TAPE & FILM

THE MAGAZINE OF HOME AND PROFESSIONAL SOUND RECORDING

RECORDING

HAROLD D. WEILER ON FULL RANGE RECORDING

ADD SOUND TO YOUR CHRISTMAS MOVIES

NEW PRODUCT REPORTS: AMPRO AND RCA RECORDERS

HIDDEN RECORDER EXPOSES— OMAHA AFTER DARK

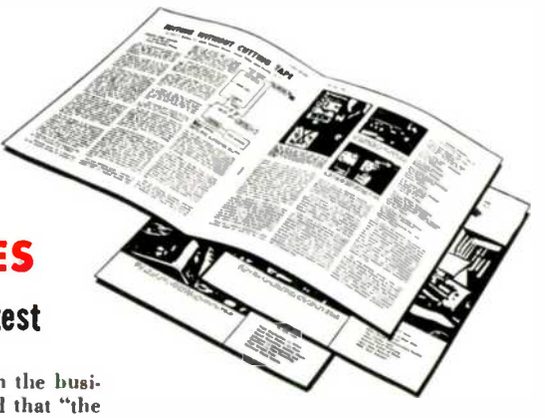
NOVEMBER-DECEMBER 1953

PRICE 35c

only

offers you all this valuable new information

. . . and it doesn't cost you a cent!



20 PRIZE-WINNING ARTICLES

from Audio's International Sound Recording Contest

Here's a wealth of new ideas on how to use tape and disc recordings to achieve greater economy and efficiency in radio, TV and sound studio operation.

With reference to these articles, one of the contest judges commented as follows: "I have never received so much information which was new and exciting in such a short time in all of my years in the business." And another judge stated that "the information and descriptions of recording operations conducted in small radio stations and recording studios throughout the country has been quite an education."

Contest winners include entries from 11 different States, as well as from Canada and Switzerland. The 20 best articles, which were awarded cash prizes totaling $1400, will be published in the pages of Audio Record. The information thus made available to the industry will be of real value to sound recordists everywhere.

QUICK FACTS ON MAGNETIC TAPE RECORDERS

Each year, Audio Record brings you a complete, up-to-date listing of all makes and models of tape recording machines—with conveniently arranged price and performance data. This directory issue, published in September, is the most complete and authoritative compilation of tape recorder information available to the industry. Over 75,000 copies of the last issue were distributed.

. . . plus many other articles of timely interest to the sound recordist

Audio Record keeps you well informed on all the latest trends and technical developments in all phases of tape and disc recording. It is not an advertising publication and its sole purpose is to render a needed and useful service to the industry.

Audio Record, published 8 times a year, is currently distributed free of charge to a request mailing list of about 35.000 sound recordists in broadcasting stations, recording studios, schools and colleges throughout the country.

IT'S YOURS FOR THE ASKING

A letter or post card will add your name to the Audio Record mailing list. And if you would like to have others in your organization read it also, send their names along, too. Just write to Audio Devices, Inc., using the Dept. No. listed below. All requests addressed to this Dept. will be started with the July-Aug., 1953 issue, so you will be sure to get *all* the prize-winning articles, as well as the 1953 Tape Recorder Directory Issue.

AUDIO DEVICES, Inc.

Dept. AR-1, 444 Madison Ave., New York, N. Y.

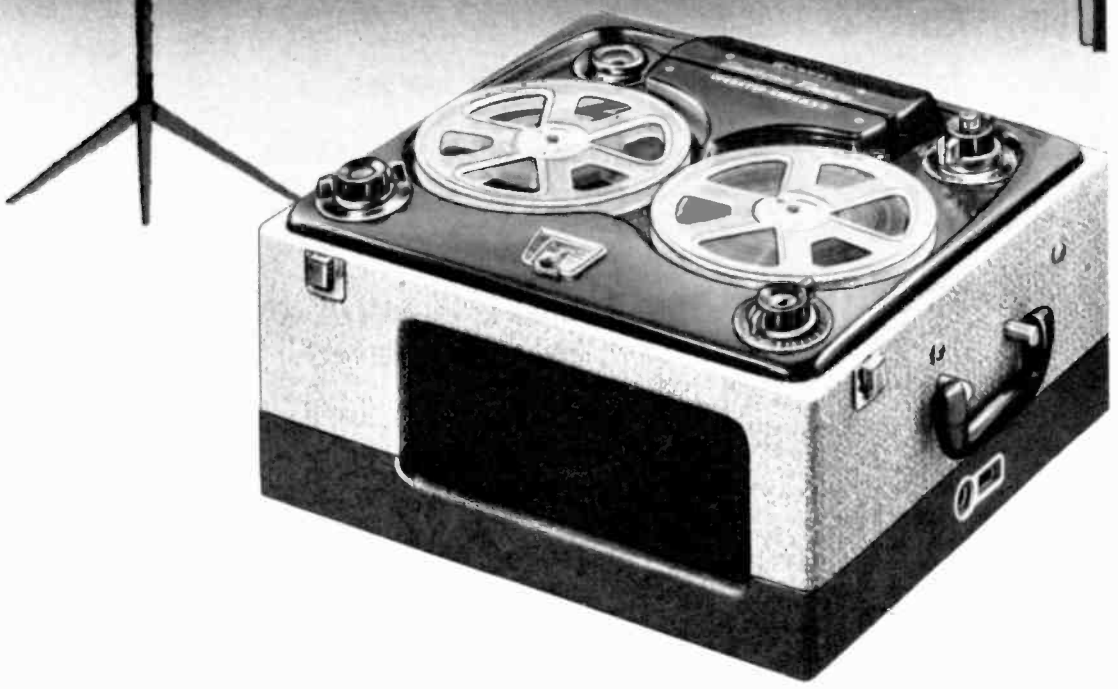
Export Dept.: 13 East 40th St., New York 16, N. Y., Cables "ARLAB"

audiodiscs
audiotape
audiofilm
audiopoints

add high-fidelity sound

TO YOUR HOME MOVIES WITH A

Webcor Tape Recorder



Your daughter's wedding vows, baby's first words, vacation highlights . . . all recorded in brilliant, true-to-life quality on a Webcor Tape Recorder.

Capture these and other exciting sounds up to two full hours on one reel of tape. Webcor's magic-eye recording level lets you make studio-type recordings the very first time. The Webcor is perfect for recording business conferences, rehearsing plays, capturing fun at parties. Smooth, quiet, foolproof operation is backed by over 25 years of electronic excellence. See and hear a Webcor Tape Recorder at your favorite music counter today.

$207.50

including microphone, cord and 2-hour tape reel

FREE!

Webcor Precious Memories Folder (Ideas for Tape Recordings)
Write Webcor, Chicago 39, Illinois

The Webcor Tape Recorder features:

- Two hours of recording with no inconvenient reel turnover.
- Two speeds: 3¾ and 7½ inches per second.
- Two recording heads for recording in both directions.
- One knob for quick, positive record, playback and erase.
- Input for recording from radio or phonograph.
- Output for play through public address, radio or hi-fi amplifier system.
- Powerful 4-pole motor.

Webcor®
Chicago 39, Illinois

*price slightly higher west of Rockies and subject to change without notice

TAPE & FILM RECORDING

VOL. 1 NO. 1 NOVEMBER-DECEMBER, 1953

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IN THIS ISSUE

Cover—Rosemary Clooney, Courtesy NBC

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COVER GIRL

You know we're really very proud that through the courtesy of NBC we can have our favorite cover girl on our first cover. We've nothing but admiration for Rosemary Clooney who, as Bob Hope said, "Has climbed to the top, not on other peoples necks but has been boosted up by their hearts."

Hers has been the hard road but she made it the high road. One of a family of three she was principally raised by her grandmother, who had six of her own, after her family broke up under financial pressure. Her story is enough to inspire anyone and to scotch forever any rumors that the American Way of life has gone never to return.

In popularity she is now up with Patti Page and Jo Stafford and record sales are up in the millions. We're hoping that pretty soon she'll be available on tapes too. Some may say it's the luck of the Irish but we're convinced for her it's the pluck of the Irish.

Now Record it...

...the Easy way

with RCA'S New Push-Button Tape Recorder

Here's the new idea in recording that lets you record what you want, *the instant you want it*—the new RCA PUSH-BUTTON Tape Recorder. In one compact package, RCA combines the most faithful reproduction and the easiest operation ever offered in recording equipment priced so low.

Easy to Record—Just push a button and the RCA Tape Recorder is in action, making a faithful record of the sounds and voices you cherish.

Easy to Play—Just push a button, and you hear what you've recorded—instantly. Fast forward and reverse speeds are push-button operated, too, so you can locate any portion of your tape recording easily.

Easiest to Use—RCA design makes the RCA Tape Recorder ready to go wherever you want it—easy to carry—no bigger than an overnight bag. Easy to thread—just drop the tape in a slot. Easy to record your favorite radio programs or speeches with handy, plug-in jack. Two-speed operation lets you put as much as two hours of recording on a single tape.

For your Home, Office, Plant, School, or Church—insist on the easy way to make tape recordings—the RCA PUSH-BUTTON Tape Recorder. Try it, buy it at your RCA Dealer's.

IF IT'S WORTH RECORDING, *it deserves the quality of RCA Sound Tape*

RADIO CORPORATION of AMERICA
ENGINEERING PRODUCTS DEPARTMENT **CAMDEN, N.J.**

NEW PRODUCTS

Battery Operated Portable

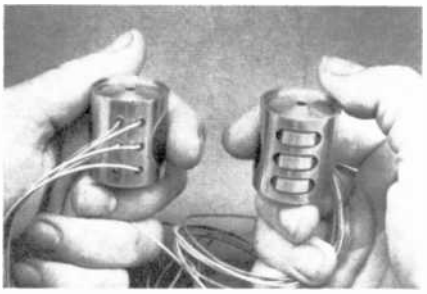
The Cub Corder, manufactured by Ectro, Inc., Delaware, Ohio, is a completely portable tape recorder equipped for recording, playback, erase, monitoring and battery recharging. The unit weighs less than 13 pounds and will record for two hours before the batteries need recharging.

The push button microphone can be used for recording, playback and to start and stop the recorder, providing one hand operation.

The motor is powered by a 4 volt, non-spill storage battery which can be recharged from an automobile cigarette lighter outlet or from 110 volt AC lines. A monitor jack outlet enables headphones to be used either for playback or monitoring as a recording is being made.

The recorder is housed in a briefcase-type carrying case covered with scuff-proof plastic. Write Ectro for details.

3 Channel Head for Movies



A three-channel playback head for use on motion picture projection equipment is annnounced by Tri-Di Sound Corporation, an affiliate of Berlant Associates, manufacturers of Concertone tape recorders.

The unit is held to close tolerances which results in high fidelity sound reproduciton. The new head has been tested under high degrees of shock, vibration and humidity over a long period of time without changing characteristics.

New Library Pack

Minnesota Mining and Manufacturing Co., makers of Scotch Sound Recording Tape announce a new "Library Pack." For use primarily in the home, the new pack is bound in durable leatherette and embossed with gold lettering. A slip-out card in the binding provides identification of the contents and full cataloging space for each of the recorder selections is printed on the inside of the pack.

The albums are available in two sizes—for 5 inch and 7 inch reels. The 5 inch pack sells for $9.95 and the 7 inch for $14.95 through dealers.

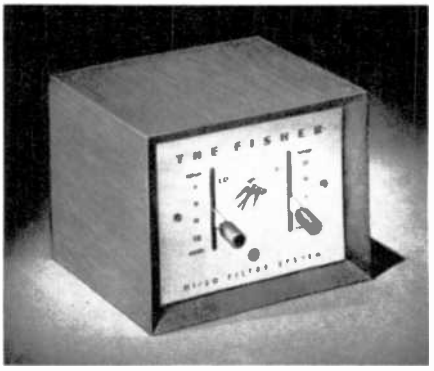
Low Priced Recorder

The Telectrosonic Corporation, 35-18 37th Street, Long Island City, N. Y., has just released its Telectrotape Recorder which bears a price of $75.00.

It features dual track recording, fast forward and rewind and a tape speed of 3¾ inches per second. The input is high impedance for microphone, radio, record player, etc. A single control operates it.

Used with 110 volt, 60 cycle AC it gives one hour of recording time from a five inch reel of tape. It measures 7 x 10 x 11½ inches and weighs 14 pounds.

Hi-Lo Filter System



Fisher Radio Corp., 45-41 Van Dam Street, Long Island City 1, N. Y., is now marketing the Fisher Hi-Lo Filter System, Model 50-F. With it the hiss from FM broadcasts or noisy tape or records may be suppressed. The unit goes beyond what tone controls can do yet produces no discernible loss of frequency range.

Bass and treble cut-off can be selected and sixteen possible combinations are possible. It is self-powered and can be connected to any tuner, pre-amplifier-equalizer, home or commercial sound equipment. Low frequency cut-off points are 0 (flat), 30, 70 and 120 cycles. High frequency cut-offs are at 20Kc (flat) 10, and 6 Kc. For further details write to Fisher Radio Corp.

Dictation on Tape

Scribe Corporation, 2835 N. Kedzie Ave., Chicago 18, Ill., has announced the new Permoflux Scribe dictation machine.

A novel feature is the use of a plastic magazine which holds the magnetic tape and which can be removed from the machine. The tape magazine is the light colored section on top of the recorder. Since all magazines are interchangeable between all dictation or transcription machines the system provides an excellent means of handling correspondence.

Because magnetic tape is used, the unit offers a clarity never before achieved for dictation, the company states. For further details write to the address above.

New Crestwood Recorders

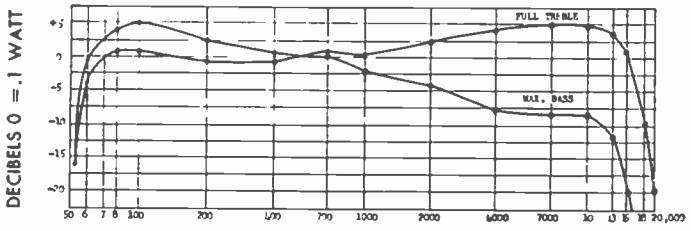
Daystrom Electric Corporation, 837 Main Street, Poughkeepsie, N. Y., has announced two new models. Prior to the in-

(*Turn to page* 31)

To Capture Sound with Incomparable Accuracy

Revere "Balanced-Tone" TAPE RECORDER

FREQUENCY RESPONSE OF MODEL T-10, OVERALL



Recording made from typical Revere production T-10 recorder with constant 1 volt to phono input. Level set to just strike "normal" indicator at 15kc. Playback into 3 ohm load at extension speaker jack.

A proud achievement of recording brilliance! To hear the new Revere "Balanced-Tone" Tape Recorder is an unforgettable experience. Each sound, from the delicate shading of the piano to the swelling crescendo of the orchestra, is reproduced with amazing depth of tone, breadth of range and height of realism heretofore obtainable only with costly studio equipment. Yet Revere's is priced exceedingly low and its key board operation is the easiest and simplest of any recorder. See, hear, operate a Revere Tape Recorder at dealers everywhere.

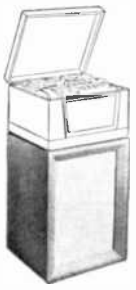
REVERE CAMERA CO. • CHICAGO 16, ILLINOIS

Revere T-700—"Balanced-Tone" Tape Recorder. 2 hour recording per reel. Complete with microphone, radio attachment cord, 2 reels (one with tape) and carrying case **$225.00**

TR-800—Same as above with built-in radio..... **$277.50**

T-10—Studio Model, 7.50 Speed—Complete with microphone, radio attachment cord, 2 reels (one with tape) and carrying case **$235.00**

TR-20—Same as above with built-in radio..... **$287.50**



BASS-REFLEX SPEAKER—An exceptionally fine 12" Alnico V Speaker, acoustically matched to the 16"x22"x13" Bass Reflex Cabinet. Provides exceptional bass response and wide range. Unit designed as a console base for the recorder. Light-weight; portable. With plug and 25-ft. cable **$49.50**

NEW TAPES

For a good number of years now, the trend in music reproduction has been toward concert hall realism, or "presence." A great many strides have been made toward this ultimate goal by the manufacturers of records, recording and reproducing equipment.

Records have recently been released which sound fairly close to the original performance, and stylus pressure has been reduced to as low as one gram. In fact, with the speaker problem being licked and amplifiers approaching perfection, there is only one more step to be made in this quest for realism—a switch to tape!

With few exceptions, all of the high fidelity records made today are dubbed from original tape recordings. Proof enough that tape is the ultimate answer to perfect high fidelity reproduction of music. And why not? The only obstacle in the path of widespread, commercial tape recording is public acceptance. If the public demands its music on tape, the big recording companies will see to it that those demands are met.

Which brings us to our point. There are now several pioneer companies issuing prerecorded, high fidelity tape. (And why doesn't someone come up with a catchy, selling name to replace "pre-recorded tape"?)

These companies are setting an excellent standard for future commercial tape recording ventures. Compare, for example, the *Concertapes* recordings by the Fine Arts Quartet, with the commercial disk recordings by the same group. The difference is startling, to say the least, and proves that the entire recording industry will, eventually, have to turn to tape to satisfy the growing demand for realism in home music reproduction.

Now to put down the cudgel and review some current tape releases.

Hack Swain Productions
Sarasota, Florida

(30 minute tapes, Ampex recorded at 7½ IPS on plastic tape. Heard through a Concertone recorder, Fisher pre-amp and amplifier, and a Brociner #4 corner horn.)

Every wired music service, FM music service, restaurant owner, skating rink, small theater, public park, public address system operator and home hi-fi enthusiast should investgiate these tapes. Hack Swain is an electric organ-pianist combination of no mean ability. These tapes were reviewed in a local high fidelity emporium and attracted as much attention from the buying public as the electronic equipment itself, which is the highest compliment I can pay them.

Attracting the most attention, both from potential customers as well as this reviewer was a pre-release reel of multiple track numbers (Les Paul-Mary Ford idea) featuring organ and piano in combination. Heard on this tape were "Blue Room," "What Is This Thing Called Love," and "Wabash Blues," with what I consider to be amazing fidelity for 7½ IPS. Note to dealers: If you want to sell tape equipment real fast, get hold of this one and have it running as they come through the door! The only sound to be heard at ear-splitting volume was music. No wow, no scrape, no hum, no flutter; just doggone good music and lots of it.

According to information from the Hack Swain people, a unique service is available in the form of custom tapes, with ten selections of your choice and introductory dedications of a personal nature at a price of $15.00 each. This strikes me as a fine idea for Aunt Nellie's or Uncle Ned's Christmas present. Or, better still, something to send to that special guy overseas, where tape recorders are available through the special service outfits.

Hack Swain also records special programs for funeral homes and parks. He has available 260, fifteen minute, open end radio programs which can be procured upon request.

If you would like to try a Hack Swain, currently available, straight organ program (30 minutes), send for his Program #503. Containing a well balanced program of nine selections, including a medley from the "Student Prince," this is a fine representative sample of Hack's work, and a good example of what can be done in commercial tape recording.

A-V Tape Libraries, Inc.
730 Fifth Ave., New York 19
Reels #605 and 606
Carols For Christmas
Robert Owen, Organist

(Available at either 7½, or 3.75 IPS, single or double track. Send for catalogue.)

Together, these reels offer an hour of favorite carols, well played and well recorded. These were reviewed through the same equipment mentioned, except that a Pentron recorder with a dual head was used to feed the Fisher. Again the fidelity exceeded my great expectations. This organ is big, full and distortion-free. If you are going to buy recorded carols, buy these; you won't be disappointed.

Should you prefer your carols sung, the same company has a selection of carols excellently presented by Clyde Sechler and the glee club. This is not just a glee club, but a highly polished group of singers with as well sung carols as I have ever heard and I have been hearing them for 35-odd years. These are the carolers for my living room. (Tape #608.)

I would like to hear more of this outfit's work. What I heard was so good that I am inclined to believe that their orchestral recordings are worth having. A look through their catalogue reveals that their artists are not too well, if at all, known. But, if they present themselves as well as they do on the three recordings I have heard, this will not be for long. Then too, some of these artists may be better known than one realizes; or, "What's in a name?"

The last page of their catalogue is most interesting to me. It contains a listing of nine tapes of purely educational material. Schools who were scared away from this sort of thing by the poor fidelity, high noise ratio and fragility of disk recordings, might do well to look into these.

According to the catalogue, these tapes contain such choice items as Beowulf, lines 1 to 498, read in an approximation of the early West Saxon dialect. Also readings of Chaucer and Shakespeare in early English. These are read by Mr. William Hull, Associate Professor of English of Hofstra College. Available for both high school and college from A-V.

Concertapes
224 S. Michigan Ave.,
Chicago 4, Illinois

I am going to withhold a complete review of these magnificent tapes until the next issue. Featuring the Fine Arts Quartet of Chicago in either monaural or binaural recordings at 7½ or 15 IPS, these are, on the basis of one hearing, quite possibly the finest recordings yet made in any form.

The Fine Arts Quartet of Chicago making one of the new hi-fi tape recordings.

The recording to which I was exposed was a binaural, 15 IPS recording of the Dvorak, F Major Quartet (The American), Opus 96. The best description I can offer is that I felt like I was "sitting in"! The effect was uncanny—but beautiful. It is impossible to review the musical content of this tape at one hearing, as the listener is at once transported by the overwhelming sound of it all. Next issue I will go into their monaural tapes at 7½ IPS, which I feel, at the moment, are more in demand.

C. D. S.

R.C.A. Reveals Color TV Tape Recording

In conjunction with its first coast-to-coast colorcast R.C.A. unveiled its own development of recording color television on magnetic tape.

David Saranoff, board chairman, disclosed at the conclusion of the colorcast that R.C.A. has achieved magnetic recording of both black and white and color TV.

The tape used is ½ inch wide and the perfection of the process will mean that the TV set owner can make a recording of TV programs in the home and then play them back at any time through his TV receiver, just as a phonograph may be played at will.

"It may also be possible to make video tape home movies with no need to send the tape away for processing," Saranoff said.

The process is direct from TV signal to tape with no intermediate film steps and both sound and picture are recorded.

QUESTIONS & ANSWERS

Questions for this department may be sent on tape or by means of a postcard or letter. Please address your queries to, "Questions and Answers," TAPE AND FILM RECORDING, Severna Park, Maryland. The most interesting and widely applicable questions will be used in this department and all inquiries will receive a tape or letter reply.

To the Editor:

In reading the specifications of some tape recorders I have noted that the manufacturer will state that the "wow" and "flutter" have been held below a certain percentage. What is "wow" and "flutter" and how important is it that they be held to very low levels?—*J. F.*

"Wow" is so-called because it is the sound that emerges from the speaker when the speed of the tape changes through faulty operation of the recorder or slippage of the tape. To get a true reproduction of sound, the tape must pass the head at a steady and unvarying rate of speed. Should the tape suddenly speed up or slow down a sustained note will sound like wowowo instead of a pure tone. "Flutter" is simply a high speed wow and is caused by a rapid fluctuation in the tape speed past the recording head.

To the Editor:

I have a friend who claims that actually there is no need for any reproducing system to go above 6000 cycles per second as the range of the human voice and all musical instruments does not go above that point. I maintain that the system should go to at least 10,000 cycles. Who is right?—*P. K.*

Oddly enough you are both right. But you are talking about different things. The highest note on the piano keyboard is only 4096 cycles per second. The human voice runs between 36 and 1150 c.p.s. and the shrillest musical instrument, the piccolo has a top of 4608.

So far your friend has been correct because the fundamental notes of all the instruments do fall well below the 6000 c.p.s. mark BUT the overtones of those instruments will range up to and over 10,000 c.p.s. It is the overtones, or the harmonics, that enable us to distinguish one instrument from the other and that is where the full range reproduction becomes necessary.

To the Editor:

I have a tape which has been stored for some time with a rather heavy recording on it. In attempting to wipe it clean for re-use I discovered that the loudest sounds still remain regardless of how many times I run it past the erase head. What can I do to clean the tape?—*J. A.*

A loud note is easy to erase shortly after it has been recorded, however, after some months of storage your erase head may not provide enough excitation to eradicate it. In such a case an external means of erasing must be used such as the units which are made to demagnetize a whole reel at once. Your dealer can advise you regarding these.

To the Editor:

A fellow tape recorder owner says that the magnetization of the tape can be transferred from layer to layer as the tape is wound on the reel. Is this true and how can we avoid it?—*F. A.*

It is true that a transfer of magnetism can occur from one layer to the next but the effect is so slight that it takes delicate instruments to detect it. Proper storage of the tape, away from electrical appliances, power lines and magnets, recording the tape below the overload point and keeping the tape in a cool place will aid materially in retarding any transfer that might take place. However, we suggest that you disregard it for all practical purposes.

To the Editor:

A speaker which I have seems to show a preference for certain tones, which it plays louder than the other notes in the music. My other speaker does not do this and, as a consequence, gives a more faithful reproduction. Why would one speaker give this effect and the other not do so?—*J. M.*

Your speaker is suffering from a resonant frequency. Somewhere in its construction a combination of factors has been brought about that makes it vibrate strongly when the particular note is struck or produced in it by the voice coil. Resonance is not confined to speakers, musical instruments are sometimes afflicted with it and produce "wolf tones" which are louder than other notes. We have even heard ordinary storage cabinets vibrate loudly to a tone produced from a loudspeaker. The cabinet was resonant to that particular frequency.

To the Editor:

Why are there so many different tape speeds, ranging from 1⅞ inches per second to 30 inches per second? Isn't it possible to set one standard?—*D.F.*

It may be that someday there will be one standard speed and at the present writing, three speeds are in most common use, i.e., 15, 7½ and 3¾ inches per second. As a general rule, the higher the tape speed, the better the response and the higher the fidelity of the playback. As a rule of thumb, the frequency response of a recorder may be taken roughly as 1,000 times the tape speed in inches. Thus a 7½ inch per second machine would go to about 8,000 cycles and a 15 inch per second machine to 15,000 cycles. Modern design and improvements in equipment, however, are reducing the gap and with further improvements we have no doubt that someday, a standard speed will be established that will give both long play and a high frequency response. As someone has said, "In electronics you must run to stand still."

TAPES TO THE EDITOR

When sending tapes to the editor please use the 3″ reel and indicate the speed at which it was recorded and whether it is dual or single track. We will listen to your tape, make notes from it for use in this column and then reply on your tape. Please keep tapes reasonably brief.

If you do not own a recorder a letter will be acceptable. Address tapes or letters to: The Editor, TAPE AND FILM RECORDING, Severna Park, Md.

To the Editor:

I subscribed to your new recording magazine at the New York Audio Fair and without seeing it, I'll say I think I'll like it. Wish you luck!

I don't know what departments you'll have in it but no doubt there will be technical articles.

I'd like to see in an *early* issue an article on the construction of a microphone mixer for my Webcor tape recorder (or any recorder) so that I could use several mikes at once and possible a radio or phono input, too.—*Walter J. Dressler, St. Albans, N. Y.*

Thank you for the good wishes and we're certainly going to put out a magazine that you will like. Your suggestion is a fine one and one of our technical men is already at work doing just what you requested. The story will appear in our next issue—but it won't be "technical"—it will be written and illustrated in such fashion that anyone handy with ordinary tools and a soldering iron can make a good mixer.

To the Editor:

It sure is good to know you are now putting out a magazine for owners of tape recorders.

I am glad to take advantage of your prepublication offer and here's a check to cover.

I have several friends interested in recording and if you care to send me a few copies with sub blanks I will be glad to see they get in good hands.—*L. K. Slama, Chicago.*

Thanks for your kind offer. We'll pass it along to the circulation department and doubtless they'll shoot some blanks along to you. We'd like very much to have comments from all readers on this issue so we can chart our course for the future.

To the Editor:

Glad to know you folks are going to put out a magazine for the tape recordists. I hope that the home or amateur recordists will get help and encouragement. These folks have no one to turn to for the assistance they would like to have.—*Walter M. Boraker, Las Animas, Cal.*

That's our purpose—to give help and encouragement to the amateur recordist by providing the kind of articles and inspiration he needs. In fact, that is exactly why we felt this magazine was needed for with no sounding board for the fastest growing hobby in America, it could be nipped in the bud. We hope to do our part to bringing it to full flower and look forward to the day when recorders will be more common than cameras. Let us know what you want and we'll find someone to provide it.

To the Editor:

I have just learned of your new publication. I know you will meet with success because yours will be the first and only publication catering to the ever increasing importance of magnetic means for sound recording and because there is an ever increasing need for this means of sound recording.

I should like to see the publication although I am not now identified with the subject matter. It is like an "old love," hence difficult to forget. As early as 1915 I was the first to have coupled the "audion" (amplifier) with the "Poulsen telegraphone" (the modern tape recorder). — *Samuel Wein, Quincy, Mass.*

We regret that we did have space to reproduce more of Mr. Wein's interesting letter. We do want to thank you for your good wishes. It is fascinating to hear from one of the pioneers, who in those days, had more imagination and gumption, than equipment to realize their dreams. We have a healthy respect for those old timers who worked back in the days when magnetic recording was as new as the atomic miracles are to us today.

A truly great achievement!

CinemaScope with Stereophonic Sound on Reeves Soundcraft

MAGNA-STRIPE*

Scene from "THE ROBE" New CinemaScope Epic by 20th Century-Fox, as compressed on regular 35 mm. film.

Same scene with image restored to normal proportions on panoramic CinemaScope screen

Soundcraft is proud to have participated in the history-making realization of CinemaScope, 20th Century-Fox's revolutionary Anamorphic Lens process.

Critics and public are hailing CinemaScope as a major milestone in entertainment. They are also hailing Magna-Stripe—Soundcraft's magnetic oxide striping process—for making it possible for 20th Century-Fox to put the breathtaking perfection of stereophonic sound on the release prints of "The Robe"... combining, for the first time, four separate magnetic sound tracks on one 35-millimeter film strip.

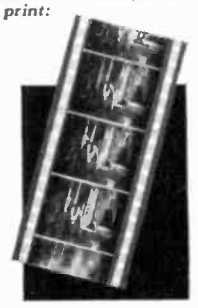
Mixing, dubbing and editing with Magna-Stripe have already revolutionized Hollywood sound reproduction. And now, thanks to the excellence of Magna-Stripe oxide coating process, 20th Century engineers have chosen to apply it to the release prints of "The Robe" itself.

Thrilling thousands today, "The Robe's" four separate Magna-Stripe sound tracks energize playback heads built right into the theater projectors. Savings over separate synchronized sound processes are notable. Complication of apparatus is minimized. And stereophonic sound reaches new technical perfection.

The same superior magnetic oxide coating chosen for "The Robe" is applied to the Soundcraft Magnetic Recording Tape you use in your film studio, radio station, TV studio, business or home tape recorders. For information on how both 16 mm. Magna-Stripe Film and Soundcraft Tape provide outstanding advantages in your field, write to us at once.

*T. M. Reeves Soundcraft Corp.

How four Magna-Stripe sound tracks are placed on a single 35 mm. release print:



REEVES

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HOW TO RECORD YOUR VOICE

by
Charles D. Sigsbee
Producer, WMAR-TV

A good vocal recording is easy to make —if you follow the rules.

Treat the microphone as you would a human ear. Speak distinctly and modulate your voice. When working from a written script make several "dry runs" before doing the actual recording on the tape.

TELLING you how to use microphones in recording the voice is something like preparing a manual on "The Care And Management of Wives"; different types require different treatment under different circumstances. There are, however, some general rules that apply to all types and specific principles that apply to individual types. Like the treatment of wives, the use of microphones varies according to circumstances.

The microphone most commonly encountered is the one that arrives with your tape recorder. It is of the crystal variety, fairly rugged in construction, and has a frequency range of about 100 to 8,000 cycles-per-second, the range of the human voice. Needless to say, a rugged microphone is not one that junior can throw from the high-chair without any damage. It can be moved about, handled by many people and carried in the car with safety but, if dropped on a hard surface it should be returned to the dealer's shop for checking.

The biggest threat to the crystal microphone is heat. When recording, or when idle, the instrument should be kept away from sources of heat; this includes the direct rays of the sun. Never, *never* leave a crystal mike on the rear deck of a car or in the glove compartment!

The average man, and aren't we all, upon receiving his

When recording a very heavy or powerful voice, or fortissimo passages in the music, the performer should stand well back from the microphone. As with any recording, trial runs should be made to establish the sound level.

new tape recorder, is seized with an immediate compulsion to record everything that makes a noise, and is easily accessible. Consequently, some pretty horrible sounds emanate from the playback speaker on at least the first day. Most recording failures, in the home, are caused by improper use of the microphone.

Of course, great skill in the correct use of the microphone can come only through experience. Even then, it should be noted, each recording result is dependent upon the conditions that existed at the time and place it was made. Because of this, it must be clearly understood that the rules set forth here, are only general and are designed to provide the basis for individual recording techniques.

For normal recording, always place the microphone in a position to receive direct sound. When recording one person, place the mike one and one-half to two feet from the subject and somewhat lower than the mouth, so that the subject speaks over the top of the mike, rather than directly into it. This position gives you an optimum result without unusual sounds caused by the characteristics of the human voice; i.e., hissing, sibilance, popping, denture whistling, etc.

If, after testing, it is found that your recordings contain an unusual amount of sibilance (The hissing caused by the "s" sound), or popping (the noise caused by sounding the letter "p"), then try turning the mike at an angle not greater than 45 degrees, in either direction. If the sounds persist, try moving the mike either toward or away from you, adjusting your level accordingly. If this fails, a new microphone may help.

Before going farther, let me hasten to explain that this popping or hissing is through no fault of the microphone manufacturer. The microphones that are provided with the commercial tape recorders provide adequate response in most applications. However, some voices are more prone to sibilancies or popping than others, and for these another type of mike is needed. Your dealer can demonstrate various types to you, until one is found that will suit your individual voice. It is quite possible, that your microphone can be equipped with a blast filter which is an acoustically equipped device to filter out these annoying noises.

In conducting outdoor interviews the lower the volume on the recorder the less background noise will be picked up by the mike. In this case tilt the mike toward you when making your comments.

Before making any recording, always make a level check. Level is, loosely, the volume of sound intensity being fed into the recording amplifier and is usually indicated by a neon bulb, electronic eye or volume meter. The use of these devices varies from instrument to instrument, but detailed explanations of their use accompany each machine and it is well to study these carefully. Too high a recording level is indicated by a high degree of distortion in the playback. Too low a level, on the other hand will produce muddy sound and, on most recorders, a high degree of noise. It is probably well to begin your first recording with the volume control turned halfway to the loudest setting, thus giving yourself plenty of leeway in either direction.

After you have checked your level, forget the microphone. Do not be mike conscious. Don't lean into it, or creep up on it. Treat the mike as you would a person and speak in a natural tone from a normal, maintained distance unless you are attempting some special effect, which will be dealt with later.

If you are an orator and wish to record your speech as a check on how it will sound to an audience, deliver it as you would to the assembly, standing up. Place the mike on a stand of some type, a photographic tripod will do, or even a mantel or bookcase. Then test the level at the most emphatic part of your talk before recording. When all is in readiness, record just as you might deliver it before the audience. If you normally deliver your talk sitting down, then record it that way. Bear in mind, however, that a microphone is just as sensitive to table poundings, paper rustlings and chair squeaks as it is to your voice.

A word of warning: If you have never heard your voice before, be prepared for a shock! We all have pre-conceived ideas about our glamorous voices, it seems, and are quite surprised to discover that we sound fantastically like the guy next door. Cheer up, you'll get used to it in time!

After you have experimented for some time, you will

Some people seem to do better in a standing rather than a sitting position. If this is the case, the microphone can be placed on any object of the right height. Here a mantelpiece has been used.

When it is the other person's turn to speak switch the microphone over to a position that will pick up his words and provide about the same sound level as your own comments. This makes a smooth tape.

become quite proficient at recording one person at a time. It is then that this recording bug seizes hold of you and every man becomes his own special effects engineer. There is no limit to the effects that can be achieved with just a little ingenuity on the part of the recordist. For example:

Suppose you are a lawyer and would like to record your summation to simulate delivery in a large courtroom. Try recording in the bathroom, with the mike on a stand in the bathtub, facing toward you. Deliver your oration into the alcove at the usual recording distance from the mike. The results will startle you but are guaranteed to make every speaker sound like the movie version of Patrick Henry.

If you are not equipped with a bathtub alcove, try putting a dishpan behind the microphone or, for an even more resonant effect, turn the mike around and speak from the rear into the dishpan, recording only the reflected sound.

Recording groups of people, requires quite a bit of experimentation to produce the desired results. Assume that you are going to record a scene from your local little theater play in order to test the possible effect upon an audience. It is necessary to get a level on each individual so that the weaker voices are closer to the microphone and stronger ones farther away. Should a scream or shout be indicated, the person delivering it should step back or turn his head, otherwise the noise would appear in the playback as nothing but a distortion. This is also true of singing; fortissimo passages should be delivered off-mike, pianissimo ones at a more normal distance.

In dramatic delivery treat the mike very much as you would a human ear. A whisper should be delivered very close to the mike but across, rather than directly into it. Treat sotto voice remarks, or asides, in the same manner. A diabolic chuckle will sound very much more sinister when delivered close to the mike and, conversely, hysterical laughter will reproduce much more effectively if done well back from the microphone.

Although the mike is like the human ear (singular), it is not like the human ears (plural). We are all equipped with two ears which do to sound what our eyes do for sight; add depth. Remove one eye and the third dimension is lost. Remove an ear and the same thing happens aurally. Therefore, the location is important when recording monaurally (one mike). The mike will pick up every noise available to it, noises which we do not hear when recording.

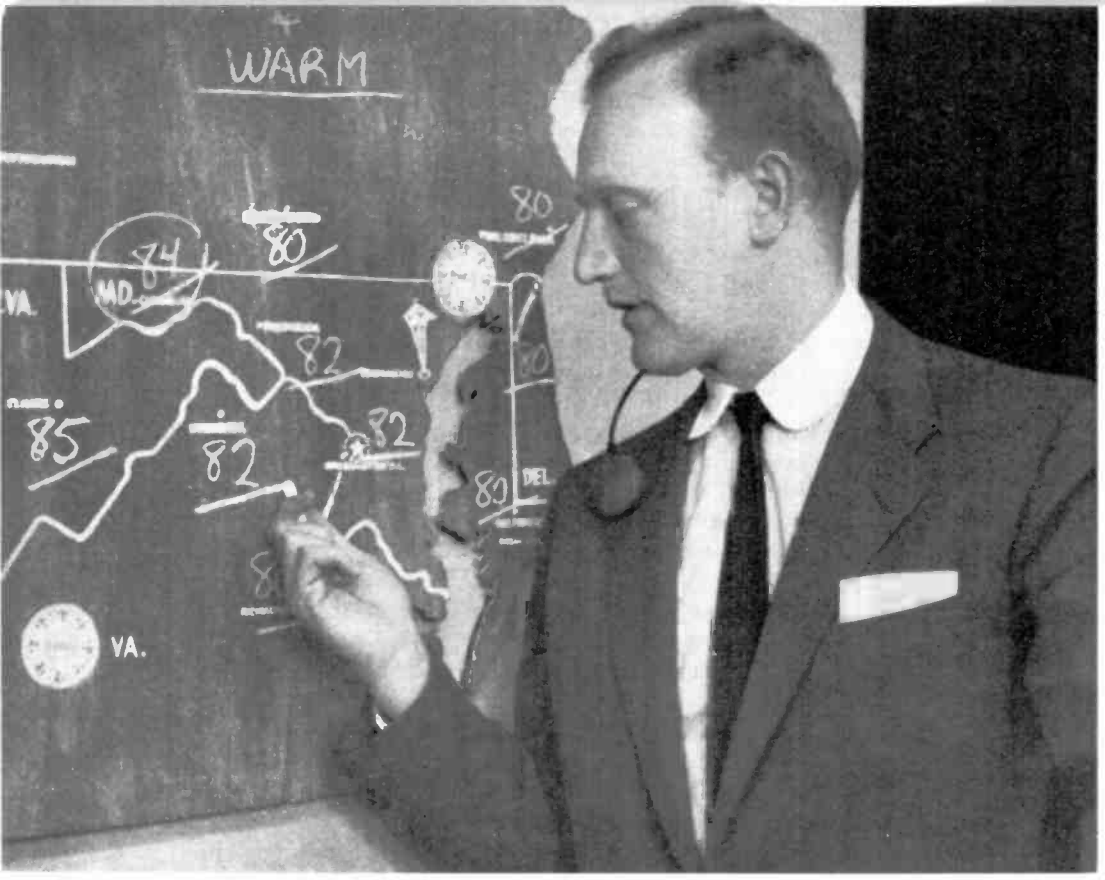
Many persons have been surprised, when playing back their first recording, to hear birdcalls, automobiles, children calling and wives dusting the bedroom upstairs, all competing with the voice. One does not hear this when recording, because the ears have placed these noises in depth, causing the mind to reject them. The little microphone, valiantly attempting to do its assigned job and processing no mind, has picked them up and put them all on tape.

Be conscious of the noises around you when recording and try to find the quietest place available before beginning. It is interesting to note, before leaving this subject, that if you record binaurally with two mikes and two recorders or a binaural recorder, and play it back simultaneously through two speakers, the noises would then have their proper relationship. Distant sounds would sound distant, and vice versa. But, until you acquire binaural equipment, you shall have to find quiet places for recording purposes.

Recording children, particularly the very young ones, requires a special technique. Photographers know that a child is at his best when off-guard. Even the most formal child portraits are better if taken when the child is unaware of the fact. This is also true in recording. If the child is stood in front of a mike and told to be clever he will, invariably, refuse to cooperate. The completed recording will illustrate nothing more than the growing exasperation of a pair of frustrated parents. Record the child candidly; the results are usually excellent and well worth the extra effort expended.

It is usually necessary to procure an extension cable for the microphone before beginning these candid recordings. This can be obtained, at a nominal cost, from the dealer who sold you the tape recorder, or from any radio repairman. Place the mike in the children's play or bedroom and

Besides background noises in outdoor recordings, the wind can sometimes produce a hiss on the tape. A handkerchief placed over the mike will cut this down somewhat, as will the use of a dynamic mike.



One of the most difficult recording situations arises when the person is moving about. The best solution to this problem is to use a lapel microphone which can be clipped to the person's jacket. This will afford a good pick-up of the voice and cut down the background noise. A long cord back to the recorder allows freedom of movement.

the recorder in another room, preferably within hearing distance. The best time for recording is the just-before-bedtime period, as children tend to be more voluble at this time in an effort to forestall the onerous duty.

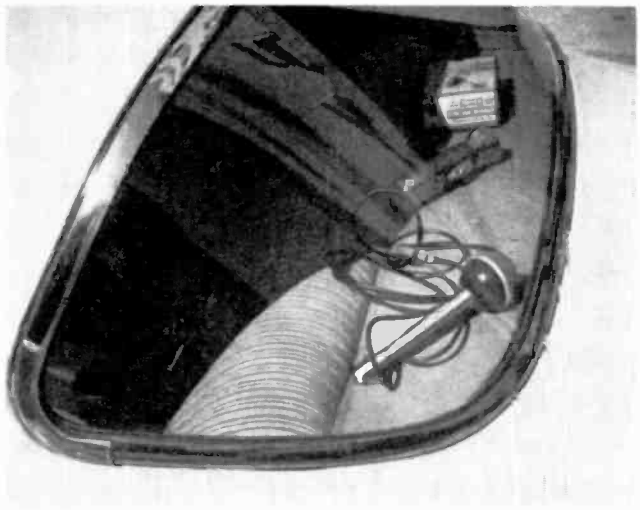
The mike should be placed, out of reach, sometime before the recording is made, so that the children get used to its presence and overcome their natural suspicion of trickery. One adult can make the recording while another puts the children through their paces. The end result will produce a somewhat off-mike but, otherwise priceless, recording that will be cherished through the years along with the family photograph album.

It might be well to mention here that an adult gathering, unless specifically for recording purposes, should be recorded in the same manner. A candid recording of a party, when played back, can produce hilarious results. (Warning: play it back in private first.) But, when the people are aware of the microphone's presence, they tend to "hamminess" which, when played back, is usually nothing but embarrassing. The candid recordings, like candid photographs, are well worth the extra effort necessary to secure them; try it.

If much deliberate group recording is anticipated, it is a good idea to provide yourself with extra microphones. Here again, your dealer can help you in their selection, method of adding them to your recorder and the maximum number you can add. Special electronic mixing boxes are available for just this purpose.

If one plans to do much recording, and requires maximum fidelity, it would do well to purchase a dynamic microphone. These are much more ruggedly built, will withstand heat and humidity, and are more resistant to sibilancies and popping as well as wind noises in outdoor recording. All microphone types are available in one of three characteristics; unidirectional, bi-directional or omnidirectional. The most universal type for the home enthusiast is a bi-directional, dynamic mike with a switch to make it unidirectional when only one voice is being recorded. With the bi-directional option you have, in effect, two microphones, as a level can be set using both sides of the mike. This feature is especially desirable when recording groups. Then, by simply throwing a switch, you have the best features of a one-sided mike.

Another type of dynamic microphone that is especially suitable for home recording use is the popular "salt shaker." This type is desirable if a great amount of outdoor recording is contemplated, because of its greater resistance to wind noises. Indoors, if properly placed, it will record sound from a full 360°, making it an ideal mike for the recording of large groups.



The microphone most often supplied with home recorders is of the crystal type. While these are rugged and serviceable they should never be exposed to heat in any way. Never leave them on the rear window deck.

Recordings of children must never be forced. Their own natural expressions are what you want to record. A few words from you to lead them on, or to require an answer, when they are shy in speaking up will be a big help. Best pickups, though off mike, can be made by concealing a mike in the bed room to catch good-night prayers.

To inject a personal note; I had excellent results, a few years back, with this type of mike used for recording a church choir. The choir was split (i.e., the men were on one side, the women on the other), and I was stuck with one mike and one opportunity to record their annual presentation of Handel's, "The Messiah." I placed the mike close to the floor, midway between the sections, instructed the soloists to direct their performances toward the mike, rather than the congregation, went into a side room and ran level. Fortunately, the mike, luck and room acoustics were all with me because the recording sounded excellent, all things considered, even to the balance between the choir and organ. There was, understandably, a large hall effect, but this was to be desired and actually enhanced the recording.

Not intending to scare anyone off with all of this talk of extra mikes, let me add that microphones are not as expensive as they look. The one used for the choir recording cost about 15 dollars net. As previously pointed out, your dealer can best point out the particular microphone for your needs and the characteristics of your tape recorder. As you become more proficient at recording, you will readily discover a need for additional equipment.

Again it is well to stress that proficiency comes only with practice. Never record anything without first running a test and checking the recording level. With the proper microphone technique, your tape recorder will prove to be most valuable and, in a short time, you will consider it to be one of the best investments you have ever made.

G.I.'S FAMILY PLEADS VIA TAPE

Heartbroken and baffled, the family of Corporal Jack Dunn of Baltimore plead with him via tape recording to purge his mind of any thought he may have of staying as a prisoner of the communists. His name was among the 23 Americans whom the communists claim refused repatriation.

After the recording was made, including a few words by the Mayor of Baltimore and the Governor of Maryland, it was sped westward over the same facilities that the American Legion uses for its "Hometown U.S.A." messages to Korean troops. The making of the tape was done through the state American Legion headquarters.

Because of his fine early home training the family and friends refuse to believe he doesn't want to come back. Two servicemen who knew Jack in prison camp confirmed the family's thoughts. "All that boy did was to talk about getting home," one of them said. The Dunns are fervently hoping the tape will burst the barriers.

The Dunn family of Baltimore tape recording a plea to their son Jack who, the communists say, has refused repatriation and prefers to remain with them as a prisoner. This, to the family, is incredible.

Omaha after dark

Photos by Frank Lester

by Don Loughnane, KOWH, Omaha, Neb.

A hidden recorder and an enterprising radioman who was not afraid of danger produce a town cleanup.

THIS is an age when the comic strip dreams have become realities. In line with this development, KOWH's recent use of the "Minifon" wire recorder is very similar to Dick Tracy's wrist radio.

As was reported in a recent issue of a national news magazine, KOWH sent me on a reporting assignment, to ferret out facts on Omaha's illegal night life. We realized that mine was a ticklish job, that of talking to the people who nightly violated the law, getting those people to admit their transgressions, and still conceal my radio identity. Our existing equipment offered no solution, and the project languished for several months.

Finally, Todd Storz, KOWH's general manager, learned of the "Minifon" while in California, learned more of its intriguing details, and bought one for our News Department. The machine is unique in several respects. First of all, the wire is finer than human hair, adding quality; second, one spool of wire allows for two and a half hours uninterrupted recording, adding quantity. Finally, the machine can be operated for twenty-four hours without recharging.

Before our reporting job could be undertaken, there were several improvisations necessary. The microphone was no problem as it came under the guise of an ordinary looking wrist watch. A simple flick of the "dial" turned it on, and a voice could be picked up with a casual hand movement. The actual recorder was in a case approximately the same as a medium size camera, measuring 2 x 4 x 6 inches and could be concealed beneath a suit coat. However, no shoulder holster was commercially available, as far as we could learn, and we had one custom-made in a leather shop. The holster was worn by me under my outer shirt, on top of my undershirt.

The actual job of gathering the material for "Omaha After Dark," was a laborious and lengthy one. For several months, mine was the almost nightly task of seeking entry to "after hours" establishments, pumping information from doormen, waitresses, and entrepreneurs of places that sold

liquor illegally or offered gambling.

Naturally, in a variety of surroundings and under all conditions, all the voice pickups were not the finest. It should be pointed out here that the "Minifon" has a frequency repsonse rendering it useful only for voices, not music. The broadcast clarity is also determined by circumstances of acoustics and environment. Considering the unorthodox nature of our recordings the machine did a remarkable job. In a quiet room or under ordinary recording conditions, the Minifom will record two or three voices very well.

Our project went ahead, and the cost of the machine proved a good investment. During the course of the investigation, several reels of wire were employed to be edited and pared down in the final preparation. I was especially proud of task accomplished when I talked to the doorman of a notorious "after hours" club in downtown Omaha. It was necessary to get a bill of health from the owner before being admitted, and my conversation with this worthy gentleman was fairly audible, considering it was recorded in the open air, with a background of traffic sounds. Our listeners heard this proprietor assure me that he anticipated no trouble with the authorities, and also heard his voice saying "business was brisk." When I interviewed the doorman, the man scorned any possibility of a raid without the club being forewarned. His dialogue was even spiced with some earthy expletives that enhanced the broadcast with an unmistakable aura of authenticity.

Elsewhere in my nocturnal wanderings, the "Minifon" recorded my vain pleas with another doorman to be admitted to a suspected gambling "joint" on the edge of the city. At another "club" in the same vicinity I was admitted, and succeeded in getting the voice of a waitress confirming our suspicions that this place was never raided without prior notice.

The crowning glory of the entire assignment, was the actual recording of a "crap" game in progress. Replete with the clicking of dice, the murmurs from the table, and the chant of the croupier, the whole thing sounded like something from a radio dramatic show. But it was all too real, and it all added to the picture of crime, vice and civic indifference we were painting.

I have already remarked on the necessity of a close proximity to the microphone for studio quality pickup. The closest I came to accomplishing this during my expose was the brief conversation with one of Omaha's best known names in crime. His throaty invitation to me to come "downstairs and join the game," could not have been more genuine had they originated in a well rehearsed play.

The results were gratifying to the station management, and to me personally. I felt the effort and the risks were well worth any disturbance of the official lethargy toward crime and vice the broadcast engendered. And I knew that nothing on this scale could have been realized without such a device as the "Minifon."

Top: could the persons interviewed have seen this hookup Don Loughnane would have been in serious danger. This picture shows how the Minifon recorder and wristwatch microphone were worn. Actually the recorder and strap were under his shirt where they could not show and the wire was run down the sleeve. Center: the tiny recorder which will run for two and a half hours without attention. Lower: the interior of the Minifon showing the wire spools and the mechanism.

Add SOUND to your

Christmas pictures are only half the story. You

CHRISTMAS is certainly one of those times of family life you always want to preserve. It's possible to make a movie that will be lip-synched (in theatre jibberish this means action and sound are perfectly matched; they're synchronized), but, I don't think you should attempt it!

Christmas comes but once a year. Aside from its great spiritual significance, it's a time when youngsters' year-long dreams come true. To make a good film, you need cooperation. To make a good film, AND a good sound track (at the same time), you need more cooperation than hardly any child, or adult for that matter, is able to give when all "keyed-up".

So, how can we do this thing without becoming a two-headed monster? If you own only a tape recorder, you have *one* major problem . . . that of making the finest sound record you can under the circumstances. Forethought (better known in professional circles as script preparations and planning) should be our keyword. Listen . . . before you leap! Think out what you'd like to have on that Christmas recording . . . and think it out long before the great event. Once you have some ideas as to what you are going to try to do make some "dry runs" . . . then make some actual recording tests.

I can't give you a set rule for where to place your mike as each of you are apt to have a different mike, a different recorder, and different surroundings. But I can tell you to make tests and notes on what you did, or, say what you did on the test recording itself. Make tests to determine how far away your mike can be from any sound source before it quits reproducing properly. Try various placements to see which room locations will yield best results. Try speaking into the mike in tones you think will be used Christmas morning and make sure your control settings (volume, bass-treble-normal, etc.) are fixed to produce best results. When you find the best settings make note of them . . . and USE these settings Christmas A.M. Note the best "speaking distance" of lips to mike, the distance proving best should be the one you should try to consistently use.

Another thing . . . you can't just open your recording with a bunch of yelps and yowls . . . the effect is like opening a barn door and getting run over by a herd of cattle with their tails on fire. Your listening audience should be "prepared" for the event. Tip them off that this is not going to be a 4th of July celebration, or Mommy winning the hog-calling contest. Here's an idea for a plan of procedure . . . no doubt you can improve upon it . . . I suggest it simply as a means of stimulating your thoughts.

You could open with the sound of: church bells, then a few bars of "Silent Night, Holy Night" (or other especially significant music) which fades away as a quiet voice, gradually letting excitement creep into it, recites the traditional "—Not a creature was stirring—". Gradually, the voice fades to a whisper . . . a clock . . . which has been ticking softly in the background . . . gradually ticks louder (a metronome makes a better sound "clock" than does a real timepiece). When a sufficient lapse of time has been indicated, Dad's snoring becomes the featured sound, a rooster could crow

The most difficult recording is actual "lip synch" where the sounds must match the lip action perfectly. Avoid it. Take shots of lip movements when easy to match sounds are uttered, such as "Oh Boy" and have your subjects mouth the sounds well. In shots like this one shoot full face of singers during passages when easy to lip-read words are sung. Mix with other shots to divert audience from lip synch.

Christmas Movies

need sound, too!

by Emil E. Brodbeck—Author of "The Handbook of Basic Motion Picture Technique" and producer of films for television.

a few times (or a clock could strike the hour) then a small voice could break through the "lumber-cutting" with something like, "Daddy, Daddy . . . DADDY! Can I wake up now . . . has Santa come yet?? . . . Daddy!!!" Daddy snorts a few times, grunts, sighs, then says, "Merry Christmas . . . uh-um . . . get your slippers and robe on . . . call the gang! . . . AND . . . we'll see what Santa left" . . . Sounds of scurrying to and fro . . . doors closing . . . feet on the stairs . . . then . . . the sounds resulting from first sight of tree and presents. NOW . . . now you're ready for the free for all . . . now the audience is ready to be trampled . . . they expect bedlam to break loose . . . and they know what this thing is all about.

I'd record everything, up to the point where the family comes into the "Christmas tree room," either before or after Christmas day. Christmas morning, I'd plan to be the "newsreel" recorder on-the-spot and try to catch members of the family opening presents and capture genuine surprise exclamations. If you find jaws are dropping open in silent surprise (this does not record well) you can prod a little with: "Well, what do you think of the ——?" Nor would it hurt the cause to do a little on-the-spot "interviewing" such as . . . "Now that you have a —— what are you going to do with it?" In fact, just so you don't find yourself standing around with the breeze wafting silently between your molars, it would be well to avoid befuddlement by setting up a number of questions beforehand, arranged so that you get reactions with the fewest possible words and so that you can't miss provoking some spontaneous replies. Good questions and bright patter on your part will give your recording continuity and help it unravel naturally.

This brings us to the chap who has motion picture equipment . . . including one of those fine new projectors with which you can put sound on your own films. These are a joy to own and making your own sound-on-film movies is a downright thrill, even to professionals who are used to sounding their commercial films. However, I'll repeat, the conditions which prevail on Christmas morning are definitely not conducive to your doing *both* the film and the recording at the same time and doing either at all well.

There are many professional films in which the background music, the sound effects, and the commentary, are all added later . . . the result is excellent. So, if you have a camera, capture the movie part of your Christmas first, then you can edit out the poor scenes after the film is processed and have a sound stripe added to only the good footage.

Again . . . look before you leap. Early Christmas morning (and if you have children, you can be sure it is going to be earlier than you think) is a devil of a time to try to buy fuses, photo equipment, film, any props you might need, etc. Make sure your equipment is in ship shape order. If you don't have one of those attachments for your movie camera that allows you to attach two mushroom bulbs (with built-in reflectors) to either side of your camera (these lights and your camera are moved about as a single unit) I'd suggest investing in one . . . they are a great help in any filming you'll want to do indoors, especially when you have to move around a lot. I'd also get a few extra bulbs. Before plunking down your hard earned devaluated dollars I'd also suggest you make sure you're able

"Not a creature was stirring—." Oh Yeah? Somebody just couldn't wait. Rustling of paper in the wee hours—sound created by crumbling paper bag, or even tearing it close to mike, will add realism to the scene. Use a relatively soft paper if crumbling is done as hard, brittle paper will make a sound like a crackling fire. Sounds are added to the movie by means of a magnetic-recording projector.

Here's a chance for a little Christmas comedy. Crush a strawberry box close to the mike to indicate breaking of branches, tear cloth to indicate tearing of curtain as youngsters tote in the Xmas tree.

to direct your light where your camera is pointing. I've seen some of these attachments that did not allow proper lighting of the subject. The flexible goose-neck variety probably will give you the most varied and effective lighting.

You can do a lot in the way of making sure your subjects are properly illuminated if you set up your camera and your lights before Christmas . . . imagine where the tree will be placed and have one of your family pose for you in various spots . . . as he does so, take various readings . . . these readings will give you a good rule-of-thumb index of exposure. Also, being cool, calm, and collected, you'll probably notice you need some auxiliary lights to be directed at the ceiling, the floor, and walls so that your background and areas around your subject will be well lit. Of course, if you use sufficient light on ordinary house fuses (usually 15 amps—and don't get the stellar idea of putting in 30 amp fuses if your home is not wired to take them) you'll blow a fuse every time. So, one of your important "beforehand" chores is to find out which fuses service which outlets and use outlets which are serviced by different fuses. You'll undoubtedly need an extension cord . . . I can tell you Christmas morning is not the time to look for it. This cord should not be the ordinary hardware store variety. Its wire should be heavy enough (sufficiently thick) to carry about 1500 to 3000 watts, or from 15 to 30 amperes, without overheating. If you overload a smaller wire it overheats, and some of the electricity is lost through the heat . . . this means . . . your bulbs receive insufficient electricity to make them shine as bright as they should.

What about film? You'll probably shoot footage indoors and outdoors. With black and white this is no problem but if you're going to use color the film that will provide you with the most versatility is indoor film.

While there are other good recording movie projectors on the market, I happen to be familiar with the Bell & Howell 202. Most of the techniques I'll refer to, may be used with these other projectors. While you may record with the projector running at either 16 or 24 frames per second I'm sure you'll agree, after trying it, that recording at 24 frames per second will give you better sound. If you record at 24 frames per second you must project at 24 frames per second and if you are going to project at 24 frames per second you must SHOOT WITH YOUR CAMERA SET AT 24 frames per second. This means you're exposing each frame at about 1/50th second instead of about 1/30th second. Thus, you'll need more light or a larger lens stop than when shooting at 16 frames per second (1/30th second).

Now, assuming you have a projector that will do what the 202 will, you will be able to "mix" background sound effects and music at the same time you're recording because you have a place where the phonograph plugs in and another place where the mike you'll talk into, plugs in. And let's further assume we've shot a film with a story much like the tape recording of Christmas we discussed earlier . . . First of all we should have made up a rough script before shooting but if we haven't made one we'll need one now. In short, we need a list of scenes for guidance in shooting our film, and later, for guidance in selecting background music and commentary. The following is a good basic form of "script" for use in sounding your movies.

This form of script is made after you have edited your film and have cut out all the waste material (so you don't spend time sounding film you'll not use.) In fact, I definitely would not send my film to be sound striped until AFTER editing, it costs 2½ cents a foot to stripe your film (striping service is available from a number of manufacturers), this isn't much, but why waste money striping footage you're not going to use?

SOUND	SCENE
1. Start record with recording of church bells.	1. Fade in on Long Shot-church in snow (table top scene if you can't get outdoor shot in your town).
2. Continue to play bell recording. Toward end of scene turn volume down to gradually fade out bells.	2. Close-up church, or other, big bells ringing.
3. Put on record of "Silent Night, Holy Night," or have your group sing it (turn volume up to normal gradually so as to fade in music). At end of scene gradually turn volume down . . . on record . . . but not all the way so that the song will be gradually fading out in the next few feet of the following scene.	3. Close-up group singing song being played.
4. With mike turned a little to one side begin reciting—"—'Twas the Night Before Christmas." As you turn mike to face you squarely your voice will come in stronger and stronger. At the same time fade out music completely.	4. As you run through the verse of "The Night Before Christmas" you can use the verse to lead into various scenes . . . for instance, "Not a creature was stirring—" Short scene . . . Close-up one of your youngsters struggling to

As this scene starts have someone start a metronome and keep it far enough away so that its ticking is barely audible . . . then gradually . . . as you progress (or as whoever you have read the "Night Before Christmas" progresses) have the metronome moved, by easy stages, closer and closer to the mike. Toward end of this series of scenes as voice fades to whisper metronome should be heard stronger and stronger . . . as voice ends it should be very audible.	stay awake, one eye open the other eye shut . . . open eye gradually slips shut . . . then . . . "—not even a mouse—" Short scene Close-up of toy mouse in mouse - sleeping position. A succession of such illustrative scenes.
5. Ticking of metronome (for clock).	5. Close-up of clock . . . suggest using single frame or other means of animating so hands will turn around face fast, indicating lapse of time.

The above is just to cover the beginning of your script and to give you a few ideas . . . it isn't necessary, I'm sure, to write up the whole story. There are so many things to shoot at Christmas time that you'll have an unlimited wealth of material. Preparing presents, setting up the trees, making a manger and other set-ups under tree, fixing the wreath for the door, caroling, opening presents, making a Christmas snow-man, etc.; and now, you can add your own sound to your films you can experience the thrill of matching sound, using background sound, making sound effects and doing a thousand and one other things that will add a new professionalism to your movies. As long as you don't use the film commercially (charge admission, accept a fee) or show it on any professional basis outside your home, or the homes of friends, I doubt that the use of copyright material (music on regular records, etc.) would cause you any trouble. However, if you have ideas of using the film professionally there are regular "sound" libraries that, for a fee, allow you to reproduce certain music and sounds. They have about every sound under the sun in stock, and their collection of background music is just as wide. Remember, your music should "fit" the mood of the scene. You don't play music that literally trips the light fantastic when you have a serious scene on the screen.

The boy at lower left has just "plinked" an ornament and is listening to the sound.. When you record it, tap a glass with a spoon near the mike and listen to the audience howl when they hear the effect.

The family recording studio—your living room. Dad has just run the scene and reversed it. Mother has gone over the part with Junior and the stage is all set for the thrilling experience of adding sound to home movies. Everyone enjoys hearing and seeing himself on the screen.

On the other hand, you can create a lot of excellent sound effects yourself. Just a few tips are: Crushing a strawberry box to simulate the breaking of wood — for comedy to simulate a knuckle-breaking handshake; the bell of an ordinary alarm clock can double for telephone, or door bells; rain may be created (audibly) by pouring a handful of dried beans (navy or pea) from one large kitchen strainer to another, etc. And, with the new recording projectors it is comparatively simple and easy to do a good recording job . . . just watch the screen and let the film itself do the cuing. I'd run the film a number of times and rehearse everything before really "rolling." Get familiar with what you're going to do for every scene and practice doing it. Even when recording, if you make an error you can go back, take off as little as a word and correct. Be sure you don't miss out on the fun of making a real sound-on-film movie of this Christmas . . . you'll enjoy it for the rest of your life . . . and so will all the family . . . happy sounding, filming . . . and Merry Christmas!

P.S. If you do not have a movie camera and magnetic sound projector you can still shoot your Christmas pictures. Use 35mm color slides. Shown with tape recorded sound you'll have a very exciting and pleasing show.

Full Range Recording

Harold D. Weiler

Part I of a two part article by the author of "High-Fidelity Simplified."

THE past year, which incidentally was the seventy-fifth anniversary of the first recording and reproduction of sound, witnessed a tremendous revival of interest in this medium of entertainment. The primary reason for this renewal of interest is unquestionably due to the realism with which recorded and broadcast music can now be re-created in your own home. Records and radio have, of course, been available for many years but it was not until recently that they could bring you more than the mere shadow of the original performance. Only since the end of World War II has the transmission, recording and reproduction of sound progressed to a point, where it is possible to recreate an acoustic facsimile of the original performance.

With high-fidelity reproduction, as it is popularly known, it is almost impossible to differentiate between the original performance and its reproduction. A high-fidelity reproduction of music is as different from ordinary repoduction as a color photograph is from a black and white print. Once heard it simply cannot be forgotten! Recognizing its impact and popularty, James B. Conkling, President of Columbia Records recently said, "Already nearly one million Americans have invested in high-fidelity equipment." With close to one million high-fidelity systems in use today, this relatively new avocation has quickly grown beyond the bounds of a mere "fad" and is fast becoming an important part of our musical culture.

Quality tape recorders at reasonable prices have brought the thrill of fine music in the home within reach of everyone. Tapes may be made from FM broadcasts or purchased already recorded from a number of firms.

High-fidelity reproduction is not one invention by a single man or organization but is the result of the combined efforts of many engineers and many companies, however, we can single out two men for their outstanding contributions to this new art. The first, Major E. H. Armstrong, the inventor of F.M. (Frequency Modulation) broadcasting which allows the transmission of the complete musical tonal range from lowest bass to highest treble and, in addition, reduces background noise (static) to a negligible factor. The second basic contribution which made high-fidelity possible was the development of the long playing record by Dr. Peter C. Goldmark. It is interesting to note that the long playing feature for which this type of record is best known, was actually an incidental by-product of a commitment to improve the quality of the recorded sound. To produce such sound it was necessary to cut finer grooves into the record. Through this process a record was ultimately produced which provided wide tonal range, greatly reduced surface noise, low distortion and could also play without interruption for over one-half hour.

These two basic advances and the technological improvements in recording (through the use of magnetic tape which recorded the full frequency range and permitted editing) and reproducing equipment which soon followed made available to those interested, music, the quality of which had never before been heard outside a concert hall. It was not until recently, however, that this type of reproducing equipment became commercially available in such form that the average person could see and hear it in his own hometown. High-fidelity equipment originally was only available through dealers located in large cities, since the prospective customers were limited to broadcast or recording engineers and the musicians, who through their work were also exposed to this new and far superior form of music. These people, naturally, introduced their friends to this superb method of reproduction and thus the word spread like wildfire!

This new era in home music reproduction is already recognized by outstanding authorities as a definite contribution to our musical culture. No less a personage than Bruno Walter, the famous conductor, in closing a recent transcribed broadcast said, "If you have enjoyed Eleanor Steber's, George London's, The New York Philharmonic's, and my performances, may I point to the astonishing perfection of the recording techniques, without which these

Bruno Walter, the "Grand Old Man" of music, shown here conducting for a transcribed broadcast, feels that today's perfection in recording techniques has wiped out the barriers of time and space. Musicians, at last, can leave behind them a perfect record of their masterpieces conveying all the feeling and artistry they put in their performances.

Photo by Fred Plaut

performances could not have conveyed to you our real musical achievements, the former limitations of the performing musicians, by distances in space and time, are fading. Believe me, we feel a strange comfort in the thought that the record of today can at last truly deliver our musical messages when we are physically absent even after we have taken our definite leave. Goodby my friends."

This is indeed a tribute to high-fidelity music reproduction coming as it does from the "Grand Old Man of Music," who recently celebrated his 77th birthday.

What is this new method of reproduction? What is high-fidelity? Simply, high-fidelity is a method of recording, broadcasting and reproduction which recognizes and compensates for the acoustic, electronic and electromechanical limitations inherent in the conventional methods. The question usually asked next is, Can I tell the difference between ordinary reproduction and high-fidelity reproduction? The answer is Yes! Definitely and positively!

The next question is obviously, How can I tell the difference? The simplest answer is a quotation from the book "High-Fidelity Simplified." "Listen but listen selectively. Do you hear cymbals as a crashing sound followed by a sustained shimmering? Do you hear the triangle as a clear ringing sound? Can you actually feel the vibrations of the tom-tom, the bass drum, or the lowest notes of the organ? A staccato passage in a piano solo should be crisp and clear, each note standing out by itself. Do you hear it that way? Does your system sound well at low volume or is it necessary to increase the volume level before the reproduction is fairly good? Although they are near opposite ends of the range of strings, can you always differentiate between the violin and the violincello? Can you tell the difference between string bass and brass bass?" The answers to all of these questions should be in the affirmative, should any of your answers be in the negative, you are not enjoying the results made possible through modern recordings and broadcasts.

There are a number of factors which influence home reproduction of music and speech. The most commonly known of these is the tonal range of the reproducing equipment. The tonal or frequency range as it is correctly called reflects the ability of the equipment to reproduce with equal fidelity all of the tones in the musical scale from highest treble to lowest bass, in addition it must also have sufficient range to reproduce all of the overtones created by the various instruments. The importance of these overtones becomes obvious when we discover that the difference between a Stradivarius and a ten dollar fiddle lies primarily in the

The author's home music system is housed in this attractive cabinet. Tuners, recorders, speakers and players can be not only arranged properly electronically but become a thing of beauty.

overtones they create. It is these overtones which provide a musical instrument or voice with its individual color and enables us to recognize it.

Tonal range is only one of the factors which result in the very obvious difference between conventional reproduction and high-fidelity reproduction. The second factor is distortion: Distortion is simply the generation, modification or elimination of tones within the reproducing equipment to a point where the result is no longer a true reproduction of the original speech or music.

Distortion has a number of forms: the first form results from the inability of the conventional loudspeaker to respond quickly enough to the sudden changes applied to it. Most of our reproducing equipment is entirely electronic in operation, however, the loudspeaker is also a mechanical device and as such is subject to a certain amount of inertia. This characteristic takes two forms: There is some delay in action when the loudspeaker is suddenly activated; there is also a delay in the cessation of action when the activating force is removed.

This may be compared to the effect created by a musician in an orchestra who delays in playing his instrument after the conductor has indicated that he do so and continues to play after the conductor indicated that he cease playing. This type of distortion is most apparent in a reproduction of a staccato passage on a piano; the individual notes sound blurred instead of crisp and clean. A drumbeat becomes a dull, lifeless plop or thud, rather than the rich vibrant tone you hear at a live performance. This *transient distortion,* as it is called, is only one of the types which can and do cause poor and lifeless reproduction.

We have previously mentioned the effect caused by the elimination of some tones and overtones which are present in the original music but are eliminated through poor reproduction. The second type of distortion and one of the most common forms, results in the addition of tones and overtones which are not present in the original music. These added tones and overtones modify the reproduction to such an extent that it is no longer a duplicate of the original performance. This form is called *harmonic distortion.*

The third form is a type which is created by the interaction of various tones, unlike the type previously discussed. One single tone cannot create this form of distortion, it requires at least two different tones which affect each other, usually a tone of lower pitch which affects and distorts one of higher pitch. This form of distortion is called *intermodulation distortion* and is usually the worst offender.

There are other forms of distortion which affect our reproduction of music and speech. The fourth form is called *linear distortion.* This type is the result of the reproducing equipment favoring one set of tones above another. It is as though the listener was sitting next to the particular group of instruments and heard them almost to the exclusion of the other instruments in the orchestra. This type of reproduction in a piano solo, for example, might result in Middle A being reproduced at twice or three times the volume of Low A. This is obviously unnatural and therefore a distorted reproduction of the original music.

The fifth form is tonal unbalance in the reproduction of the musical range. The reproducing system favors either the bass or treble tones, or vice versa, as in the case of some of the earliest "improved" systems. When the balance between bass and treble tones is incorrect, the reproduced music is either thin and strident because of insufficient bass response, or muddy and indistinct because of insufficient treble response.

At this point, it might be well to explain that the new and modern form of sound recording and reproduction we have been discussing either reduces the various forms of distortion to a negliable factor or eliminates them entirely and also allows the full tonal range which we have found is required for high quality music and speech reproduction.

We have found that high-fidelity reproduction is the reproduction of speech or music with such realism that the listener obtains the illusion that he is present at the original performance. We have also found that in order to create this illusion the recording or reproducing equipment must not add to, subtract from, or in any fashion alter or modify the elements present in the original performance.

The same period of time which witnessed the improvements in the reproduction of sound, also saw an equal number of important advances in the recording of sound. An outstanding example is the tape recorder. The average tape recorder available today is far superior to the finest professional disc and wire recorders available as recently as five years ago. The modern tape recorder, an example of which is illustrated on page 24 has been so improved and simplified that anyone with only a slight knowledge and experience can create home recordings which are equal in quality to commercial recordings and often are superior.

The average person can today create his own library of music; recording from the air, from other records and from live peformances, ranging from soloists in living rooms to great community choirs and orchestras. Live performances from a good F.M. station may be recorded with a quality unequaled by any but the finest commercial records. Sound effects for home movies may be recorded simultaneously with the picture taking. Valuable records may be transcribed to tape before they become scratched and noisy through continuous wear. The tape itself may be played over and over with all of the original quality of the performance retained.

A great deal of literature on tape recording is available, however, most of it is highly technical. Part two of this article will attempt to present, in a simple manner, a general picture of high-fidelity tape recording for the home user.

why not Join a Tape Club?

Here's fun, fellowship and friendship through your recorder

FOR just a few dollars a year you can belong to any one or all three organizations who are devoted to bringing this world closer together. They are the tape clubs whose members "correspond" with each other over the miles, or over the continents by means of tape recordings.

For your membership dues you will receive a list of folks who have tape recorders, or wire recorders, together with the subjects in which they are interested. Your own name will be added to the lists for others to see also.

Once you have the list at hand, you can arrange to send a tape of your own making to a tape friend in the United States or to someone in a number of foreign countries. If there are children in your family and in the family of your tape correspondent, they too can add their bit to the recordings and both families can share their hobbies and knowledge with each other.

As one club prospectus puts it "It's a mighty inexpensive way to take a trip to foreign shores."

The origin of this form of activity seems to date back to the time when a Chicagoan, lonesome for his mother and sister in blockaded Berlin, found a way to send them a tape recording and was overjoyed to get one back from them.

John Schirmer, of the export department of the Webster-Chicago Corporation received a letter requesting equipment from a pilot flying the air-lift to Templehof airport in Berlin. He sent the requested equipment and a 15 minute recorded message for his mother and sister, with the request that he deliver the spool if he could. The pilot did and also arranged for Schirmer's mother to make a recording for him. Recordings started to move regularly between Chicago and Berlin. Finally he decided that this idea should be the basis of a club that would act as an exchange for persons interested in swapping magnetic recordings. Thus the Voicespondence club was born. That was in May, 1950.

Tape-Respondents International has been in operation for a number of years and World Tape Pals since 1952. All are non-profit societies with the secretaries doing the work because of their interest in the hobby. What money comes in goes out again in the form of mimeographed or printed lists to members, bulletins and small publications. Many times the sponsors have to dig into their own pockets to help defray the costs of operation.

What kind of people are on the club lists? All kinds, actresses, bankers, scientists, day laborers, housewives, teachers. All are listed together with their particular interests businesswise or hobbywise. Housewives can exchange recipes, businessmen discuss the current times and trends, children learn to appreciate the children of other lands and to discover how much like them they are. The story of our country can be spread very effectively by people like us who correspond via tape with people in foreign lands.

The cost of shipping tapes is low, as is the cost of engaging in the hobby itself. As tape can be used over and over again, a few reels can get you started. Some folks prefer to use the small 3 inch reels and even on those you can pack 2500 words easily, much, much more than you would care to write in a letter.

The tape clubs offer the opportunity to make friends almost anywhere. Romances have blossomed through the medium of tape exchanges, people who have emigrated from foreign lands can converse in their mother tongue with the relatives who still live in the old country.

Actually the surface has barely been scratched in this interesting field. It is something in which everyone can participate and all can enjoy.

The clubs listed below will be glad to hear from you if you would like to be a tape correspondent. Write to one or all three. A card or letter will bring full details from them. Bon voyage!

THE VOICESPONDENCE CLUB
write to:
JOHN M. SCHIRMER, Secretary
1614 N. Mango Ave.
Chicago 39, Ill.

TAPE-RESPONDENTS INTERNATIONAL
write to:
FRED GOETZ, Secretary
P. O. Box 1404
San Francisco, Cal.

WORLD TAPE PALS
write to:
HARRY B. MATTHEWS, Secretary
P. O. Box 9211
Dallas, Texas

NEW PRODUCT REPORT

STAFF OKSTED

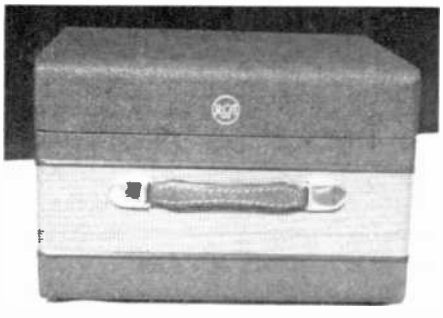
Product: RCA Push-Button Tape Recorder Model SRT-301.

Price: $189.95 complete with microphone, reel of RCA Sound Tape, takeup reel, cord for connections to radio or phono.

Manufacturer: Radio Corporation of America, Camden 2, New Jersey.

NEW RCA PUSH-BUTTON RECORDER
features two speeds, normal and overload recording indicators, and push button controls

THE RCA Push-Button Recorder which we used in our tests was selected at random. The staff member of TAPE AND FILM RECORDING who made the tests received no preliminary briefing in its use or characteristics—starting off merely with the instruction book furnished with the recorder.



Top photo: the recorder and equipment supplied with it. The lower picture shows the attractive appearance with the top closed.

We found the manual to be adequate and well illustrated. The directions are simple, clear and concise, even for the person who has had no experience with electrical appliances beyond putting the plug in the wall socket.

The simplicity of the tape threading, merely dropping it in the slot, and the ease of operation, by means of push buttons, are excellent points in the recorder's favor. Anyone devoting fifteen minutes of study to the manual and a like amount in experimental recording and operation should be equipped to operate it efficiently.

Some of the things we liked most were: the positive action of the interlock button that prevents accidental erasure of already recorded material. To record it is necessary to press down the small safety button *and* the record button. This double action, while easy to do does make you conscious of the fact that you are in record position.

The use of two indicators, one for normal recording and one for overload, makes it very easy to obtain the correct level on the tape. The normal light should flash rather continuously and the overload light not at all or perhaps give a flicker on the highest sound peaks.

The speed control is simple. Just a twist of the knob will change the speed from 7½ inches per second to 3¾ or back again. THIS CONTROL SHOULD ONLY BE OPERATED WHILE THE STOP KEY IS DEPRESSED. A small point to remember but one you won't forget if you do it once. The machine will set up a screech. The point is well covered in the instruction book. We mention it here because we tried it.

Another point mentioned with frequency in the manual is the admonition to "press the buttons down FIRMLY." They are not kidding. The springs are rather strong and unless the buttons are pressed firmly and meaningfully, you might have a tape foul-up.

It is possible to switch from fast forward to fast reverse without stopping but this is not advised because of the strain placed on the tape. The machine will do it without damage but it is safer to depress the stop button before reversing the tape travel.

Other points are the absence of oiling schedules and the inclusion of con-

nections for use with a radio or TV set or a PA system.

The machine is used in horizontal position. It is attractive in design, the case in brown with a beige band and the handle folds flat when not in use.

The lid is used as the storage place for the microphone, tape reel and cords, with cleats provided for wrapping up the cords and a well for the mike. The reels must be removed before the cover can be closed.

The machine will accept up to a 7 inch reel (1200 ft.). Printed on the case under the reels are timing marks for both speeds.

The microphone is a crystal type which provides adequate response for all ordinary usage. Other mikes may be used with the recorder if desired.

The line cord is free of the case and must be plugged into the receptacle on the outside of the case as well as into the wall outlet.

Separate controls are provided for volume and tone, the latter doing a good job in emphasizing bass or treble as desired while playing back.

The quality of reproduction of voice at both 3¾ or 7½ inches per second is quite good and music reproduction at the 7½ inch speed is pleasing and adequate to any but the most critical ear.

Technically speaking, the signal to noise ratio requirements (the strength of the music or voice as compared to any noises which may be present in the amplifier or mechanism) are more than adeqaute. The comparisons used for this test were the standards set up for transmission of radio and TV program material, which needless to say, are quite stringent.

The fidelity of reproduction is slightly non-linear but in no sense objectionable. In fact, the deviation from a flat response is so small as to be unnoticed by the average listener. RCA makes no claims that this recorder is a hi-fi machine. We found its response both adequate and pleasing and more than sufficient for all but the most critical recording jobs.

The speaker output is fairly free from harmonic distortion up to about 4 watts which is adequate for the home and small auditorium. An external speaker may be attached to the unit by simply plugging it in the "Ext Spkr" jack on the side of the machine.

The recorder appears to be sturdily built and accurately machined. It is well powered, as to motor, the noise of the mechanism is slight and the temperature rise of the unit due to the tubes, transformers and motor is nominal.

During the tests the machine was used in all its functions from making voice and music pickups with the microphone provided to recording off the air and from a phonograph. In each case the results were satisfactory. No difficulties of any kind were experienced in its operation.

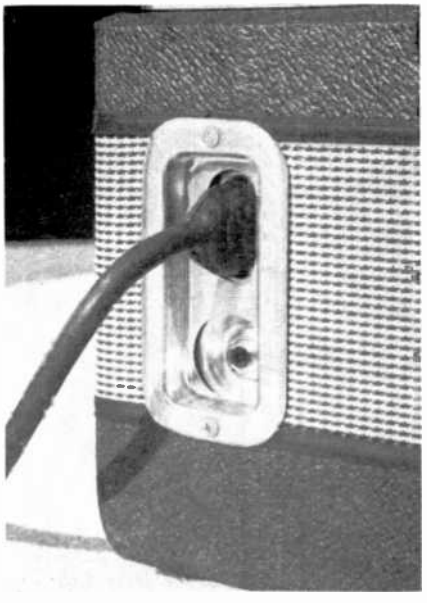
The case measures 14 x 12 x 9 inches and the recorder weighs 26 pounds. Maximum recording time at the 3¾ inch speed and a seven inch reel is two hours, one hour on each side of the dual track tape.

The rewinds are very rapid and a full seven inch reel can be wound fully in either direction in 2¾ minutes. The fact that the machine has both a fast forward and reverse enables selections that are located in the middle of a reel to be found with speed. The stop is instantaneous and positive. Because of the speed of the winding mechanism it is best to stop short of the end of the reel or you will have to rethread the tape. By allowing sufficient leader and trailer, and not trying to use the first and last few feet of tape on the reel, you should be able to control much better.

Taking all factors into consideration we found the machine to be entirely satisfactory from the standpoints of design, appearance, electrical and recording characteristics. It is an excellent home or business recorder and a good utility-type amplifier.

Top: change in speed is effected by turning knob to the desired speed, either 3¾ or 7½ inches per second. The knob should not be operated while the machine is running. Center: to thread, the tape is dropped in the slot dull side away from the operator. By lightly depressing one of the other buttons, the stop button is released and threading made easier. Lower: to record, both the safety button and the record button must be depressed.

The connection for radio, phono or PA system is made as shown. Normal and overload indicator is above the volume control.



The power cord is plugged into the case as shown. Below this connection is the jack for use with an external speaker.

Do You Need a HORSE?

by Bart Pierson

IF, AT the end of your next tape production the hero gallantly swings his lady to the back of his horse and gallops off into the misty blue—where are you going to get the horse?

Actually you can have a magnificent steed without unlocking a single stable door—all you need is two cocoanut halves (eat the meat first) or a rubber ball cut in half or two plumber's helpers (those rubber dinguses with which you can open stopped drains).

By lightly knocking the two objects together you can get a very realistic sound effect. To achieve the sense of motion, that is the horse coming toward you, clap the cocoanut shell halves, or the rubber ball halves or the plumber's helpers together at a distance and gradually draw near the microphone. To make the horse go away, start near the mike and gradually recede.

The clapping together of the hollow hemispheres is good up to a certain speed and for a cart horse clopping along the street it can't be beat.

If your horse is destined to travel at high speed then you will have to make like a gorilla on your chest except you use the open palms. It is something like the old trick of rubbing your stomach with one hand and patting the top of your head with the other, except it is much easier. Inasmuch as we are right-handed we give one pat with the left then two pats with the right hand in galloping cadence. Try it a bit and make an experimental recording or two before doing the actual recording. If you lose the rhythm old dobbin will sound as though he had thrown a shoe.

It is best to remove the necktie, which has a way of getting into the act when not wanted. Also remove any cigarettes from the shirt pocket, if you carry them there. You need an unbroken expanse of manly chest to put this across. The pattern is Left-Right-Right, Left-Right-Right.

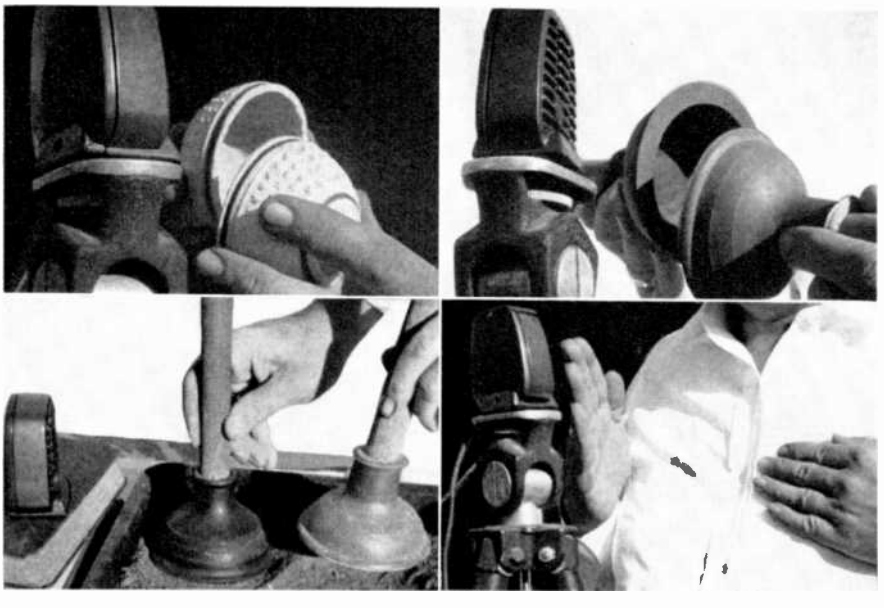
Another method, favored by those who can turn out a good performance, is to be seated, clap the hands together with a brushing motion, hit the right leg first, with the right hand, and then the left leg with the left hand. This can be worked up until you're in a lather.

To take old dobbin down a gravel road, fill a shallow tray with gravelly dirt and plop the plumber's helpers in it at the speed desired. If you need wagon wheels to accompany your steed, two wooden discs on an axle moved over the dirt will sound good. Of course, as these are relatively low-level sounds, the microphone will have to be relatively close to the sound effect production.

Still another method of galloping a horse is done with the first three fingers of the hand. For pianists this will be a cinch. Tap the third finger on the table, then the second and finally the first in cadence. Try the same tapping sound on a magazine or book or bend the fingers in slightly and let your fingernails do the tapping. By tapping on various substances you can take your horse over a hard road, the soft prairie or a wooden bridge.

Try it with your recorder, even if you don't need a horse.

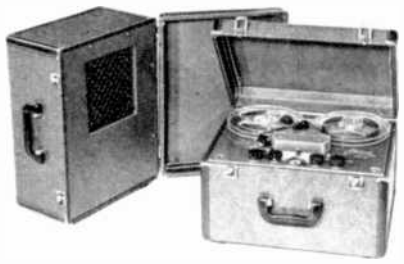
Incidentally, if you crumple cellophane near the mike, make with the hoofbeats and tap on a brass ashtray or drinking glass with a pen or pencil you can whip up an old time fire engine—but that's another story.



Upper left: a rubber ball cut in half with a razor blade or sharp knife will provide the sound of horses' hooves clopping along up to a moderate speed. By squeezing one of the halves slightly out of round it will be easier to make them meet. The rubber ball halves are struck together near the mike. Upper right: two plumber's helpers will give the same effect except that it has a more hollow sound than the balls. Lower left: the plumber's helpers plopped in cadence in a shallow tray of gravel will sound like old dobbin on a country road. Lower right: galloping sounds can be made by slapping the chest Left-Right-Right, Left-Right-Right.

New Products

from page 6



troduction of these recorders to the public, the firm was engaged in manufacturing military recorders.

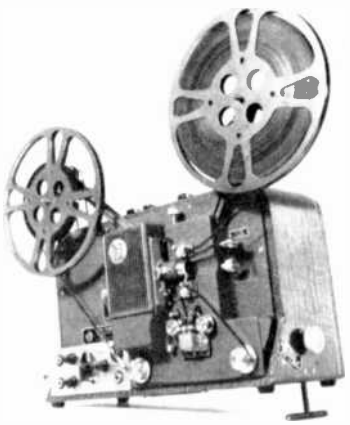
The Model 303 is a one-package unit containing the recorder, pre-amplifier, amplifier and speaker. It is designed for home and general purpose recording and has a frequency response of from 50 to 10,000 cycles.

The model 401 contains just the recorder and preamplifier and is designed to be used with the companion Model 402 amplifier and speaker or any high quality amplifier and speaker. It is designed for the hi-fi enthusiast and has a range of from 30 to 13,000 cycles.

The 303 includes push button touch controls for mike or radio recording, record or playback and bass and treble response.

Both recorders are dual track and dual speed, offering both 7½ and 3¾ inch per second. A magic eye volume control is used on both. The illustration shows the 401 and its companion speaker-amplifier. Write to Daystrom for further details.

8mm. Magnetic Recorder



The Calvin Company, 1105 Truman Road, Kansas City, Mo., is the manufacturer of the Movie Sound Eight, an 8 mm. sound on magnetic track film recording projector.

Two inputs are provided, one for mike and one for music with individual volume controls and a neon lamp recording level indicator. Film speed are 16 and 24 frames.

The recording may also be monitored with a headset as it is made. On the control switch, the rehearse position allows for practice narration and timing, in the record position the sound track is recorded. A safety catch is provided to prevent accidental switching into the erase position.

With the switch in the PA location, the projector may be used for public address work.

The projector will show any standard 8 mm. film, sound or silent. To obtain the sound, the film must have a stripe of magnetic oxide applied between the sprocket holes and the edge. This stripe is 0.25 wide and can be applied by any of the striping services. Old silent films in good physical condition can thus be converted to sound films. Write the company for full details and prices.

Two Speed Recorder

A new recorder, the F-E-M, featuring a low price and two speed operation has just been announced by the Federal Manufacturing and Engineering Corp., 211 Steuben Street, Brooklyn, N. Y.

At the 3¾ inch speed the response is from 50 to 7000 cycles and at the 7½ inch speed from 50 to 12,000 cycles, plus or minus 3 db.

The unit is a dual track recorder with a single knob control. Fast forward and rewind are provided and a safety lock prevents accidental erasure.

For editing or dictation a fast stop is provided. A foot switch control is available as an accessory Separate volume and tone controls are included. The recording level indicator is a neon bulb.

A ceramic microphone is standard equipment and an input jack allows the recording of radio programs. The same jack is used for the mike connection.

The two-toned case has a storage compartment and a detachable cover. Full details from the manufacturer.

Compact Recorder

Crescent Industries, 5900 W. Touhy Ave., Chicago 31, Ill., is the manufacturer of the Crescent "Compact" tape recorder. It is offered in two models, the 903 and the 907, at a price of $99.50. The 903 has a tape speed of 3¾ i.p.s. and the 907 runs at 7½ i.p.s. The machines feature dual track recording and a fast forward and rewind. The microphone is a ceramic.

One operating control takes care of the record and playback and there are separate controls for the tone and volume.

Frequency response is essentially flat from 70 to 8500 cycles at the 7½ inch speed and from 90 to 6000 cycles at the 3¾ speed according to the manufacturer.

The unit has two outputs, one for an external speaker and another for connection to an external amplifier.

New Model Ekotape

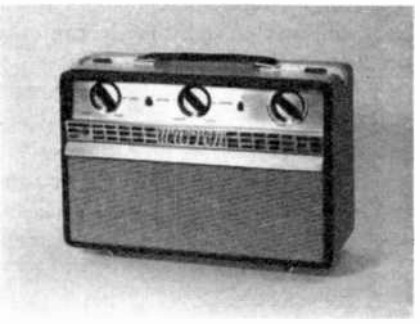
Webster Electric Company, 1900 Clark Street, Racine, Wisconsin, is the manufacturer of the new "Golden Tone" Ekotape, a two speed recorder recently announced.

A single switch changes speeds and also provides the necessary compensation within the amplifier for the change.

The recorder measures 13½ x 11¾ x 9⅝ inches and weighs 28 pounds. It features straight line tape threading, pilot light, and tone controls. A manual or foot control is provided for stopping or starting.

A pocket in the cover provides storage for reels, cords, etc. and a matching case 12 x 8 x 9 inces is available as an accessory for carrying extra reels, cords and other necessary gear. Full details and prices from the firm

Warren Portable



The Warren Portable is made by the J. C. Warren Co., 21 Hanse Ave., Freeport, N. Y. In appearance it resembles a modern portable radio and it weighs only 22 pounds. It may be operated on AC or up to six hours on the self-contained batteries. The tape speed is 1.87 i.p.s. with a playing time of one hour for each track. Frequency response is from 200 to 4000 cycles. Full details from the J. C. Warren Co.

NEW PRODUCT REPORT

STAFF OKSTED

Product: Ampro "Celebrity" Recorder Model 755.

Price: $229.95 complete with microphone, reel of Scotch Sound Recording Tape, takeup reel, and connection cord.

Manufacturer: Ampro Corporation, 2835 N. Western Ave., Chicago, Ill.

NEW AMPRO CELEBRITY RECORDER . . . the first all-electronically controlled recorder with Magic Eye and Selection Locator.

THE Ampro "Celebrity," model 755, and the "Hi-Fi," model 756, recorders are the first completely electronic-controlled recorders to be placed on the market.

For our report a "Celebrity" model, which has a tape speed of 3¾ inches a second, was picked directly from the production line.

The basic idea behind both models, which are practically identical in appearance, is that the time has arrived for the tape recorder to move into the living room as a piece of furniture, as well as being a utilitarian instrument of value to all the family.

A console speaker is available as an accessory and is built so that the recorder may be placed on top of it, making a very attractive and complete unit. The case is finished in limed-oak plastic that fits well with any decor.

The case is opened by lifting the left side of the nameplate and the top is removable. Microphone, cords, tape reels, etc. fit in a channel at the rear and the cover may be placed on with the seven inch reels in position.

All controls are in the form of "piano keys" with solenoids doing the work of actuating the mechanism. These eliminate the wear found in mechanical linkage systems and provide rapid, simple operation.

Due to the interlocking of the controls, all changes in tape direction, playback, record, etc. must be operated through the stop position. This is an added safety feature to prevent accidental tape breakage or spillage.

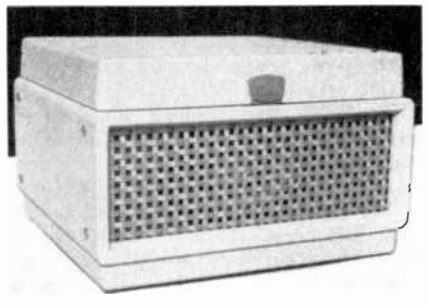
The record key has a safety latch which must be moved to one side before the key can be depressed. This acts as a preventive of accidental erasure. Both a fast forward and a fast rewind are provided.

One of the features which we found useful was the Automatic Selection Locator. It measures tape positions by means of numbers, operating somewhat like a speedometer and once the number has been noted at which a taped selection starts, you can depend upon it to start at that number always, unless the tape is shortened or lenghtened.

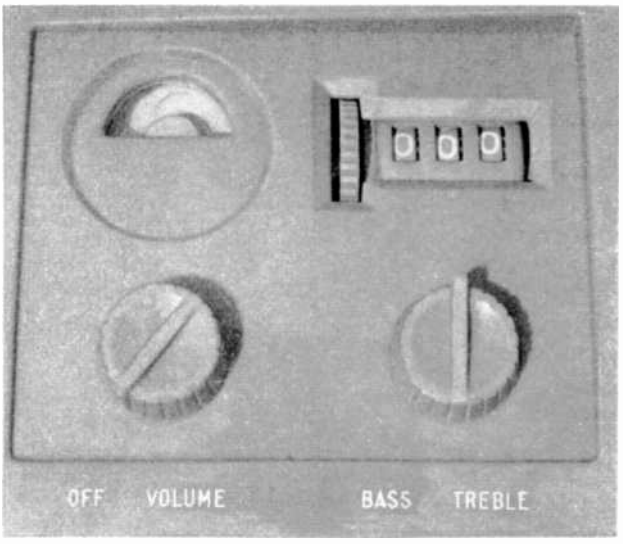
The Electronic Recording Level Indicator is very easy to use and in addition to providing a check on recording level it also shows when the recorder is warmed up and ready for action. If the two parts of the wedge almost touch on the loudest sounds you are running at a good level. If they overlap, you are overloading the tape.

The speaker, which is enclosed in the recorder cabinet, is a 6 x 9 inch unit and has a good response.

In a well on the side of the case, are the jacks for external connections for: a remote control switch, the external speaker, (which may be used for



Top: the "Celebrity" recorder complete with accessories and reel of tape. Below: the attractive recorder with the case closed.



Left: the control panel showing the Recording Level Indictor, the Selection Locator, the On-Off Volume Control and the Tone Control. The Recording Level Indicator is efficient and easily read and the Selection Locator is accurate and of great usefulness in pinpointing selections that may occur at any point in the reel. It can be reset with the knurled wheel at the left of the counter. Right: the panel on the side of the recorder. The "Ext Speaker" jack can be used as a headphone monitoring position.

monitoring or additional power amplification), the radio or phono inputs and the microphone input. A cord with jack and alligator clips is provided for making connections to radio or phonograph.

The on-off volume control and the bass-treble tone control, together with the Recording Level Indicator and Selection Indicator form one panel on the left of the machine. In the corresponding spot on the right are the keys controlling the mechanical motions.

In design the unit is very attractive and internally it is well built. A flywheel, individually dynamically balanced has reduced wow and flutter to less than ½ of 1 per cent. The amplifier portion can be separated from the mechanical parts by the removal of four screws, making servicing easy.

The stop and start is very positive and wow free, however, care must be taken that the tape is not loose or breakage may occur. When you press down a key the response is instantaneous. This quick start and stop feature makes it easy to edit tape.

The quality of reproduction compared to standard program requirements is excellent despite the 3¾ inch speed, as the frequency response was fairly linear and of excellent quality on the machine we tested. At the higher frequencies there is a falling off in the linearity of the output. However, taken all in all, this machine accomplishes at 3¾ inch per second speed what many machines are able to do at 7½ inch speed.

The Ampro Model 756, which does have a tape speed of 7½ inches per second, naturally has a much greater range of frequencies falling in the flat response category.

In our preliminary examinations we were a bit concerned about the size of the reel spindles which fit rather loosely in the reels but actual operation showed that this mattered not at all. There was no difficulty encountered in running the tape nor was there any wobble to the reels when the power was applied.

Mechanically and esthetically the recorder is excellent. The drive motor is more than adequate for requirements, the temperature rise is normal and the dynamically balanced flywheel assures positive flutter-free operations.

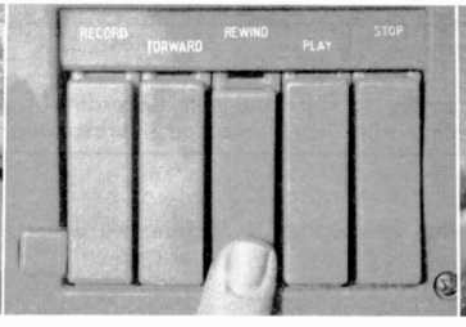
The use of the solenoid controls both eases and speeds operations. The electronic mechanism is also adequate for the job it has to do.

Actually we were quite surprised at the excellence of the tone achieved in playback. In one test we recorded from a radio speaker through the microphone, which is about the worst way to make an off-the-air recording, and the results were very pleasing.

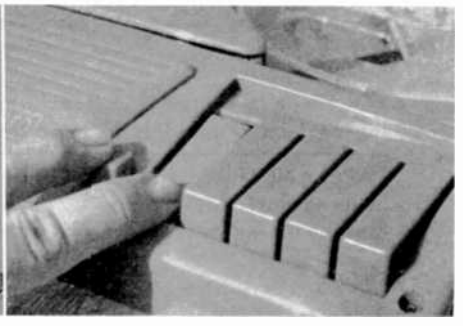
Off-the-air recording should be done, of course, by attaching the alligator clips to the radio voice coil leads and then inserting the plug in the phono-jack. Pressing the record key will then tape the program.

We believe that the Ampro is worth consideration if you are planning to purchase a recorder.

Tape threading is simple—just drop it in the slot. A 60 cycle erase head does a clean job of wiping old signals off the tape.



Five "piano keys" operate electro-solenoids which do the actual work of switching. Action on all movements is positive and rapid.



To record it is necessary to slide the safety latch sideways in order to release the recording key. This is an important safety feature.

OFF THE TAPE

We Went to the Audio Fair

One of the nicest things about our participation in the New York Audio Fair was the chance to meet many of you personally, listen to your suggestions and comments and find out what kind of articles you like best.

To those of you whom we did not meet we would like to extend the same invitation. You are holding the first issue of this new magazine. Is it what you want? If not, why not? What do you want in articles and features? The only way in which we can be sure of pleasing you is to know your preferences. So won't you please send us a short tape and give us your comments. If you do not own a recorder, a letter or postcard will do.

Those who can send tapes, and do so, will receive our comments on the same tape which will be returned just as fast as we can listen to it and reply.

Incidentally, the post office department has just announced a decrease in the mailing rates on tapes, putting them in the same category as records.

One of the most interesting people we met at the Fair was a boy about 11 or 12 years of age. He was bent on finding an empty 7 inch reel so he could return the one he had borrowed from one of the radio networks.

We inquired if he had a recorder. He replied that he did. We asked him what he recorded and his reply almost bowled us over.

He recorded only the commercials! No music, no speeches, no plays. Only commercials—especially if they had to do with health or safety. No wonder the net had presented him with a reel of tape! (He had to return an empty reel and the box, the tape was his).

When we next saw him he was in the Irish Tape booth and we asked him to tell them what he used tape for, which he did. His reward was a full sample reel. Doubtless Scotch Tape, Reeves Soundcraft and Audio Devices also made contributions to this worthy endeavor.

The youngster came prepared—he was carrying a small canvas bag.

An event of importance at the Fair was the formation of the Magnetic Recording Industry Association which is open to the manufacturers of magnetic recording instruments and media. Joseph Hards, V.P. of AV Tape Libraries was elected president by acclamation. Other officers include: Russell Tinkham, Sales Manager of Ampex as vice president; Herman Kornbrodt, Regional Sales Manager of Audio Devices, as secretary and Victor Machin, V.P. in Charge of Sales, Shure Brothers, as treasurer.

Elected to the Board of Directors were Paul Jansen, Sales Manager of the Sound Recording Tape Division of 3 M's, and Everette Olson, Sales Promotion Manager of the Webster-Chicago Corporation.

It is expected that thirty-five companies will become members within the next month, according to Mr. Hards.

We have heard a tremendous number of uses for tape recorders but one of the most unusual we have encountered to date is the use to which Mrs. Mary Kitsmiller, of Park Ridge, Illinois puts her Webcor machine. She has a radio program called "The Breath of Life" which is aired over WNMP, Evanston. It has been on the air continually since mid-August and features interviews with guests and friends in her home.

. . . . "the breath of life."

All this would be decidedly usual if it were not for the fact that Mrs. Kitzmiller is confined to an iron lung and does her program from it. Shown in the photo are Dr. Alfred Haake, program director, Mrs. Kitzmiller and Mark Gant, sponsor of the show.

In the Next Issue

Coming up in the next issue, which will be out about January 1, will be a number of articles you won't want to miss.

One of our Technical Consultants is busy building a mike mixer that you can build too and the other is going to explain, "what is a decibel." We found a lot of folks didn't know what ± 3 db. means or why db's. should always seem to be down.

Mildred Stagg's story on How to Make Money with Your Recorder, which was unavoidably squeezed out of this issue will appear, as will a story on Hack Swain and his multiple track electric organ tapes. He is going to tell you how to make yourself sound like a whole flock of musicians. There's more but no more room to tell you about it!

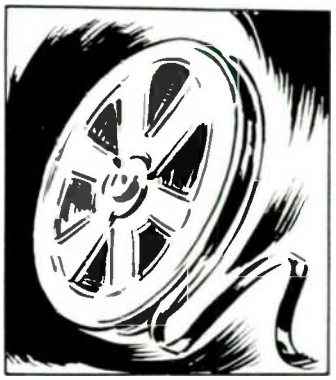
WANTED!

$100.00 REWARD

FOR THREE LITTLE WORDS

• WHAT IS HE DOING?

• WHO IS HE?



• WHAT IS THIS?

We need three words that describe the business or hobby of TAPE RECORDING. For the best set of three as selected by the judges we will pay $100.00.

As an example, in the business or hobby of taking pictures, the hobby is called "Photography," the person who makes the pictures is a "Photographer" and the thing he produces is a "Photograph."

We need a similar set of words to describe the art of tape recording; the person who makes TAPE recordings and the resultant product . . . so put on your thinking cap and send them in. You may win $100.00.

RULES

1—Anyone may enter except employees of Mooney-Rowan Publications, and their families.

2—Print or type the three words on an ordinary postal card together with your name and address. No letters please.

3—You may submit as many entries as you wish, however, each entry must be on a separate postal card.

4—Entries must be postmarked not later than December 30, 1953.

5—The decisions of the judges shall be final and we cannot undertake any correspondence concerning entries.

6—The winner will be announced in the March-April number of TAPE AND FILM RECORDING.

7—In the event of a tie, the card bearing the earliest postmark will be the winner.

Just follow the simple rules and get your entry into the mail before December 30, 1953. Remember all we want is three words:

1—A word describing the business or hobby of TAPE recording.

2—A word describing the individual who makes TAPE recordings.

3—A word for a completed TAPE recording.

That's all there is to it and you may be adding new words to the English language. Print or type your suggestions on a regular 2 cent postal card and send it to:

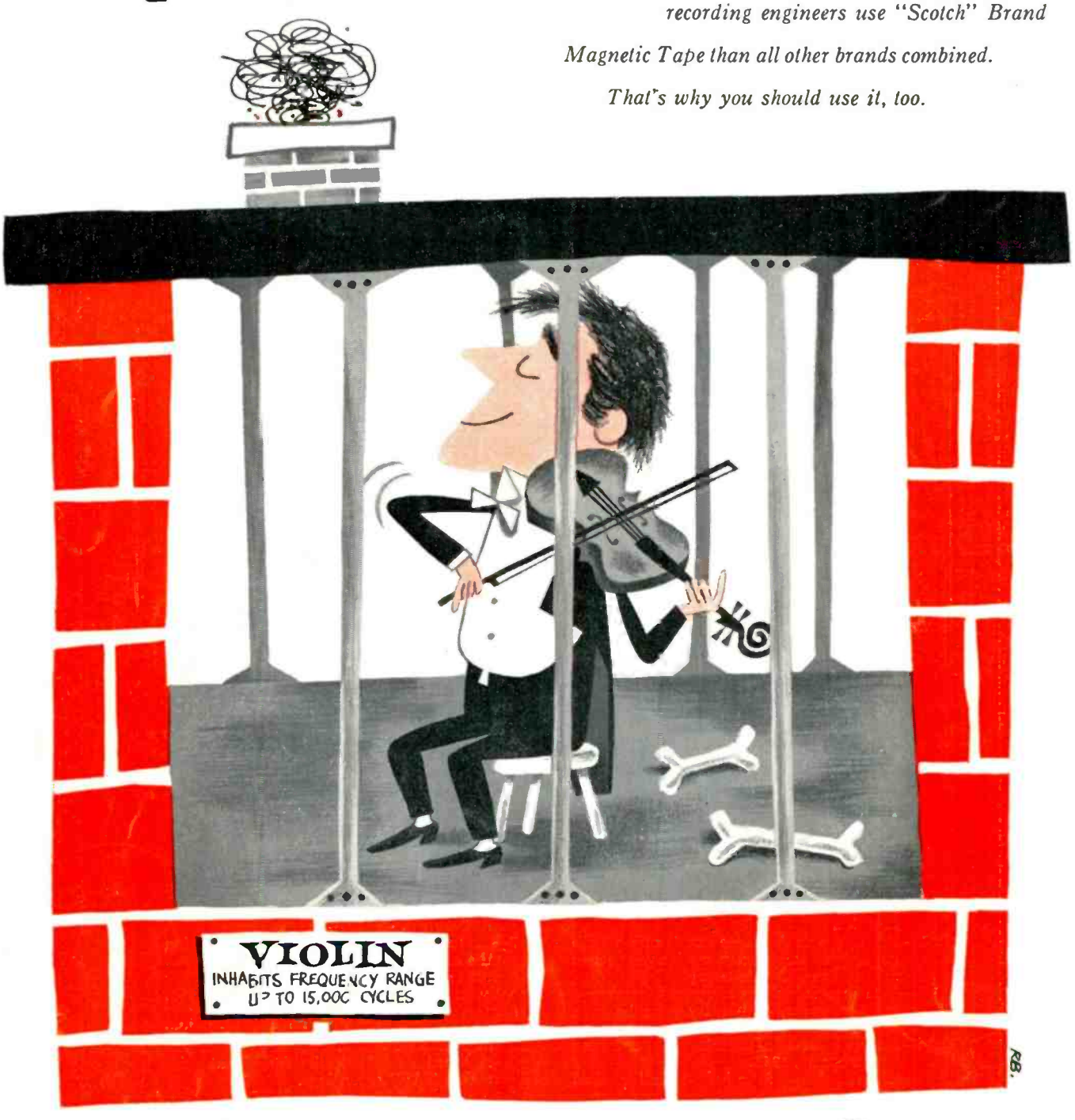
WORD CONTEST

TAPE AND FILM RECORDING

Severna Park, Maryland

Captured...

Every note captured perfectly. Every tone taped right . . . the first time. That's why more recording engineers use "Scotch" Brand Magnetic Tape than all other brands combined. That's why you should use it, too.



...with SCOTCH BRAND Magnetic Tape

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