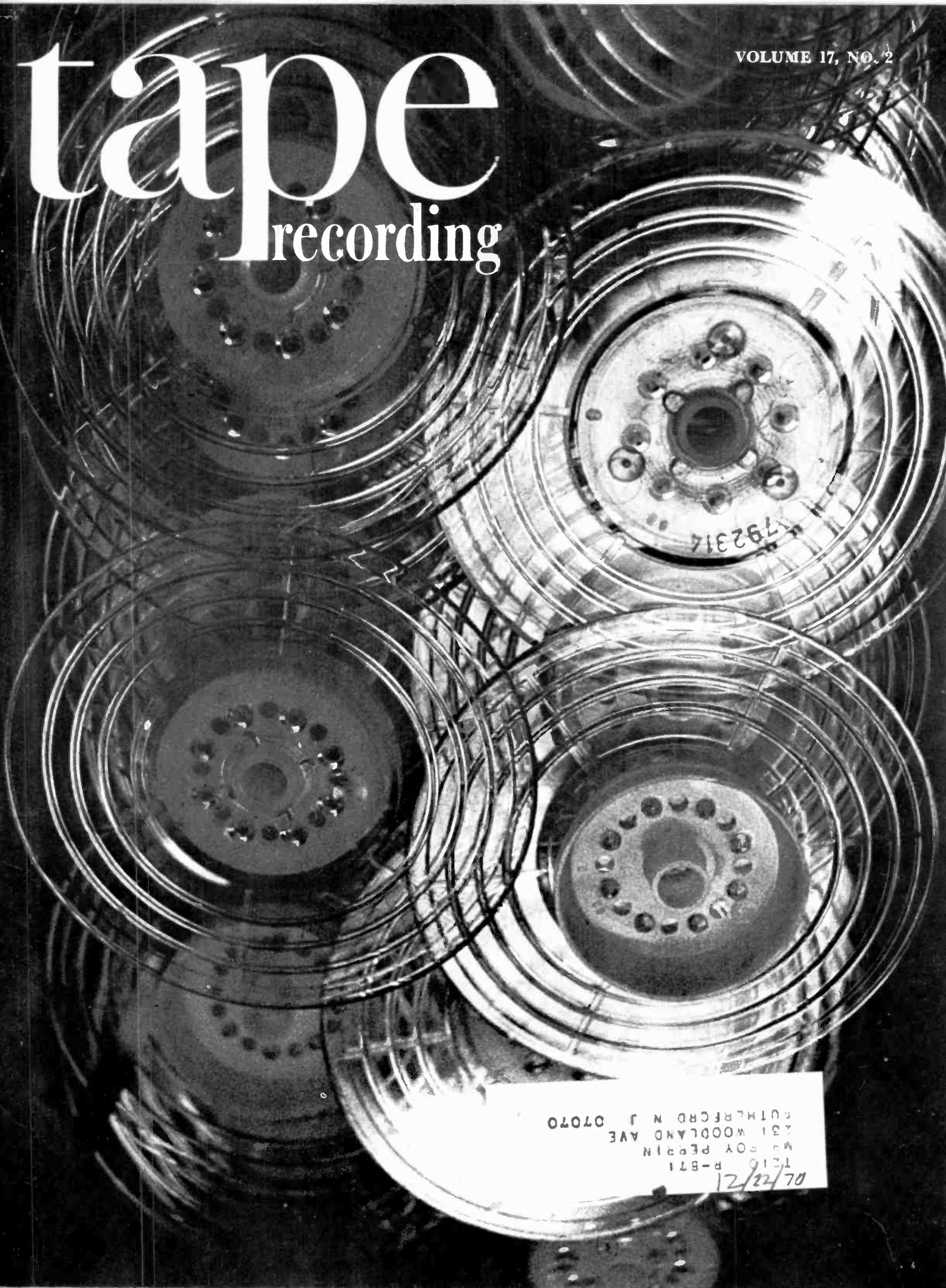
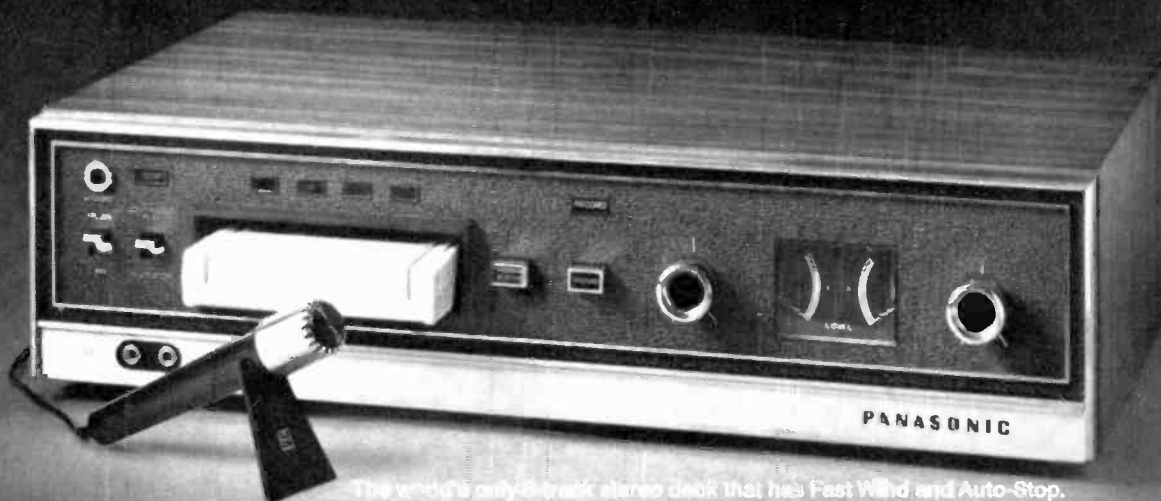


tape recording



12/22/70
R-871
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MR ROY PERRIN
231 WOODLAND AVE
SOUTHBRIDGE N J 07070



The world's only 8-track stereo deck that has Fast Wind and Auto-Stop. The "Walleley," Model RS-803US.

Tape up your stereo system.

If you got the jack, we've got the decks. That will turn your stereo system into a stereo tape recorder. One that records and plays 8-track cartridges. Or cassettes. Or both.

Our 8-track cartridge deck, Model RS-803US, is going to be a legend in its own time. Because it's the only one in the world with two special controls—Auto-Stop and Fast Wind. The Auto-Stop switch stops the tape at the end of the last track. So you can't accidentally over-record and turn Beethoven's First Symphony into Beethoven's

Los: Symphony. Fast Wind speeds you to the selection you want. Instead of wading you through the ones that you don't.

And that's only half the story. There's also our cassette deck, Model RS-256US. With a noise suppressor switch that makes tape sound sweeter than ever. (Cuts out the sour little hiss tape can pick up.) And Fast Forward and Rewind, automatic shut-off, and pause control. Plus simple pushbuttons that leave you more time to make like a sound engineer.

In fact, both these decks

have everything to get the finickiest tape connoisseur into cartridges and cassettes. Like twin VU meters, twin volume controls, twin whatever ought to be twin to give you great stereo recordings and playback. Plus AC bias to cancel out noise and distortion. AC erase. And jacks for optional single or twin mikes.

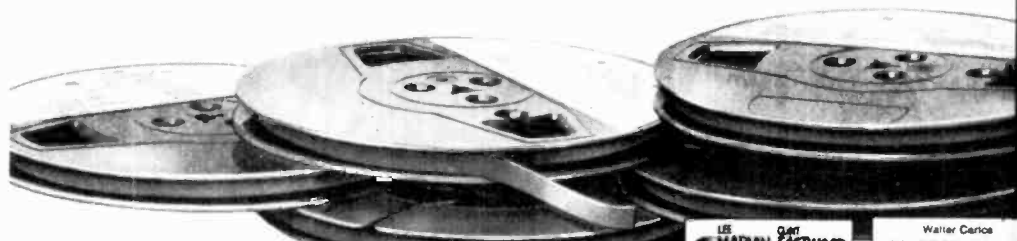
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AS A MEMBER you will receive, every four weeks, a copy of the Club's entertaining and informative music magazine. Each issue describes the regular selections for each musical interest... hits from every field of music, from scores of different labels.

If you do not want a tape in any month - just tell us so by returning the selection card by the date specified... or you may use the card to order any of the other tapes offered. If you want only the regular selection for your musical interest, you need do nothing - it will be shipped to you automatically. And from time to time, the Club will offer some special tapes which you may reject by returning

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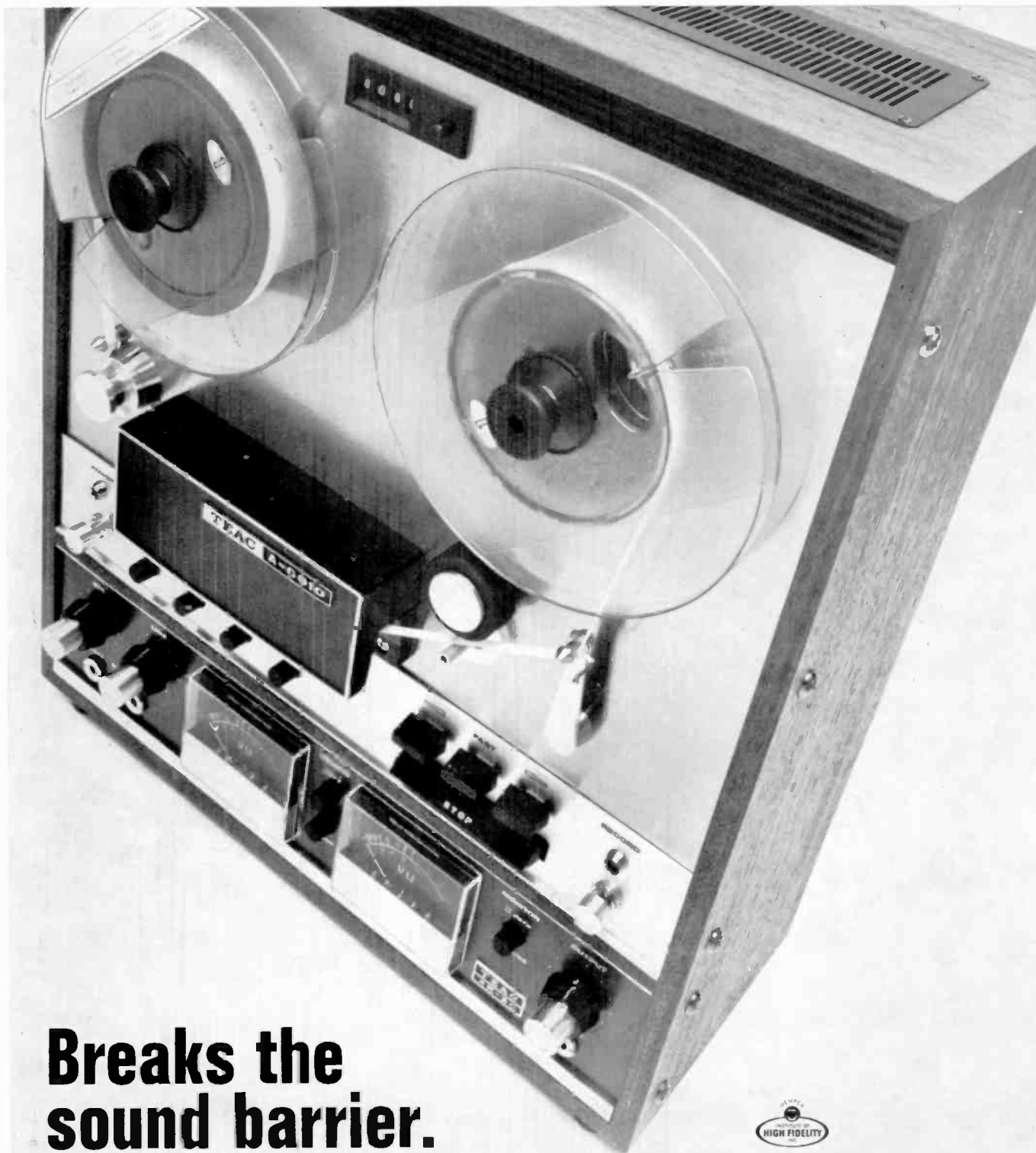
I agree to purchase five selections during the coming year, under the terms outlined in this advertisement... and I may cancel membership at any time thereafter. If I continue, for every tape I purchase I will get an additional stereo tape of my choice for only \$2.00... or I may choose a FREE tape for every two tapes I buy.

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Breaks the sound barrier.

This is the A-6010U, top of the TEAC tape deck line. And these are just a couple of its sound industry breakthroughs: Unique phase sensing auto reverse operates electronically at any chosen point on the tape. Or it can

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tape

recording

MARCH-APRIL, 1970

VOLUME 17, NO. 2

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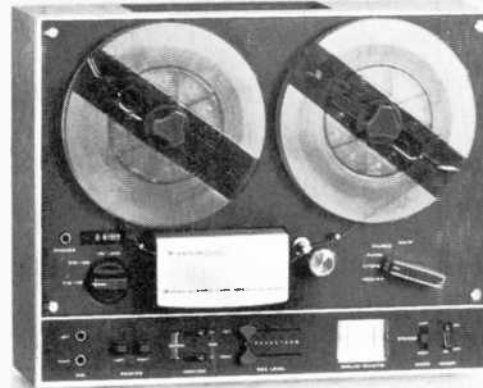
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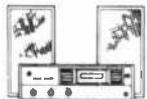
We are America's largest all-label, all-artist stereo tape cartridge club. We hope to win you over to the newest, most advanced, most convenient way to enjoy music in your home, car and office—with trouble-free, compact stereo tape cartridges that play continuously, switch tracks automatically, and last practically forever. They never scratch, warp or wear out. They never tangle or break.

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To guarantee your continuing interest, the equipment must be fine enough to give brilliant high fidelity performance over many years of trouble-free service. That's why we give you our STEREOOMATIC unit FREE. It's the best premium equipment. That's why we are willing to send it to you at no risk or obligation on your part. If you like it, KEEP IT. It's yours FREE just for buying stereo tape cartridges you would want to own anyway. If not, return it and your membership is cancelled. You pay nothing and owe nothing. To take advantage of this fabulous new membership offer—complete coupon and mail now.

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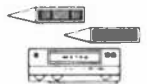
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Stereo Tape Club of America
P.O. Box 2986 Clinton, Iowa 52732

Please enroll me as a member and send the FREE Stereomatic 8-track tape cartridge player checked below.

- HOME SYSTEM (speakers \$24.95)
- HOME PLUG-IN (no speakers)
- AUTO SYSTEM (speakers \$5.98)

Also send the 6 stereo tape cartridge albums I am buying now to start membership. (Select 6 from list, print numbers below.)

Bill me for these. I may pay in 3 monthly installments if I wish, including mailing and handling. If I am not 100% delighted, I may return player and cartridges in 10 days and my membership will be cancelled. I owe nothing.

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

Auto make & year _____

Phone _____ Spouse Name _____

Bank _____ Branch _____

Credit Ref. _____ Loc. _____

Credit Ref. _____ Loc. _____

Charge albums above to my credit card.

- BankAmericard Master Charge Interbank
- Acct. # _____ Diners Club

MY MAIN MUSICAL INTEREST IS (check one)

- Popular Rock & Folk Show & Classical

In addition to the 6 cartridges I am buying now to start my membership, I agree to purchase a cartridge a month during the coming year. (Albums you'll want to buy anyway; thousands to choose from.)

SIGNATURE _____
(REQUIRED) 1-232-12-12062

For Teenagers

Answer these questions, then come

1. Do you see any difference between marijuana and alcohol?
2. Have you ever taken drugs to get high?
3. Do you know anyone who takes drugs?
4. Have you ever experimented with drugs to see what it's like?
5. Do your younger brothers or sisters have access to drugs?
6. If you wanted drugs could you get them easily?
7. Have your parents ever asked you directly, "Are you using drugs?"
8. Is it possible to get high on something in your parents' medicine chest?
9. Do your parents take too many pills?
10. What are the reasons young people take drugs?

When it comes to the drug scene, a lot of parents really don't know what's happening—as you may be able to see by their answers to their questions. You can help them get the facts by sending for the Federal source book "Answers to the

most frequently asked questions about drug abuse." When you get it, give the book to your parents as a gift. You'll have a lot to talk about.

For a copy of the Federal source book:
"Answers to the most frequently asked
questions about drug abuse"

write to: Drug Abuse Questions and Answers
National Clearinghouse for Drug
Abuse Information
Box 1080
Washington, D.C. 20013

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

For Parents

together and see how far apart you are.

1. Do you see any difference between marijuana and alcohol?
2. Has your child ever been high on drugs?
3. Do your children associate with any drug users?
4. Have you ever experimented with drugs to see what it's like?
5. Do you think your children under 13 have access to drugs?
6. If your children wanted drugs could they get them easily?
7. Have you ever asked your child if he or she uses drugs?
8. Is there anything in your home that your children could get high on?
9. Do you believe you take too many pills?
10. What are the reasons young people take drugs?

If your child's answers disturb you, it's high time you sat down together and had a talk about drugs.

We've written a booklet that might help that talk. It's called "Answers to the most frequently asked questions about drug abuse." It won't make you an expert, but it will give you some important answers.

Send for the booklet. Read it. Talk with your child. It's important—for you both.

For a copy of the Federal source book:
"Answers to the most frequently asked
questions about drug abuse"
write to: Drug Abuse Questions and Answers
National Clearinghouse for Drug
Abuse Information
Box 1080
Washington, D.C. 20013

Name: _____

Address: _____

City: _____ State: _____ Zip: _____



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THE RECORDING STUDIO: It 's Come a



Long, Long Way

By Robert Angus

When Thomas Alva Edison shouted "Mary had a little lamb" into the mouthpiece of his newly-born phonograph one morning in November, 1877, the Wizard of Menlo Park wasn't much concerned about the acoustics of the room in which he made the recording. It was enough that the tinfoil cylinder on which a stylus had impressed the sounds was capable of producing intelligible speech at all — and something of a bonus that the voice which repeated the nursery rhyme was identifiable as his.

Twenty-five years later, when the phonograph had begun to be accepted as a medium for culture and entertainment in the home, Edison was paying a good deal of attention to the room in which his company was making recordings, or the recording studio. Because there was no practical way of duplicating the Edison cylinder, it was necessary to use from three to twelve machines operating at once to make copies for sale. A singer would bellow at the battery of metal horns over and over again, until he had produced enough cylinders to satisfy orders, or until his voice gave out.

Take that otherwise forgotten day in 1902 when George W. Johnson stepped up to such an array in the Edison Laboratories, for example. Seated in the middle of the large bare room which served as Edison's recording studio was a ten-piece orchestra. Facing them and baritone Johnson was a semicircle of horns arranged so that theoretically each would pick up the singer's words and the orchestra's music with equal clarity (in practice, some machines were closer to one or the other than others, with a resulting overpowering of singer by tuba or vice versa).

Edison's technical staff, consisting of a recording engineer and assistant had removed every stick of furniture and every drape from the room, so that all of the sound produced by the musicians could find its way into the horns. Before each performance, the assistant provided each machine with a new cylinder. Then the recording engineer would step up to



bedding around the door. Then pianist Salvatore Cotton sat down at the keyboard, Gaisberg started his equipment and a young tenor named Enrico Caruso spent the next two hours singing ten of his favorite Italian songs and opera arias.

From the recording industry's earliest days, the recording studio — a room in which people make recordings — has been an important part of the process, with engineers taking as much trouble to keep out unwanted noises and to seal in everything that musicians produce as artists do in shaping their performances. In recording's earliest days, it was considered enough to prevent outside noises like the traffic in Milan streets from intruding on the recording of a Caruso; or to seal in and reflect into the horns every last note sung by George W. Johnson.

The acoustic process was not an impartial observer of the musical scene. It favored the voices of singers like Caruso and Chaliapin, while making others sound screechy or dull. Tubas reproduced wonderfully well, as did triangles. But pianos and violins were another matter. Recording technicians discovered that, although they couldn't overcome the prejudices of the acoustic recording system, they could moderate the effects by moving musicians around — putting some closer to the horn than others, providing a miniature bandshell to bolster the sound of flagging strings, each machine in turn, start the motor and recite, "The Laughing Song, sung by George W. Johnson, Edison Records" and stop the machine. After he had recorded all of the spoken announcements and the musicians were ready, the recording engineer started all of the machines simultaneously. The process, as noted, went on until everybody was exhausted.

That same year, recording engineer Fred Gaisberg and organizer Alfred Michaelis made one of the first and most important "on-location" recordings, by converting a room on the third floor of the Grand Hotel Statz in Milan into a recording studio. To shut out street noises, the two men hung blankets across the windows and stuffed



isolate the noisy brasses from the rest of the orchestra, and so on.

When Victor began recording the Boston Symphony Orchestra in a converted church in Camden, N. J. as long ago as 1917, recording engineers had built two igloos of plywood. The first housed the trumpets, horns, and trombones and isolated them from the recording device; the second housed the strings and coupled them directly with the recorder. The idea was to produce as faithful a likeness of an actual performance in Symphony Hall as possible — but the peculiarities of acoustic recording sometimes made it necessary to bring in a tuba and send the string bass player home early, or otherwise tamper with the composer's instrumentation.

Until well into the 1960s, the aim of any recording session (and of most high fidelity sound reproduction equipment) was to pro-

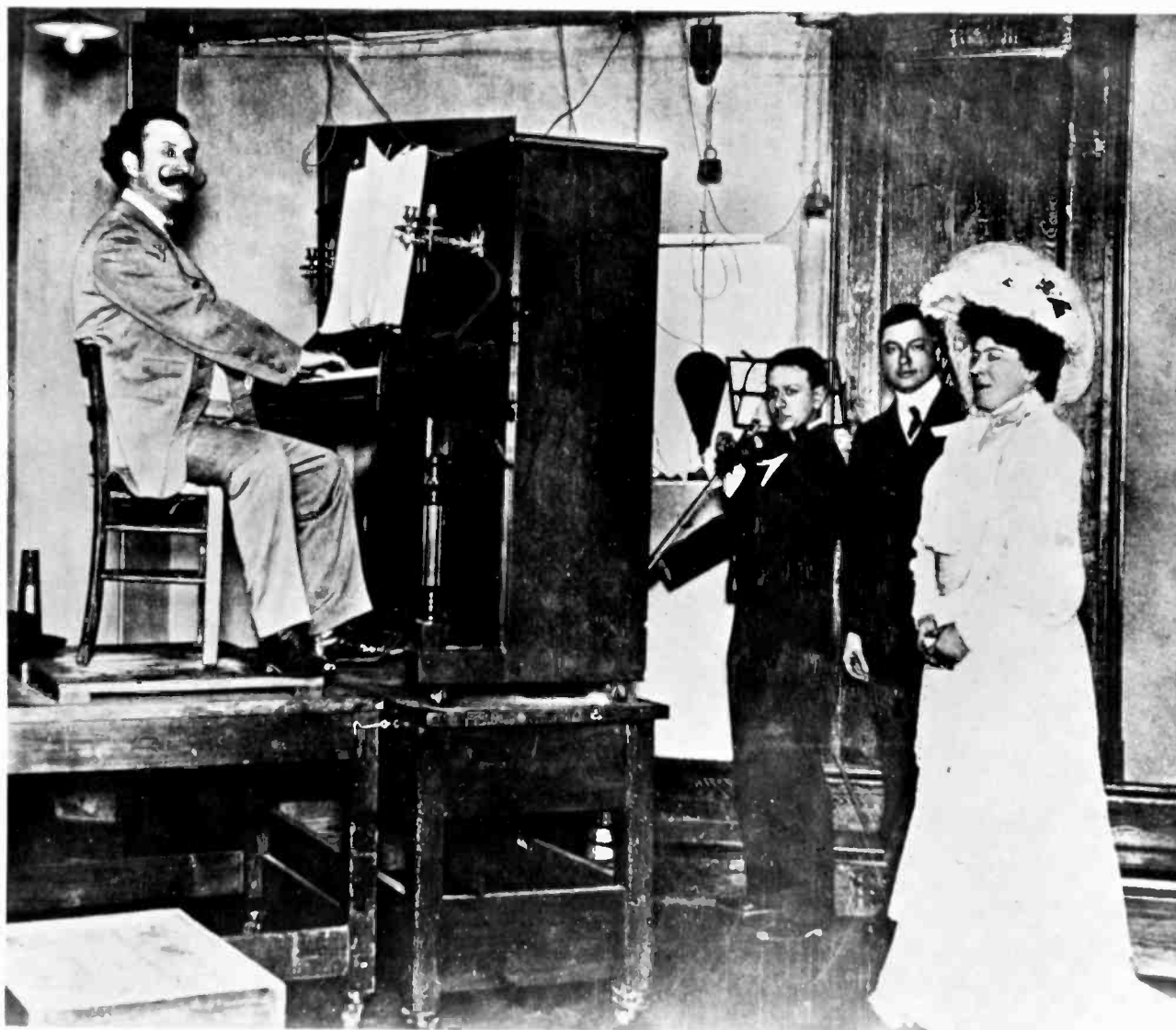


duce as lifelike a recreation of an original concert as possible. Engineers might argue over whether the ideal spot in the hall was fifth row center, the conductor's podium or first row in the balcony, but generally they agreed that realism was what they were after.

And until comparatively recently, a recording studio might be just about anything — a sound-dampened hotel room such as those in which the late Eli Oberstein recorded the first country musicians back in the 1920s; an abandoned church, movie house or concert hall; a suite of offices knocked into one room large enough to set up recording gear; a radio broadcasting studio or the living room in a converted brownstone. At first, the requirements were simply that the room be isolated

from outside sounds, that it be large enough to house the musicians, recording technicians and necessary equipment, and that it have no acoustic peculiarities of its own. The idea, during the Big Band era of the 1940s and the progressive jazz period in the early 1950s was to let the musicians do their thing, put it down on records (and later tape) with a minimum of inconvenience and outside distraction.

But several things were conspiring to make this kind of recording studio obsolete. Among them, the introduction of stereo in 1958, the rock revolution and its reliance on electronic instruments, the improvement in the tools available to the recording engineer and his own growing professionalism. Edison's recording engineer didn't have to know much



more than how to set up his cylinder machines and change cylinders at regular intervals. When electrical recording came in with the introduction of the microphone in 1925, the recording engineer had to learn something about microphone placement, electrical theory and simple techniques like fading and mixing. All of it could be learned on the job, and no formal training was required to become a recording engineer at Victor or Columbia then. Five years later, Leopold Stokowski was experimenting with a multitude of microphones — in fact, just about one for every member of the Philadelphia Orchestra. The job of the recording engineer became more complex, and his responsibility grew. By twisting a knob, he could permit the piccolo to dominate the orchestra, or banish the piano soloist to oblivion.

As microphones improved and more varieties became available, an engineer could select among them the way a photographer selects lenses, to find just the right microphone to do a particular job. Still, it was experience one picked up on the job, and no formal training was available. Control panels grew more complex, with faders, sliding pots to control volume, an array of VU meters to indicate signal strength in each microphone, and so on.

Then came stereo, and with it new problems and possibilities. Now it was possible to record each orchestral section (and in small groups, each instrument) separately as Stokowski had done. The new control panels offered first two, then four, eight, 16 and even 20 separate channels, and the recording engineer could assign one channel to each instrument or instrumental group during the initial recording. Later, in consultation with the artist and repertoire man who produced the record and the conductor, the engineer could enhance the violins, subdue the percussion, or shift instruments from left to right at will. This was precisely what Stokowski had been aiming for in the 1930s. The

difference was that once the 1930 recording engineer adjusted his dials and lowered the cutter onto the master lacquer, it was no longer possible to make changes. Stereo and multitrack tape recording made it possible to remix or remaster at any time after the musicians had gone home.

Serious musicians were slow to see the possibilities. But pop artists, and particularly rock groups realized that a recording no longer need be a document of a live performance. With stereo and such other electronic gimmicks as echo and distortion of electronic guitars, organs and other instruments, you could create an entirely new sound in the studio — something that would be impossible to duplicate in a night club or tv studio. The rock group began making demands that the physical facilities of some converted offices or homes or churches couldn't meet.

Recently, serious musicians such as conductor-composer Morton Gould have been giving some thought to the artistic possibilities stereo and the new sounds can offer. Gould's "Venice — Audiograph for Double Orchestra & Brass Choirs", which had its debut recently with the Seattle Symphony, actually uses the same orchestra twice — the musicians play part of the score; then the tape is rewound and played back while they perform the rest of it. Another Gould work, "Vivaldi Gallery for Divided Orchestra and String Quartet," uses stereo's separation as one part of the orchestration, emanating from one speaker, answers the rest, located around the other speaker.

When RCA planned its new recording headquarters in New York the company scheduled the erection of four new recording studios. They were, executives decreed, to replace existing studios at 24th Street and such other locations as Webster Hall, in which RCA engineers had been recording Broadway shows and other large sessions for years. The

new studios, the orders specified, should contain the latest in equipment, the most up-to-date ideas in design and materials.

The stereo boom and the rock phenomenon launched a boom in studio building beginning in 1962 with the opening of RCA Italiana's Rome studios and including multi-million dollar facilities in London, Hollywood and Nashville (among other places) for Columbia Records, EMI, English Decca, Warner-7 Arts and others. The first problem faced by designers was size and shape. Obviously an auditorium suitable for recording "Aida" wouldn't do to record The Lighthouse. The former requires space in which to move around, space for equipment and that elusive quality, ambience or resonance, which lends the atmosphere of a La Scala to an opera recording. On the other hand, most rock groups want an intimate atmosphere in which every sound they make goes directly into the microphone.

RCA decided to build six studios in New York — one measuring 30' x 60' x 100', suitable for recording a symphony orchestra, a Broadway show or, in a pinch, even an opera; a second 27' x 50' x 75' in size and designed for semi-classics and Big Band sessions; a third 24' x 45' x 75' designed for pop groups and the larger rock sessions; a more intimate rock studio 15' x 27' x 40' and two studios for overdubbing, or adding a vocalist to a previously recorded orchestra.

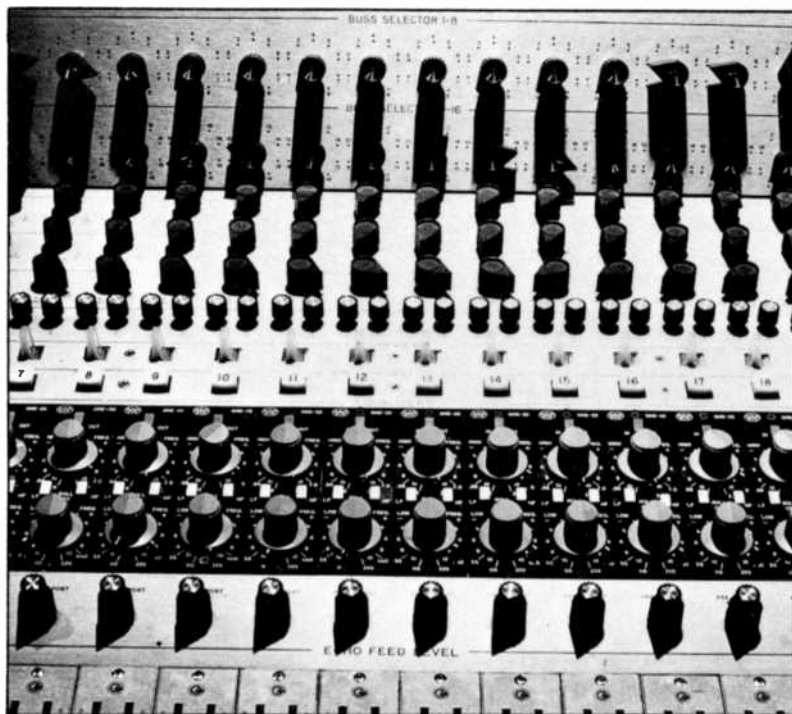
Note that though the studios vary in size, the proportions remain similar — a ratio of 1:2:3. Al Stevens, RCA's manager of facilities and operations engineering, and the man responsible for such other recent studios as those in Rome, Montreal, Toronto, Nashville and Hollywood, notes that there's nothing new about the formula; it was developed by the Greek philosopher and mathematician Pythagoras in the first century before Christ, and applied to auditoriums by Boethius, a Roman mathematician and musician. The formula

Boethius developed from Pythagoras' theories on mathematics and music held that the best room in which to listen to music had dimensions in a ratio of 1:2:3. In practice, today's engineers find this ratio nearly correct — but not quite. "It creates minor acoustic problems like dead spots and minor echoes," says RCA's Stevens. "So we vary the dimensions slightly from the basic formula, curve the wall panels and break up the surface to dispel any standing waves."

Another important consideration in studio construction is reverberation time, or what musicians call tonal decay. It's the length of time a musical tone takes to disappear in a room after the musician has stopped playing, and it's what gives a distinctive character to an opera house, a cathedral or a night club. In an anechoic chamber, for example, a tone disappears into the absorptive walls instantly, with a reverb time of practically zero. In a concert hall or opera house, it may run two to 2½ seconds, while in a cathedral it may echo and re-echo for five seconds or longer. For most classical music, engineers feel a reverb time of .5 seconds or even less.

Until recently, all recording studios had a fixed reverb time. There were panels which reflected sound upward or downward, materials which would absorb unwanted sound or reflect that which is desired. When the new studios opened in New York, they boasted of being the first in which the reverb time could be changed, and other sound characteristics altered as desired. In the large studio, for example, the reverb time normally is an exact two seconds. But the ceiling can be dropped as much as ten feet, cutting the reverb time in half (or, by lowering the ceiling only part way, any fraction thereof). The curved wood panels which Stevens had used in earlier RCA studios to diffuse sound and "tune" the studios are mounted on hinges in New York. They can be lowered, revealing a sound-absorptive back to reduce the reverb





time to as little as .7 seconds.

Indeed, movable panels are something of a hallmark of the new studios. Coated with sound reflective materials on one side, they absorb sound on the other. Thus, by reversing all of the panels in a studio, the engineer can convert it from a "live" sound suitable for a loud rock session to a comparatively "dead" sound, ideal for a string quartet. By reversing only half, he can achieve some effect in between. Which panels he moves can make a difference, too. Studio A, for example, has a pull-out stage around which panels can be moved to form a miniature bandshell. Because of the noise he makes, recording engineers frequently isolate rock drummers in a sound-absorbing isolation booth of their own. Instead of using the moving panels which look something like blackboards on wheels or building a permanent isolation booth, the recording supervisor can create one in the new studios simply by pulling out the right panels.

"In fact," Stevens boasts, "we can pre-tune each studio in advance, determining what results we get when we alter each panel. Then we can feed the information into a computer so that somebody in the future, a recording engineer will know in advance the best settings for the rock group he's going to record."

Connecting the 20 or more microphones in the studio to the control panel and master tape recorder in the control room are a maze of cables. When companies recorded in converted movie houses or churches, the cables snaked across the floor; and a singer or trumpeter had to tread warily. Nowadays, most of the cables are concealed behind the panels and along the walls. Frequent outlets make it possible to connect microphones just about anywhere in the room — as simple as plugging in a lamp.

The control rooms — separated from each studio by a large double-plate glass window — vary slightly in size, though most measure approximately 10' x 20' x 30'. Here the A&R

director, the man who supervises the musical and technical aspects of the recording and the recording engineer work, together with a battery of equipment, assistants, technicians, and the occasional interloper. The mammoth console can accommodate as many as 20 microphone inputs, and can inscribe up to 16 separate sound tracks on a reel of 2" magnetic tape. By using microphones which are very sensitive to sounds only immediately in front of them, the engineer is able to break up the orchestra or rock group into component parts and tape each separately. Later, in conjunction with the A&R man and the artist, he can

balance these against each other to produce exactly the right sound for release on a record. In addition, most engineers use two microphones which are not so sensitive, to pick up the broad view – including the ambience of the studio. These so-called ambient tracks later can be mixed with the musical tracks to produce a natural-sounding recording.

Already, pop groups are studying the potentials of a variable studio, to see how it can help give them a distinctive new sound. If history is any guide, the serious musicians can't be far behind. Unlike Edison, they are concerned about the acoustics of the room.

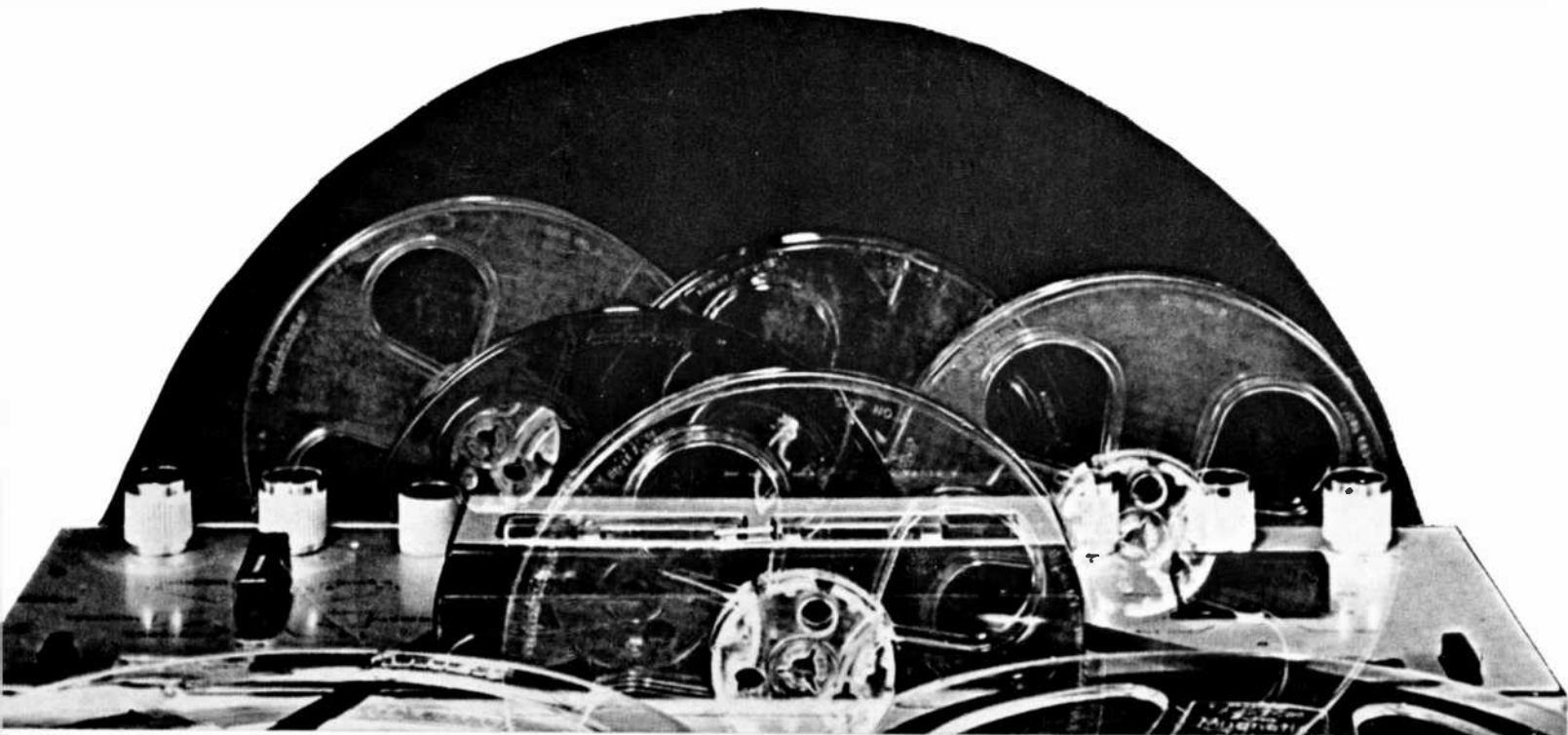


by Bob Swathmore

DO-IT-YOURS

One Saturday afternoon recently my wife pried me away from the Game of the Week on television to do a little housecleaning. "The attic," she said, "is full of your junk. Go up and get it out of there."

So up I went, little knowing that I'd come down with all the ingredients for a do-it-yourself psychedelic light show: my first tape recorder, a beat-up Webcor; a balloon,



ELF LIGHT SHOW

still in good condition; the speaker from a 1948 console radio; some camp cord; one sewing machine motor; the slide projector we don't use any more and some bits of colored plastic. The effect these ingredients produce may not duplicate the best discotheques in Manhattan; but they're guaranteed to turn on twelve-to-fourteen year olds of average sophistication. Here's how it works.

When you stretch a membrane (such as a thin sheet of rubber) across a loudspeaker that's producing sound, the membrane vibrates. The speaker cone moves back and forth pushing and pulling it. The thinner the membrane, the more movement and the better the sound. I suppose an old inner tube would work, but we found the balloon, sliced neatly down one side and stretched over the speaker, then fastened to the speaker basket with Scotch tape and epoxy glue, to be perfectly satisfactory.

Once the membrane was in place, we took fragments of the broken mirror and glued them carefully to it — pieces far enough apart so that they could move freely as the membrane moved. To produce movement, simply connect the speaker to the speaker taps in your recorder using ordinary lamp cord. I tied mine right around the terminals on the recorder's oval speaker, then taped them with insulating tape. The result is passable sound from the recorder plus somewhat muffled sound from the radio speaker.

I used the colored plastic (goodness only knows what it was intended for in the first place) to make a colored light wheel. Al-

together, there are five pie-shaped slices of plastic — clear, red, blue, green and yellow — which I taped together to form a circle (Scotch tape is just fine). The colored wheel called for the only original material in the project: I used a power saw to cut out a wheel roughly one foot in diameter with five spokes and a hub. Then I taped my plastic pie into place. The wheel is mounted on a fruit crate slat with an axle which terminates in the tire off a toy fire truck. The slat is nailed to a 4" x 6" base to which I screwed the sewing machine motor. Connecting the motor shaft and the truck tire is a "belt" which came from the post office. Actually, it's one of the thick rubber bands the post office is using in our area to hold the mail, but any rubber belt will do. Simply adjust the height of the slat to make sure the belt is tight.

Now we're almost ready for the show. I mounted the colored wheel in front of my slide projector, in such a way that the projector beam passes through the plastic and hits bits of the mirror mounted on the speaker. As the show progresses, the wheel rotates, changing colors. To obtain the full effect, however, you turn off all the lights in the room, and play a prerecorded tape on the recorder. It pumps out sound to the speaker, which moves the membrane. Flashes of colored light bounce off the mirrors and dance about the room. It's enough to make us over-30s young again.

And if you start with a tape by the Rolling Stones or Blood, Sweat and Tears, you'll really turn on your kids.

TAPE RECORDING FUN!

by R. K. Martinson

Remember the "Golden Days of Radio"? The resourceful sound effects man was a key figure in the studio. For an evening of tape-recorder fun, try recreating sound effects in the same manner as they were done in the early radio studios. Great for reminiscing or rainy-day fun for restless youngsters.

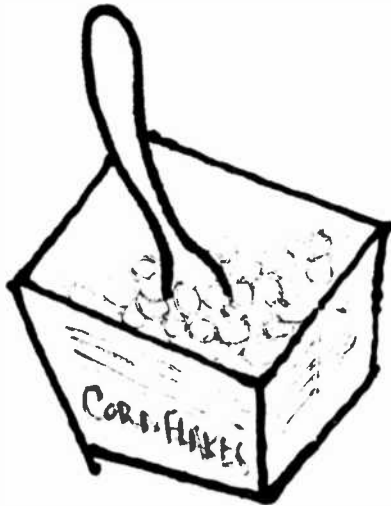
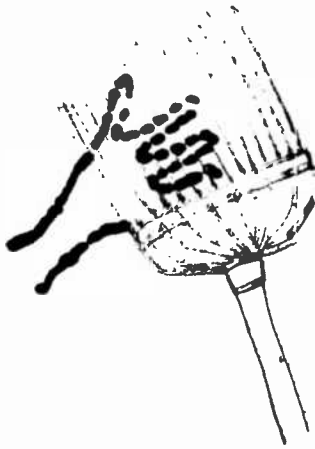
BRUSH CRACKLING: Work straws from broom between hands and close to mike — or use heavy cellophane.

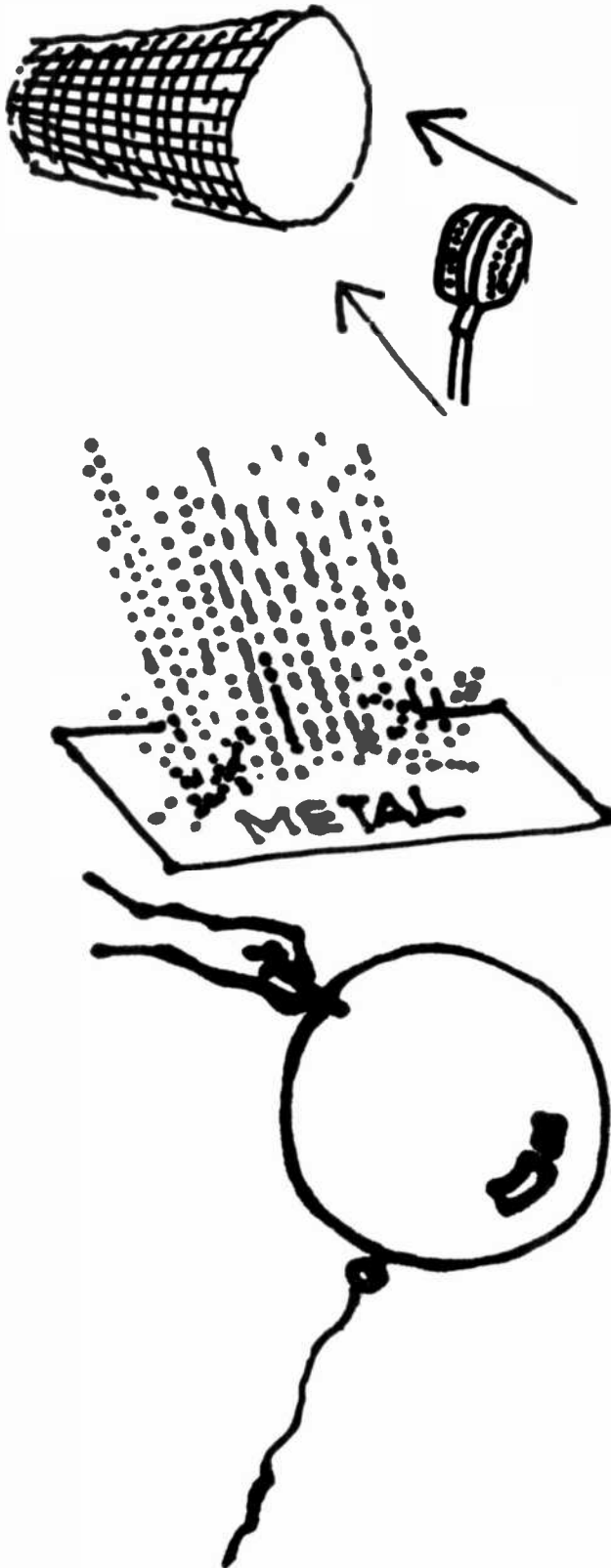
WALKING IN DEAD LEAVES: Stir corn flakes in top of cardboard box.

BUBBLING BROOK: Blow gently through straw immersed in a water glass.

FOOTSTEPS IN SNOW: Grind thumbs in cigar box full of cornstarch or fill two small sacks with cornstarch and squeeze them near mike.

CHOPPING WOOD: Tap large jackknife against branch of tree close to mike.





CRASH: Use crash box — a wooden box filled with broken glass, light pieces of metal and tin cans. (Omit glass if children will be using crash box.)

CRASHING WOOD: Crush berry box by pushing thumbs through bottom.

FIRE: Crackle cellophane between hands or crunch heavy end of bundle of broom straw.

FOREST FIRE: Combine above with breaking of berry boxes.

ECHO: Face microphone at long fiber wastebasket. Speak from behind mike so voice is projected at wastebasket and comes back to the microphone.

HORSES: Coconut shells are held in each hand and tapped in correct rhythm on rug.

RAIN: Drop rice on metal.

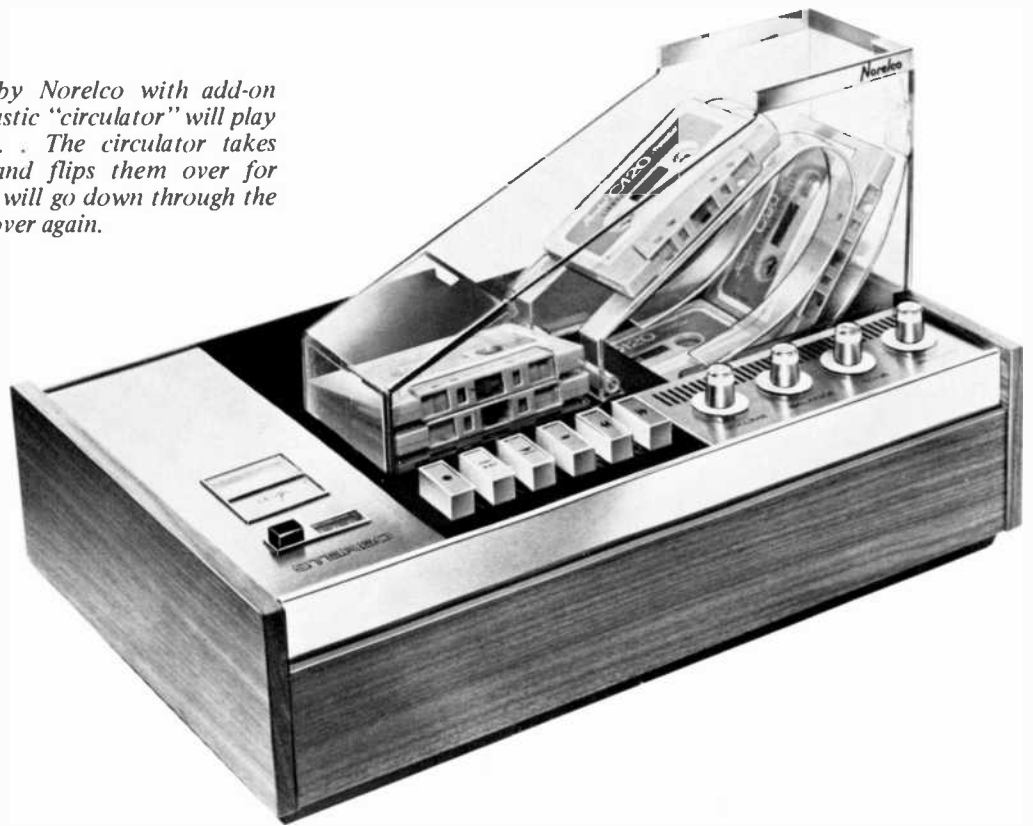
THUNDER: Rattle sheet of tin close to mike.

PISTOL SHOT: Puncture balloon near mike.

With a little experimentation, you can create many interesting sound effects of your own. In fact, a number of sound effects are discovered as the result of accidents. If you have any ideas or suggestions for sound effects other readers might find useful please write to TAPE RECORDING, 145 E. 52nd St., New York, N. Y. 10022.

NEW PRODUCTS

Cassette changer by Norelco with add-on accessory, clear plastic "circulator" will play and play and . . . The circulator takes ejected cassettes and flips them over for flip side playback, will go down through the stack and start all over again.



Dictating-machine version of cassette tape recorder is this Crown CDM-10 Transcriber. It accepts all standard cassettes, has repeat feature—important for transcribing dictation. It can also be used as desktop mono music recorder. Price: \$225 with remote control mike, multi-function footswitch and ear-phone.

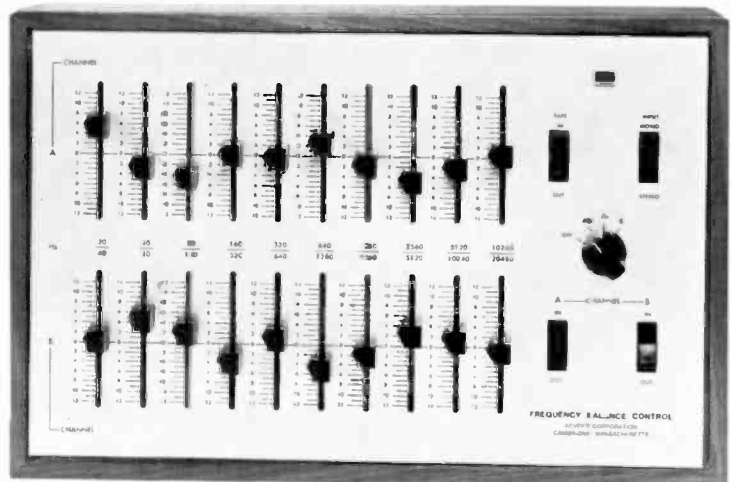


Super Dynamic "SD" tape from TDK has significantly higher frequency response than conventional tapes. Magnetic domain size of new cassette tape is less than half the size of conventional tape particle size, making broad frequency range possible.



Cartridge playback deck by Concord Electronics, model CP-250A features special flux-field head and a frequency response of 50 to 12,000 Hz. The eight-track cartridge playback deck is housed in a wood-grain finish cabinet and can be used with any home stereo system.

Highly flexible graphic equalizer, Advent's new "Frequency Balance Control" has ten linear slider-type level controls for each channel. Each control adjusts output of single audio octave ± 12 dB. Frequencies from 20 to 20,480 Hertz are covered. Retail price: \$200.000.



Mark Series tape decks from Concord comprises three models which all have hysteresis synchronous drive motors, integrated circuits in the preamps, three heads, tape and source monitoring and flip-up head cover. Prices for the three units are \$230, \$260 and \$330.

EQUIPMENT REPORT: TEAC A2050



by Walter G. Salm

First impression of the Teac A2050 is one of awe and reverence. We're not easily overwhelmed by tape recorders, but there's something about this Teac that appeals to our innate appreciation of fine craftsmanship. Maybe it's the machine's impressive size (large) and weight (heavy); the professional-size VU meters; the finely polished case; the rave advance notices by others in the field.

The mood evaporated as we set out to be businesslike and to hook up the unit and see what it could do. Worship period was over and now it was mettle-testing time. First thing we noticed was the heft of the controls — the single-lever play/fast-wind lever responded with a healthy and comfortable action. You know darn well when this machine is in play forward, play reverse, rewind or fast forward.

The uni-lever's design leaves some room for improvement, but then we've yet to see a lever-operated recorder action on any machine that's 100% human-engineered. Some design concessions inevitably must be made in favor of the machine. The fast wind position is reached by pressing an interlock button down on the play/wind lever while turning the whole thing. Like all "new" tape recorder controls, this one takes a little getting used to, but becomes second nature after some practice.

The reversing action seems strange at first blush. It has a kind of time-delay built in, and during this time-delay cycle — after the transport has stopped for a few seconds, you start to wonder if it's really going to reverse at all, or if it's all just one big put-on. Finally, the Teac emits a throaty "choonk" and starts to play in the reverse direction.

A rather strange feature of the Teac — it calls for metal foil sensing tape on the backing (shiny) side of the recording tape. This bit of non-standardization can mean some annoyance if you have already owned a foil-actuated reversing machine; virtually all other manufacturers call for the foil on the oxide side.

The 2050's electronic controls are all concentric, as they should be. They're conveni-

ently grouped in the machine's working area, and the record interlock button is far enough away from that uni-lever to prevent any double-jointed gymnastics; you really do need two hands to start the "record" mode.

When running, the 2050 is quiet and businesslike. The VU meters (god bless and keep the designer who put in those giant-size meters!) track both recording and playback and are absolutely gorgeous to work with. There's a fairly standard "pause" control that really works, and the "record" switch is a bright red square pushbutton. We do wish they'd make the "on-off" button a little distinctive also — possibly yellow. It's hard to find during candlelight dinners with a favorite gal.

In playing back prerecorded tapes, the 2050 performed magnificently. Beautiful, just beautiful. If there was something wrong with a tape, you'd know about it in no uncertain terms. No masking circuit gimmicks here. By the same token, good tapes come out sounding incredibly crisp, clean and with more dynamic range than we thought possible for a machine in this price range (\$349.50).

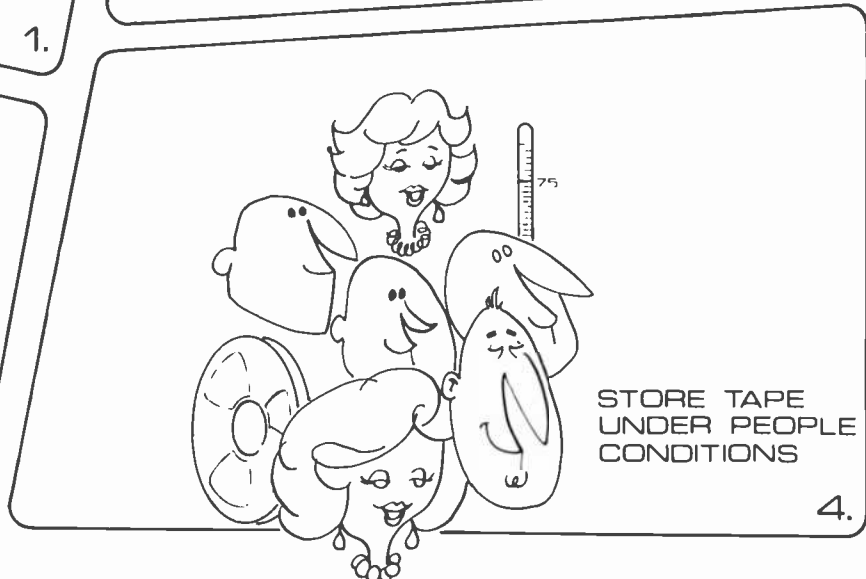
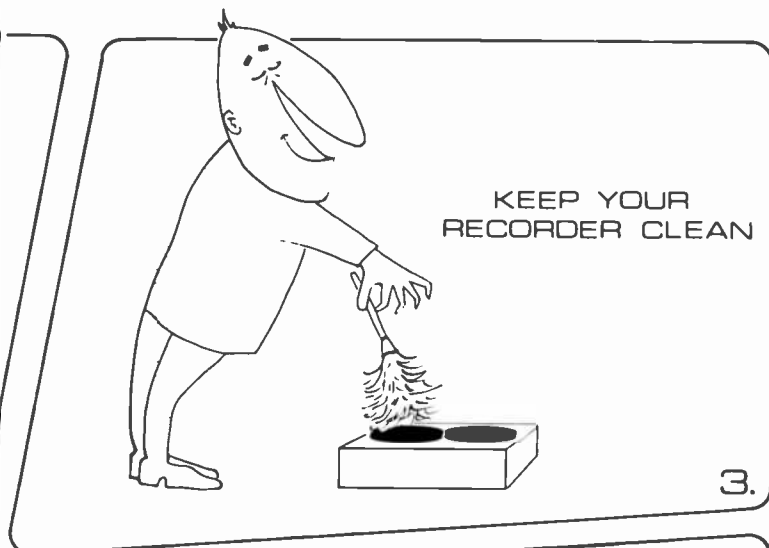
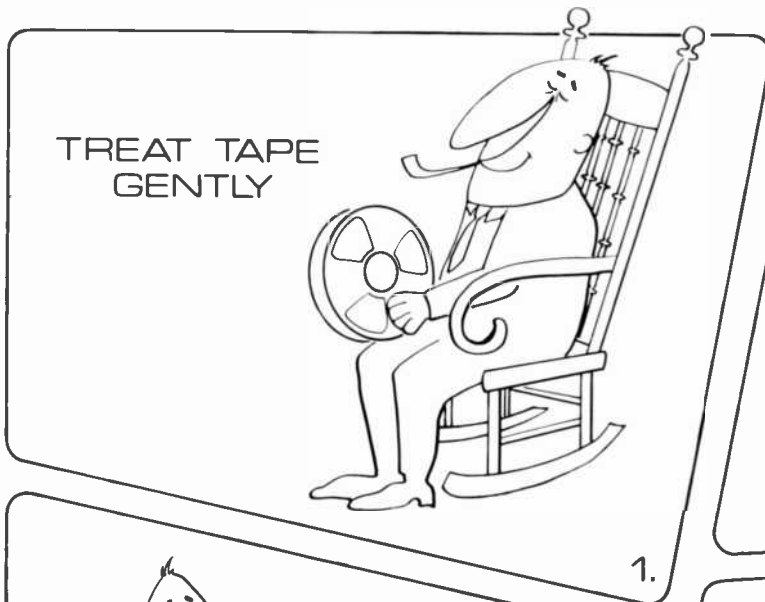
In tape-to-tape dubs, there was little, if any noticeable increase in noise level or any loss of high frequencies. We tried dubbing some spine-tingling Phase-4 tapes and the dupes were just as spinetingling. Of course, any good dubs require two good machines, and the Teac came through beautifully, dubbing from a Magnecord that cost more than twice as much.

There's simply no fault that can be found with this recorder's electrical characteristics; it's that good. Its generous size and weight may scare some, but it's just not meant to be a portable. Teac has a reputation for building heavy, gorgeous machines and the 2050 is no exception. This heftiness gives it a feeling of authority; it's absolute monarch of all it surveys, and it certainly gets a hefty vote of confidence from us.

TIPS ON CARING FOR YOUR

Every year, thousands of Americans become owners of new tape recording and playback equipment.

During the early excitement of ownership, the audiophile sets up his new machine and threads the test reel, delighted with the prospect of spending hundreds of leisure hours recording and listening to his favorite sounds. It is also during this period that many audiophiles unknowingly



TAPE

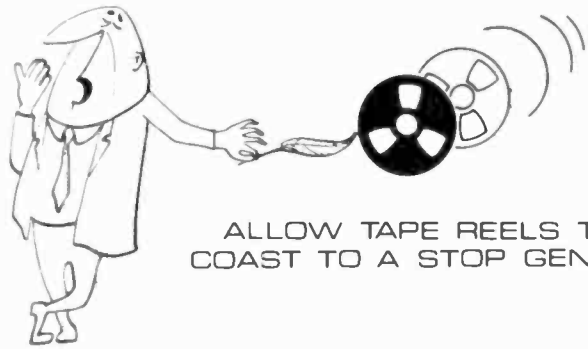
begin making tape handling errors . . . errors that will result in unnecessary repair and maintenance expenses, and reduce the ability of costly equipment to deliver optimum performance.

Most new equipment owners diligently read and follow manufacturer's directions for the proper care of their new recorder. Few realize that continued optimum performance also depends on the correct procedures for the care and handling of magnetic tape.



LIFT TAPE BY HUB
OR LOWER FLANGE

5.



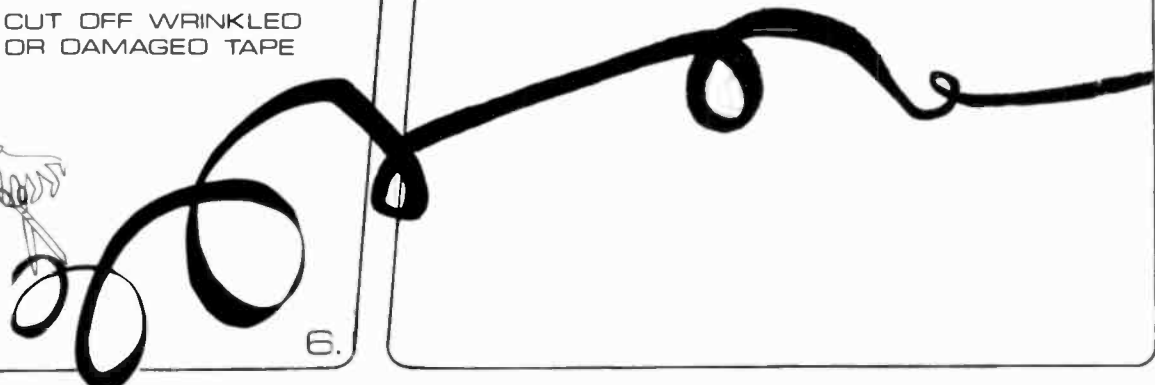
ALLOW TAPE REELS TO
COAST TO A STOP GENTLY

7.



CUT OFF WRINKLED
OR DAMAGED TAPE

6.



tape

REVIEWS

Mahler

Symphony No. 3 in D Minor. Marjorie Thomas, Alto; Bavarian Radio Symphony Orchestra and Chorus; Toller Boys' Chorus; Rafael Kubelik, conductor. *Open reel. 7½ ips. Ampex/Deutsche Grammophon DGK 9338. \$11.95.*

Music ****
Performance ****
Recording ****

Gustav Mahler's Third Symphony is a symphony of superlatives. The music is lofty and immerse, while enormously varied. The work is huge and long (92 minutes) and uses not only the total forces of a symphony orchestra, but calls upon the vocal forces of a full chorus, a boy's chorus and an alto soloist.

In a way, this is a Spring Symphony — with the awakening of the many sensations of nature in its opening statements. The almost childlike appraisal of the world in musical terms and the repeated references to the basics of nature bring this work to a level of earthiness and ripe fertility that rivals more pointedly pastoral works.

The canvas is a huge one; Kubelik and the Bavarian forces have joined to produce a recording that is both scintillating and meaningful in the way it captures the most important Mahlerian brush strokes. The power and sensitivity are there when needed, and the sonority and balance of the recorded sound are superb. Mahler fans take note: this is a tape worth owning, and a definitive one at that.

W.G.S.

Beethoven

Symphony No. 7 in A, opus 92 and Fidelio Overture, Opus 72b. Chicago Symphony Orchestra, Fritz Reiner, conductor. *RCA Cassette, RK-1150. \$6.98.*

Music ****
Performance ****
Recording *

We've heard grand opera on a cassette, why not Beethoven? Why not indeed, and perhaps this recording is a good example of why not. Take a superb performance of a great masterpiece, remix several times and dub



down to a cassette without even so much as a breath of a Dolby or low-noise tape, and you have this recording: a mass of hiss, with many dropouts and flutters in crucial spots.

Best advice about this recording if you want Beethoven's 7th on a cas-

sette: wait for a better dub from a Dolby master.

W.G.S.

Tchaikovsky/Borodin

Tchaikovsky: String Quartet No. 1 in D Major, Opus 11. **Borodin:** String Quartet No. 2 in D Major. Drolc Quartet. *Ampex/Deutsche Grammophon 19425. 7½ ips. \$7.95.*

Music ****
Performance ****
Recording ****

A well known rating magazine would call this tape a "Best Buy." It's slightly longer than a single LP record and it contains two gorgeous quartets that usually each take an entire record. First the Tchaikovsky — probably best known for its ecstatic *Andante Cantabile*, this quartet is by far the most popular of the composer's works in this vein. The performance is just right — enough oomph where called for, just the right amount of loving restraint in the *Andante Cantabile*, in all a sensitive, thoroughly polished performance.

Possibly less well known is the Borodin, until you start listening. Then, seemingly from nowhere, starkly familiar melodies appear — for this was a prime source of the music for *Kismet*. For those of us who prefer the unspoiled original, this is the place to go. Borodin's native melodic genius infuses every phrase every movement. The Drolc Quartet acquits itself admirably here, too, with the sheer joy of the music shining through their ex-

cellent musicianship. Recorded sound overall is top-notch — certainly one of today's outstanding chamber music tapes.

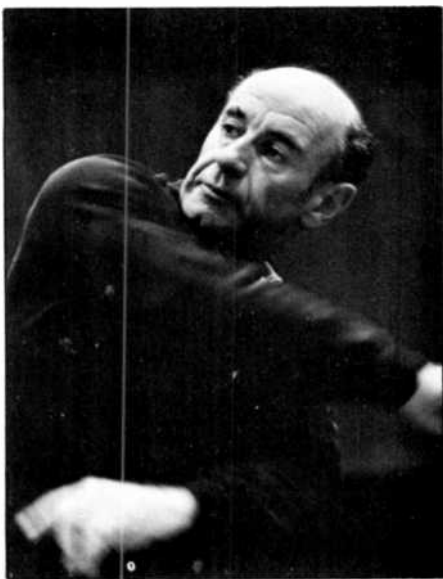
W.G.S.

Wagner/Strauss

Wagner: Overture and Venusberg Music from Tannhauser. Also, Richard Strauss: Suite from Der Rosenkavalier. Erich Leinsdorf conducting the London Symphony Orchestra. *London/Ampex L 75037. Open reel, 7½ ips. \$7.95.*

Music	***
Performance	****
Recording	****

Pairing is often a problem, as it is here. Programming Wagner with Richard Strauss may seem logical to the program annotator who likes to trace Strauss's musical development from his Wagner period, but it does little to mollify the tape collector who wants either but not both on one tape.



In any event, the recording of the Wagner is especially well done, on all three counts: the programming is excellent; the performance superb; the Phase 4 recording top notch. The Strauss, unhappily, suffers from perhaps inane programming. It's always difficult to excerpt just the right amount from the Rosenkavalier; we've

heard suites from this opera that were musically better and easier on the listener. This one lacks luster and sparkle, and much of Strauss' wit is lost in the sections that ended on the cutting room floor.

But if you like Phase-4 spectacularism, and if you like orchestral Wagner (forget about the Strauss), this tape is certainly a worthwhile addition to your collection.

W.G.S.

Gounod

Faust highlights. Franco Corelli, Nicolai Ghiaurov, Joan Sutherland, Robert Massard, Monica Sinclair, Margreta Elkins, Raymond Myers; London Symphony Orchestra, Ambrosian Opera Chorus, Choir of Highgate School; Richard Bonyng, conductor. *London/Ampex Cassette M31172. \$6.95.*

Music	****
Performance	****
Recording	!!!!

This recording is not a new one; the full opera was released by Ampex in open-reel a couple of years back as LOW90125. The recording was then and is now one of the exceptional ones available on tape. The excerpts are tastefully extracted from the whole, with a dexterity that signifies expert audio engineering.

But the big news here is the incredible sound that comes out of that compact cassette! We used exclamation points instead of stars because we have just never heard the likes of this coming from an ordinary, non-Dolbyized, iron oxide cassette. Disbelief and wonderment were our reactions, and we listened ever so carefully for telltale treble dropoffs, wow, flutter, dynamics, etc. The tape came through on all counts with flying colors. To be sure, there's some noticeable hiss during low passages, but the overall recording quality and the fantastic dynamic range made us go back to look more than once

to make sure that this was a cassette playing. Fantastique! Par excellence! Buy it!

W.G.S.

Fiedler Collection

Fiedler's All-Time Favorites: Boston Pops, Arthur Fiedler, Conductor. Flotow: Martha Overture; Wolf-Ferrari: The Jewels of the Madonna, Act III Dance of the Camorristi; Khachaturian: Galop from Masquerade Suite; Saint-Saens: Bacchanale from Act III of Samson & Delilah; Suppe: Light Cavalry Overture; Tchaikovsky: Sleeping Beauty Waltz; Monterde-Calero: La Virgen de la Macarena; Medley Old Timers'



Night at the Pops. *Open Reel. 3-3/4 ips. RCA TR3-1014. \$6.95.*

Music	***
Performance	****
Recording	****

It's rather difficult to agree wholeheartedly with Fiedler's selection of music for an entire program; after all, he's catering to the popular taste, not the classical palate; so the result is not totally satisfying. But there are little delicious canapes — favorite short selections and excerpts among the popularized trivia: The Saint-Saens Bacchanale, the Khachaturian Galop, and per-

tape

haps a taste of the Suppe.

The performance is typically Fiedler: technically perfect, with lots of zest and gusto thrown in to make it more appealing. The recording is surprisingly good for 3-3/4 ips. Another bit of amazement — this is the first tape that we've ever seen from RCA wherein Sequence A ends precisely where Sequence B begins. Somebody in Indianapolis finally decided that people who own tape recorders are human, too. Amazing.

W.G.S.

Rachmaninoff

Symphony no. 3 in A Minor, Opus 44; Symphony no. 2 in E Minor, Opus 27; Fantasy for Orchestra, Opus 7 (the Rock). Andre Previn leading the London Symphony Orchestra. *Double length. RCA RT3-5030. 3-3/4 ips. \$9.98.*

Music	***
Performance	****
Recording	***

Slow-speed tapes like this one do two things — they invariably compro-



mise frequency response and they cram some unwanted musical material down the collector's throat. The cramming isn't so bad here. In fact, this tape is a real bargain, but the great distance both musically and in time that separates Rachmaninoff's Second and Third symphonies make this a possibly unhappy coupling. The rollicking, joyful second contrasts starkly with the somber, heavy-handed Third. Then there's the very early Fantasy, stuck in at the end of the first sequence as a filler. Sure it's pretty, but it really belongs at the end of the program.

This tape is a double-lengther — combining two record albums. Why, then put the Third ahead of the Second? Why indeed? Quick first-aid for this tape — rewind in the reverse order transposing sequence A and B. Previn provides us with good, mature readings all the way around. The Second Symphony abounds richly with joy and enthusiasm while the Third is foreboding — giving a glimpse perhaps of the composer's last years and his less-than-enthusiastic outlook on life. All in all, a commendable tape, but with a few shortcomings — mostly in programming.

W.G.S.

Verdi

Aida Highlights. Renata Tebaldi, Carlo Bergonzi, Guilietta Simionato, Arnold Van Mill, Fernando Corena and the Vienna Philharmonic Orchestra, Herbert Von Karajan, conductor. *Ampex/London Cassette M 31025. \$6.95.*

Music	****
Performance	****
Recording	***

It's always difficult to give four stars to a cassette's recording quality; actually, it's impossible until the newer

tape formulations start coming into their own. As superb as this recording is, it suffers from the usual problems of limited frequency range and high hiss level common to cassettes.

The hiss is more of a problem here, since this take was dubbed from a pre-Dolby master. If the masters had been Dolbyized, this hiss problem would be almost non-existent.

As matters stand, the music . . . well Aida was always the absolute pinnacle of Verdi's artistic achievement. The performance is likewise superb — as it was on the original Ampex/London full-length recording. For convenience and abridged listening, this cassette is a worthwhile investment.

W.G.S.

Shostakovich

Symphony No. 10 in E Minor, Opus 93. Herbert von Karajan conducting the Berlin Philharmonic Orchestra. *Deutsche Grammophon/Ampex DGC 9020. 7½ ips. \$7.95.*

Music	****
Performance	****
Recording	****

This has easily got to be the most fabulous recording ever of the Shostakovich 10th. The fact that it's on tape makes it that much more inviting and certainly that much more enduring. Not exactly a controversial Russian, Shostakovich's music contains fleeting elements of musically related countrymen — notably Prokofieff and Stravinsky. Also noteworthy are the almost-but-not-quite folk melodies that creep in every so often. The music is definitely Russian in character and this performance infuses the symphony with a precision and high degree of musicianship that we've certainly come to expect from von Karajan.

The music is by nature somewhat

early 20th Century. Shostakovich was certainly not a revisionist and followed the party line here as much as possible. But some elements of progressive modernism creep into the music in a delightful, almost naive incursion. It's not really an incursion; the symphony is as much a part of this century as is the revolution, but it speaks of no ideologies. It's just plain, good listening in an excellent performance and recording.

W.G.S.

Strauss

Salome. Montserrat Caballe, Sherrill Milnes, Richard Lewis, Regina Resnik, James King, London Symphony Orchestra, cond. Leinsdorf. *RCA TR3-5045, 3-3/4 ips, \$10.95.*

Music ***
 Performance ***
 Recording ***

Salome is an opera combining great artistry with sheer vulgarity. On the one hand there is marvellous music of tremendous strength and intensity, like the Final Scene. On the other hand there is complexity and virtuosity merely for the sake of complexity and virtuosity. Strauss' musical ideas may run out, but the awesome technical facility is forever present. Rampant tonal luxuriance, signifying nothing musically.

Unfortunately, Erich Leinsdorf's pedestrian conducting makes these contrasts in Salome only too obvious. His uninspired, almost pedantic, reading really exposes the opera's banalities. Clemens Krauss (in the performance on Richmond) and Georg Solti (in the performance on London) know how to administer the dynamics that somewhat conceal the score's defects.

But if the conducting is only adequate, the singing of Montserrat Caballe more than makes up for it. Her performance is magnificent. No wonder this is her favorite part. Ca-

balle's sense of style, her way of shaping phrases, her dramatic inflections, her feeling for Strauss' line make her performance impressively exciting. At times, perhaps, the voice is a little too lightweight. (Can anybody ever forget how Welitsch's voice cut like a knife through the heavy orchestration?) But this is a minor criticism in a fine portrayal. Surely Caballe's is a more girlish and mov-



ing performance than Nilsson's on London.

As Jokanaan, Sherrill Milnes is sonorous and musical, making tasteful use of his beautiful voice. James King as Narraboth is excellent too.

Regina Resnik does more shrieking than singing as Herodias. But she manages to convey the character's vivid personality.

Richard Lewis as Herod simply falls by the wayside musically, although vocally he is fine. But he doesn't begin to approach the role's subtleties. By comparison with Patzak's tremendous performance on Richmond (even with an aging voice), Lewis' is that of a novice.

The sound of this tape is clear, and the blend of instruments and voices good. A little more glossiness to the sound might be welcome, however, particularly in this opera.

All in all, this is a Salome to be acquired, if only for the stunning

vocalism of Caballe.

G. R.

Beethoven

Wellington's Victory, Op. 91; Military March in D Major, Polonaise in D Major, Eccossaise in D Major, Military March in C Major and other marches. Wind Instrument Group of the Berlin Philharmonic Orchestra, Hans Priem-Bengrath, conductor. *Deutsche Grammophon/Ampex L 9045. Open reel. 7 1/2 ips. \$7.95.*

Music ***
 Performance ****
 Recording ****

We have here not Beethoven the great, but Beethoven the program annotator. For this is program music of the grossest sort — immensely popular when it was first written — but fallen into disfavor now. The Wellington's Victory along with the collection of marches and other quasi-military music on Sequence B are admirably performed and recorded. Perhaps it is an exemplary service, since this is one of those rare recordings that brings together fragments and short works that might otherwise go begging.

This collection is very reminiscent of a potboiler potpourri of years past titled, "Marches for Children." The music has that kind of quality, and no doubt would appeal to children. It's definitely not among Beethoven's great works, but noteworthy and of historical and curiosity value.

W.G.S.

Baroque Collection

Royal Fanfares at Versailles. Marc-Antoine Charpentier: Prelude de Te Deum; Andre Danican-Philidor: Marche a quatre Timbales; Jean Baptiste Lully, Airs de Trompettes Timbales et Hautbois; Michel Richard Delalande: Symphonies pour les Soupers du Roy; Francois Francoeur:

tape

Symphonie du Festin Royal. Adolf Scherbaum and Stanislav Simek, trumpets; Olivier Alain, cembalo. Paul Kuentz conducting the Paris Chamber Orchestra. *Ampex/Deutsche Grammophon*. L 9431. 7½ ips. \$7.95.

Music ***
Performance ****
Recording ****

Who wants fanfares anyway? Answer: just about any baroque music lover, and some who can take baroque or leave it. These short takes are some of the fancier, more embellished and dramatic episodes of some of the lesser-known court composers (and at least one well known one). This collection includes music you're not likely to obtain elsewhere on tape. The vignettes are well chosen and delightful. Musically, they lack the polish of Bach and the sophistication of his more measured, more disciplined attack. But delightful they are, and a worthwhile addition to any collection of royal music.

W.G.S.

Popular Collection

American Airlines Popular Program No. W-66. Three hours of 65 assorted popular selections by such artists as Bert Kaempfert, Brenda Lee, Christopher Scott, Rick Nelson, Peppermint Rainbow, Pete Fountain, Carmen Cavallaro, Earl Grant, Sammy Kaye and others. *Ampex/American Airlines (Deca/Coral)* W-66. 3-3/4 ips. \$23.95.

Music ***
Performance ***
Recording ***

Why oh why do the programmers for these super-long tapes try to make sure there's something for everyone on the same program? This way, they

make no one at all happy. The person who wants something reasonably soothing is interrupted by the new switched-on sounds of rock; even Brenda Lee's doing it. Once was a time when we liked her style. . . Those who want the switched-on rock, have to muddle through hours of "square-pegged" music. Either way, both types of listener loses and is turned off.

There's plenty of the current pop material on this collection, but the spice of those rock numbers is a bit much for the mood. Best first aid is to dub onto another tape, electronically editing out the stuff you don't particularly want. The music is a fair representation of what's popular today. The selection of the music leaves something to be desired, and the performances are average to mediocre. Recorded sound is all right for 3-3/4 ips, but nothing special. Maybe this reviewer has just been turned off, but we can't seem to get excited over this one.

W.G.S.

TAPE REVIEWERS

R.A. — Robert Angus
W.G.S. — Walter G. Salm
F.R. — Fred Romary
P.A.V. — Paul A. Votano
C.P. — Cathi Pierro
W.S. — William Schroeder

Frank Chacksfield

Frank Chacksfield Plays the Beatles Song Book. Includes Get Back, Michelle, Yesterday, Hey Jude, a Hard Day's Night and others. *Open reel. (Also cassette 7½ ips. Ampex/London L 74142.* \$7.95.

Music ****
Performance ***
Recording ****

No doubt about it — the Phase 4 treatment still lends a certain amount of *je ne sais pas quoi* — that little certain something that you can't quite put your finger on, but certainly adds life and presence to the recording. Chacksfield and his orchestra do an admirable job here, but perhaps not up to the usual level. The music is a collection of those tunes that have helped make the Beatles wealthy over the years — the ones they wrote themselves. Overall, it's a good tape, and certainly worth investigating.

W.G.S.

Funny Girl

Original Broadway Cast: Barbra Streisand, Sidney Chaplin, Jean Stapleton, Kay Medford, Danny Meehan, John Lankston. *Capitol/Ampex L 2059, 7½ ips, \$7.95.*

Music ****
Performance ****
Recording ****

What can we say that hasn't already been said about *Funny Girl*? This show is already an old-timer and still fabulous. This re-issue of the original cast comes under the aegis of a new Ampex arrangement with Capitol/Angel and this tape is at least as good as the originals it was made from.

There is a bit of a problem with the first number — a little intermodulation distortion — but it doesn't show up again anywhere else. If this tape is missing from your collection, now's the time to go out and get it. It's thoroughly delightful, but then you have to like Broadway shows and Streisand.

W.G.S.

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