the gypsy segment outstanding. BUT . . . the title is somewhat misleading. Instead of music "around the world," we get a fourfold dose of gypsy, Latin American tangos, Latin American boleros, etc., plus an



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Tape Reviews . . .

assortment of "continental" items, mostly French. Where is Poland, Turkey, England, Africa, Greece, China, etc., to name a few? And how about at least minimal liner notes, telling us which orchestra played what?

However, the attempt to put out a bargain is sincere. Four dollars per hour of playing time is pretty inexpensive listening. —F.P.

Andre Kostelanetz

The Thunderer and Star Spangled Marches. Andre Kostelanetz and orchestra, includes *The Thunderer*, *El Capitan*, *King Cotton*, *Semper Fidelis*, *Colonel Boucy*, *American Patrol*, *Yellow Rose of Texas*, *Anchors Aweigh*, etc. Columbia HC 6, \$7.75.

Music Performance ●●●●●
Recording ●●●●●

Where Kostelanetz plays it straight as in the Thunderer group—the music comes across splendidly. But where he tries for "spectacular orchestral sonorities, the results are mish-mash rather than music.

The recorded sound on The Thunderer side is also better. This results from Columbia's practice with artists like Kostelanetz of twin-packing recordings made several months or years apart (a practice not peculiar to Columbia), one small drawback to the Long Tape.

Question: Why the appallingly short lead-in? The review copy had just enough blank tape to cover the reel hub. The answer certainly cannot be "in the interests of economy," not with raw tape costs

what they are. Could it really be Cheap. Cheap? —F.P.



Andre Kostelanetz

Broadway

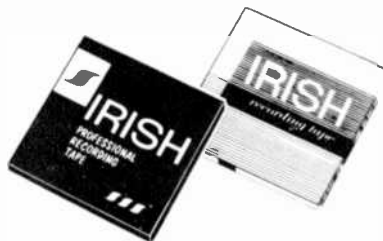
Mame. Original Broadway Cast with Angela Lansbury, Beatrice Arthur, Jane Cunnell and Willard Waterman. Columbia 7½ ips. OQ 853, \$9.95.

Music Performance ●●●●●
Recording ●●●●●

This may not be either the time or the place for a treatise on what's wrong with the American musical, but something certainly is. "Mame" is simply another in the long line of musicals adapted from other media (best sellers, hit movies or successful straight plays) composed according to formula and featuring a star (or stars) who achieved fame not as singers but as actors.

In the present state of affairs along Broadway, this looks like a very good musical, indeed. It is, in fact, an improvement by the composer and lyricist, Jerry Herman, on his hit of last year, "Hello Dolly." In fact, for any musical buff who's in doubt about this musical's parentage, a listen to one stanza of the title song will convince him. "Mame" and "Hello Dolly" (the songs) are two peas from the same pod. However, while "Dolly" had only one song you'd remember after you shut off the recorder, "Mame" has at least two (the second being a duet between Misses Lansbury and Arthur entitled "Bosom Buddies"). There's verve and vivacity in the score and in the cast and the recording is up to Columbia's high level for Broadway shows. This is a good demo tape, incidentally, if you want to show off your sound system or \$450 recorder at a party. —R.A.

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Buddy Greco

Big Band and Ballads, Buddy Greco, includes *Satin Doll, The More I See You, Funny, Once Upon a Summertime, Wild Is Love, Girl Talk, What Did I Have, Love* and others. Reprise RS6220. \$7.95.

Music Performance Recording ●●●●

The album cover says this is Buddy's best album in years. It isn't. But it has enough going for it not to matter.

Buddy is generally weak on the slow ballads and excellent on the up-beat numbers. He distinguishes himself on *Wild Is Love, What Did I Have, Love, The More I See You* and *Satin Doll*. That's half the album and well worth the price. The recording is excellent. —R.E.E.

Discotheque

Dance Party, . MGM STP 4258. \$11.95.

Music Performance Recording ●●●●

This double play tape includes four complete dance sets. Each set has six numbers and at least one in every set is a fox trot. The rest are a mixed bag of Latin rhythms combined with the hully gully, mashed potato, frug and twist. Eight different bands are featured including Larry Elgart, Danny Davis, Antonio Rocca and Bill McElhiney.

This tape obviously isn't intended for serious listening, although some of the Elgart cuts are very good indeed. The selections have been arranged with care (which is not always the case with these tapes) so that there's variety between numbers in each set. If extended dance material is your cup of tea—or if you're planning a party—this tape will serve you well. —R.E.E.

Claus Ogerman

Watusi Trumpets, includes *It's Not Unusual, Doventown, The Joker, La Bamba* and seven more. RCA Victor FTP. 1316. \$6.95.

Music Performance Recording ●●●●

The Watusi Trumpets may be RCA Victor's answer to the Tijuana Brass. While the style isn't exactly the same, the mood set by the tape box and the tape itself is. The big band sound, in fact, is much better than average. The brass section of four trumpets gives this album its name and its verve. While the cover

blurb proclaims this tape as offering "the unequalled joyousness of big-band music." for listeners, we recommend it primarily for dancing.

Stereo sound is, as we mentioned, pretty good, with plenty of directionality and a crispness of sound in the trumpets themselves. Good but not great.—R.E.E.

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Ray Anthony

Hit Songs to Remember. Includes *The Shadow of Your Smile, Yesterday, Michelle, Call Me, Ballad of the Green Berets, Goodbye, My Love, Spanish Eyes, and others.* Capitol YT 2530, \$5.98.

Music	● ● ● ●
Performance	● ● ● ●
Recording	● ● ● ●

The unusual Anthony trumpet sound—its fullness combined with a tastefully balanced orchestra and an excellent selection of program material combine to make this a noteworthy tape for the popular music collector. Some of the more recent hits, such as *Yesterday* and *The Ballad of the Green Berets*, are included along with other favorites that don't qualify as old-timers, yet have been around for two or three years. The tape has the unusual quality of being qualified as listening music or background.

—W.G.S.

Man From U.N.C.L.E.

Music from the Man from U.N.C.L.E., includes *Theme from U.N.C.L.E., Meet Mr. Solo, Wild Bike, Fiddlesticks, Man From Thrush, Watch Out!* etc. Hugo FTP 1322, \$7.95.

Music	● ● ●
Performance	● ● ● ●
Recording	● ● ● ●

"It sparkles or sputters. It tantalizes or tickles. It relieves or reviles" . . . So say the liner notes accompanying this collection of tunes dreamed up for the cloak-and-dagger TV program. And they are quite appropriate.

Although some of the tunes are sheer bombast, i.e. *The Uncle Theme, Wild Bike, Watch Out*, there are some interesting moments in this album. Listen for example to *Fiddlesticks, Solo on a Raft*, and *The Man From Thrush*, for intriguing sound ideas, well conceived.

—F.P.

Tennessee Ernie Ford

My Favorite Things, with Chorus and Orchestra Conducted by Jack Fascinato includes *Hello Dolly!, I Can't Stop Loving You, I Left My Heart in San Francisco, My Favorite Things* and others. Capitol YT2444 \$5.98.

Music	● ● ● ●
Performance	● ● ● ●
Recording	● ● ● ●

This is another of those 5-inch reel tapes that begin to make more and more sense for popular music. The 7-inch reel size was always rather deceptive, except for double-play tapes. In this case, the diminutive size is also indicative of what to expect from the tape

itself as well. It's fine for those people who number them among Tennessee Ernie Ford's fans. It's even fine for someone who's tone-deaf or is in love with mediocrity, for mediocrity is what this tape is all about. The only redeeming feature is the selection of music—happily well programmed and arranged—but a little of Mr. Ford goes a long way.

—W.G.S.

The Brothers Four

A Beatles Songbook and Try to Remember includes *Help! Michele, Girl, Yesterday, Sloth, Sakura, Malaika, Born Free, Wild Colonial Boy* and 14 others. 3¾ i.p.s. Columbia H2C 23, \$9.95.

Music	● ● ●
Performance	● ● ●
Recording	● ● ●

This is not one of the Brothers Four's best tapes. The selection is at best adequate, with few of the kind of numbers the boys made their reputation with in the first place. The folk songs on the second track, in fact, are the items which come off best, while the Beatles numbers are better left to the Beatles.

With the negatives out of the way, it should be noted that the recording is crisp and clean despite the slow tape speed; and that 30 minutes uninterrupted of the Brothers Four is by no means too much. They provide pleasant background listening. That, in fact, is the point: the few arresting numbers (*Wild Colonial Boy* and *Gimme That Wine*) are the only ones which attracted our attention.

—E.B.

John Barry

Great Movie Sounds includes *Thunderball, 007, Goldfinger, The Chase, King Rat, The Knack, Ipcress File, Born Free* and four others. 7½ ips. Columbia CQ 854, \$7.95.

Music	● ● ●
Performance	● ● ● ●
Recording	● ● ● ●

Columbia has come up with a winner this time. I don't know about you, but I'm getting kind of tired of listening to 30 or 40 minutes worth of music from a film which maybe had one good theme or song. So I'm a sucker for tapes of this type, which distill the best musical ideas from, say, a dozen recent motion pictures.

To do the job, Columbia selected the composer and arranger responsible for at least half of the music on the tape. John Barry scored all of the Bond movies, composed and conducted all but *Dr. No*, which means all but one selection on the first track. Since it's his music, he presents it in its best light.

The scores by others on the second track fare just about as well. Arrangements are skillful and attractive, and they are presented much as any moviegoer may remember them from the film. Let's have more of these anthologies and less tapes like "The Complete score from the L & M Commercials."

—S.B.A.

Matt Monroe

This Is the Life! Matt Monroe with orchestra under Sid Feller. Includes *I'm Glad There Is You, This Is The Life, I'll Take Romance, On A Clear Day, Sweet Lorraine, Honey On The Vine, etc.*, Capitol YT 2540, \$5.98. Recorded at 3¾ i.p.s. on five-inch reel.

Music	● ● ● ●
Performance	● ● ● ●
Recording	● ● ● ●

Consciously or unconsciously, Matt Monroe's singing style reflects the influence of Frank Sinatra—which is neither praise nor condemnation. And his voice is remarkably like The Crooner's at various points in this collection of top notch songs of recent distant vintage. But, Monroe is Monroe, and he can stand on his own very nicely, thank you. This is his first recording session for Capitol, say the liner notes. We wish him many more.

Sid Feller's arrangements and conducting are inspired. His support of Monroe is warm, solid and sympathetic. The recording is excellent, just missing the 7½ i.p.s. quality range by a hair's breadth.

—F.P.

Wayne Newton

The Old Rugged Cross, Wayne Newton, Alfred de Lory, organ, and choir under direction of Gerri Engemann, arranged and conducted by Hank Levine. Includes *Old Rugged Cross, It Is No Secret, Somebody Bigger Than You And I, Whispering Hope, Lord's Prayer, Rock of Ages, etc.* Capitol ZT 2563, \$7.98

Music	● ● ● ●
Performance	● ● ● ●
Recording	● ● ● ●

The first impression one has of Wayne Newton, starting with the first song in this collection, is that here is a young man sincere and interested in what he is doing. And for this reviewer that impression was maintained all the way through this solid group of well-sung familiar and favorite hymns.

Accompanying the youthful singer in his first album of religious music are Alfred V. de Lory, nationally known church organist, and Gerri Engemann's beautiful 25-voice choir.

—F.P.

Build Your Own Magnecord

by Walter Salm



It's been some time since a tape recorder in kit form came our way—and we don't recall ever receiving one of this quality for preview before. In the past, tape recorders in kit form have utilized medium-priced decks from such manufacturers as Viking and Bell with recording preamplifiers and playback amps designed by the kit manufacturer. What we have here is the Magnecord 1020, a full-fledged professional tape recorder (with all that that implies) which has been on the market for about a year. When sold by the manufacturer, it fetches \$550. The kit version is \$400, a substantial saving even though it represents a larger investment than for some of the more popular complete home models.

The first question which comes to mind is has Heathkit made any compromise in the unit for the sake of economy or ease of construction? The answer is that while this kit is well-designed and relatively easy to construct, it appears to have all the important features of the parent machine, and seems to meet essentially the same specifications. (A complete report on the Magnecord 1020 appears in the issue of *TAPE RECORDING*—Editor.) As a finished product, it has professional specifications with a frequency response that is fully usable up to a phenomenal 30,000 cycles.

The machine has built-in mixing facilities for combining two separate sources in each channel—a very worthwhile feature found only in a few machines today.

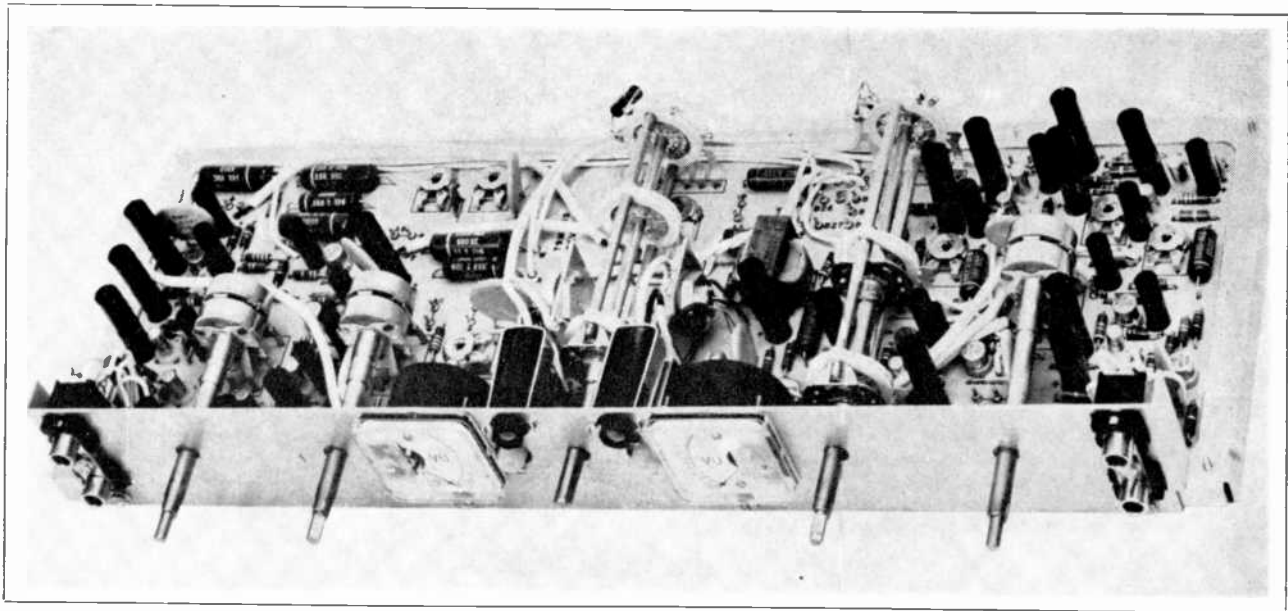
Actual construction time for the kit is between 25 and 30 hours. At first glance the construction manual seems a rather formidable obstacle. It's

thicker than a suburban telephone directory and is jammed full of diagrams and building instructions. As a kit, the AD-16 goes together logically and easily with major construction steps grouped into small segments, each one of which can be completed in a relatively small time—all except for the main circuit board.

The circuit board itself is the heart of the machine and occupies the major portion of building time. This board contains practically all of the components and transistors that are used in the recorder electronics package. Transistors are soldered directly to the printed circuit board—a point worth mentioning since transistor lead soldering is a delicate proposition and the temperature should be watched very carefully. Use a small wattage soldering iron (30 to 40 watts), and solder very quickly if you want the transistors to stay healthy.

Heath has provided the kitbuilder with many highly welcome shortcuts and kitbuilding aids. One of these shortcuts is the use of soldered terminal clips on the ends of all connecting wires. The terminal clips simply slip over and lock onto pins on the circuit board when appropriate connections must be made. This is true also of a pre-assembled wire harness which fits snugly into place on the main chassis and interconnects points on the circuit board and the chassis itself.

Bouquets are especially in order for the way Heath has prepared the shielded cables in this kit. Shielded cables are normally the bane of every kitbuilder's existence requiring a great loss of time and plenty of aggravation while preparing them. In this kit all the shielded cables are already



stripped, the shield braid is unravelled, and both the shield and center conductor terminate in those ever-present solder pin clips. All wires and cables are numbered for easy identification and not one wire must be cut during the assembly.

The different subassemblies go together relatively easily although it's a simple matter to dislodge connecting pins from the circuit board when it is slid into the main chassis frame. It's a point to watch and a certain amount of caution will avoid any problems later on. The mechanical assembly is possibly the easier part of this kit. The transport mechanism is simplified by the fact that three motors and solenoids are used. There are three heavy-duty solenoids to control the tape gate guide, the capstan pressure roller and the braking system for both takeup and feed reels. A row of push-button controls provide the usual operating functions with the additional feature of a cue button for exact pinpointing of key segments of tape for editing. Another feature of the recorder—the tape gate falls away allowing easy marking of the tape for splicing purposes.

Physical assembly requires a certain amount of care and re-reading the instructions a couple of times to avoid irretrievable errors. Many of the parts in the mechanical assembly have a similar appearance. Some of the assembly steps are grouped very closely, making it possible to overlook a key phrase. Some of the locking washers are almost impossible to remove once they are in place. The moral of all this is—read carefully! The machine uses three separate heads—one each for

recording, erasing and playback and an empty space is left in the head assembly for one additional head. This leaves room for expansion in the future.

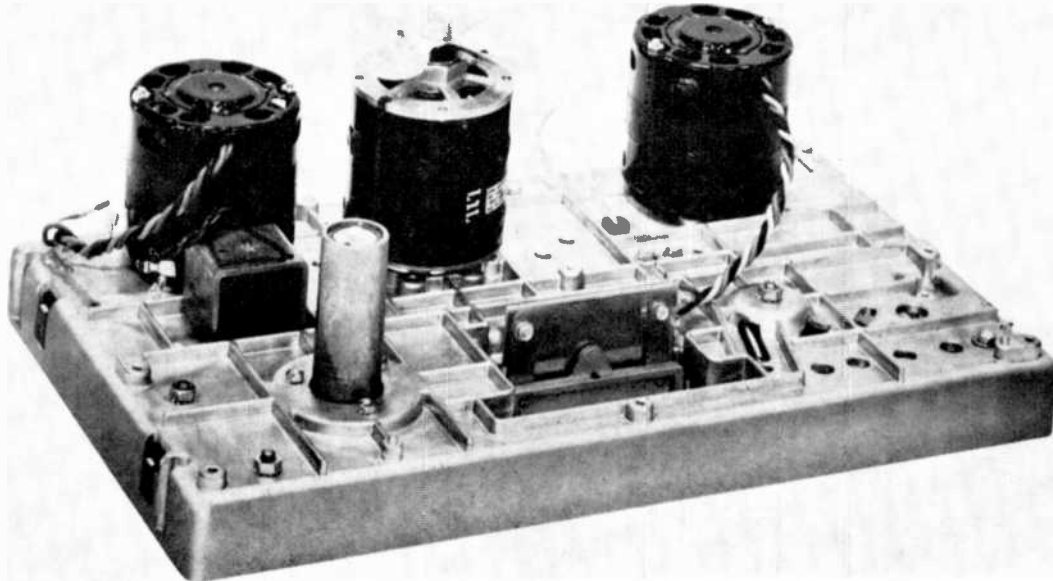
Heath has produced a honey of a tape recorder in the AP-16. The company started with an excellent machine and packaged it in kit form so that it is now possible for virtually any tape recording enthusiast to own this professional recorder for only \$400. The kit is a deck version only and is designed for custom installation in a stereo cabinet or for horizontal mounting on top of any furniture surface with a walnut base.

An interesting optional feature is the new Mag-necord 8¼ inch reel which provides effectively 50 per cent more playing time for a given type of tape than is possible on standard 7-inch reels. Most tape recorder dealers stock these reels, and using this size provides an additional bonus feature for a kitbuilder.

As a basic machine for the home stereo system, this deck has so many features to commend it. First of all, the frequency response and signal-to-noise ratio are absolutely exceptional. The response at 3¾ ips is substantially better than for most machines playing at 7½ ips speed. The solenoid controls provide a high degree of operating ease, and the microswitch attached to the tape arm makes it virtually impossible to have any tape spillage. If anything goes wrong with the tape—anything at all—the whole thing shuts down instantly and the brakes are applied to both reels.

The three motors are exceptionally large and heavy-duty. Because of the three-motor, three-

Magnecord . . .



The Magnecord's three powerful motors dominate the underside of the chassis, itself a masterpiece of casting, drilling, cutting and machinery at the factory.

solenoid design, there are only two drive belts in the machine—one for the capstan flywheel and one for the digital index counter. Components and parts in the kit are of a uniformly high quality. The motor frame plate casting is a work of art that required many drilling, cutting and machining operations in the factory, and it's almost a shame to clutter it up with all the necessary springs, levers, nuts and bolts.

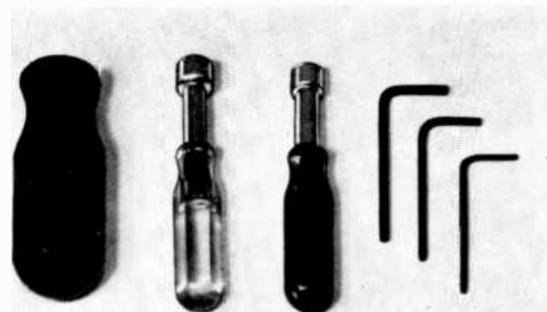
The front panel uses concentric controls for left and right channels. It has four jacks up front—two for microphones and two 3-conductor jacks for stereo headphone monitoring. Other inputs and outputs are in the rear. Controls include recording level for microphones, recording level for auxiliary inputs (jacks in the rear), playback level, monitor mode (source of tape), record mode (stereo, mono left or mono right) and an equalization switch. Twin VU meters monitor recording and playback levels, and a series of indicator lights show positively when the machine is recording and in which mode.

The monitoring capability gives the machine some additional flexibility. You can actually hear what has been recorded on the tape while making the recording—a far better technique than listening directly to the source. This way, if there is any distortion or other recording difficulty, it's possible to spot it immediately and take corrective action. The separate record and playback heads also make

it possible to create echo effects on the tape simply by patching through the back panel. Two reverberation times are possible at the two tape speeds.

The empty space for an extra head is intriguing. It's nice to know it's there, and we can think of a half-dozen different heads we might want to install, sometime soon. Right now we're too busy trying out all its other features. It's quite a machine.

If you're the do-it-yourself type, and are willing to invest 25 hours or so of your spare time in exchange for a saving of \$150 and the pleasure of putting together a magnificent stereo tape recorder that will give you years of satisfactory use and pleasure, write to The Heath Company, Benton Harbor, Michigan.



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Tape Club News . . .

(Continued from page 9)

(membership now at 236) is Donald L. McMillan. The post of national secretary has been filled by Mrs. L. C. McEwan. The NZTRC puts out a club magazine called Tape Echo — which some of you may be familiar with — and welcome overseas members. Write to editor Les D. Robinson, 14 Lupton Rd., Manurewa, New Zealand.

Which brings us down to the business of this column. This column belongs to you — tape clubs and tape club members. Use it well and we'll keep spreading the word. But we must have news. Write long letters or just drop little notes. Everything is welcome. Especially copies of any newsletters or bulletins that you clubs put out. Send them to me, Ann Eisner, Tape Club News Editor, TAPE RECORDING Magazine, 156 East 52nd Street, New York, N.Y. 10022. Until next time . . . Don't forget to get working on contest ideas.

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