

# TAPE

RECORDING MAGAZINE

AUGUST 1964

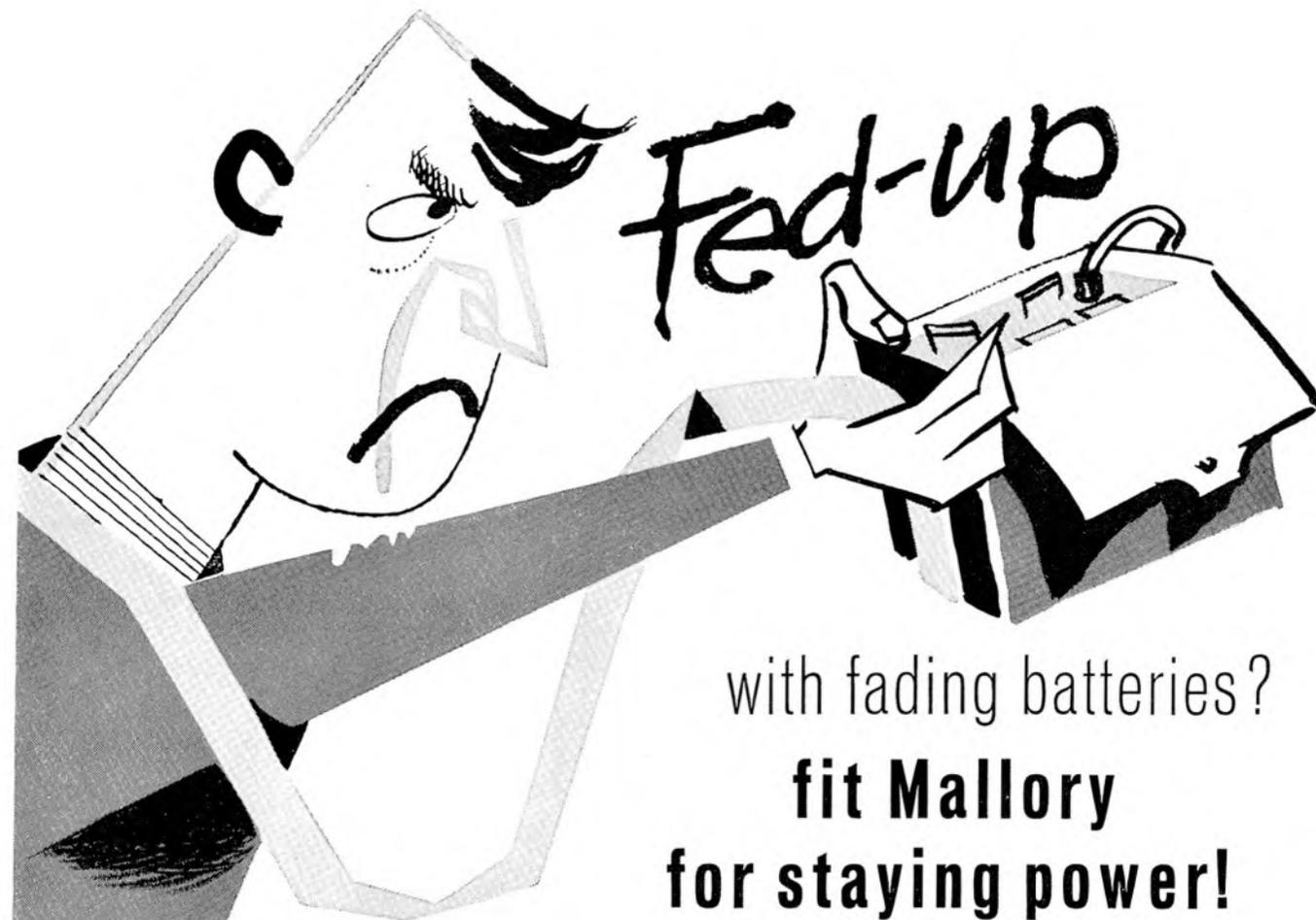
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## IN THIS ISSUE

**British Amateur Tape Recording Contest ● Professional advice on producing sound effects ● How to make a film sound-track ● Equipment tested ● Choosing tape and cine equipment ● Drama productions on tape ● Equipment tested Service Bureau ● News of new products ● News from the clubs**

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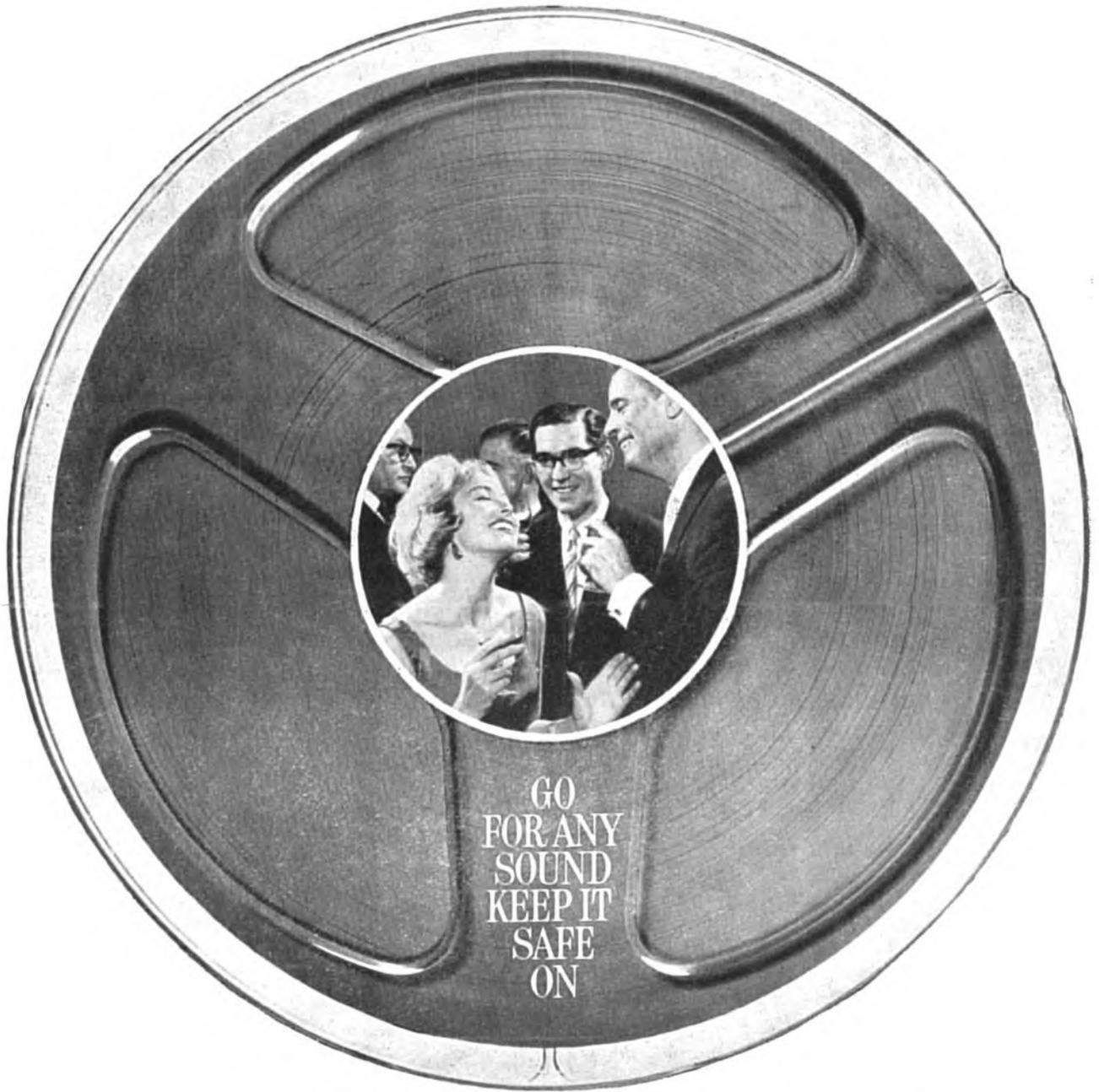
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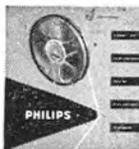
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**74** Superb Sarah Vaughan in ten great numbers. If I Loved You, Saturday, It's Delovely, You'll find me There, etc. Every one a hit.



**83** Brilliant Devy Erlich gives dazzling performance of Mendelssohn's Violin Concerto, plus Kreisler Memories. Ernest Bour conducts Sudwestfunk Orchestra.



**58** The fabulous, dynamic Duke Ellington himself in eight great numbers, including Stomping at the Savoy, In the Mood and Honey-suckle Rose.



**81** Some of Chopin's loveliest melodies magnificently played by world-famous pianist Fou Ts'ong—The Four Ballades, Nocturne in F Sharp Major, etc.



**79** Patsy Cline sings 12 smash hit numbers including Walking after Midnight, Too many Secrets, I Can't Forget, Hungry for Love, etc.



**12** Beethoven Eroica Symphony. Josef Krips conducts the London Symphony Orchestra in a masterly performance of this monumental work. Also in stereo.



**84** Schubert's Rosamunde, Kurt Redel, conducting the Munich Symphony Orchestra, has just the lightness of touch needed for this enchanting and ever popular music.



**76** Unforgettable Art Tatum in person plays Tenderly, Body & Soul, Without a Song, Begin the Beguine—12 superb numbers from the greatest-ever jazz pianist.



**53** These two suites, containing some of Bizet's most thrilling music, are given magnificent performances by the Sinfonia di London under Muir Mathieson. Also in stereo.



**77** In the Mood, Bugle Call Rag, Chattanooga Choo-Choo, Serenade in Blue—9 original tracks by the immortal Glenn Miller and his band.



**54** Tchaikovsky's last and greatest symphony is here given a splendidly moving rendering by the Sinfonia di London conducted by Muir Mathieson. Also in stereo.



**80** Dynamic Billy Daniels sings his greatest hits including Summertime, Old Black Magic, On the Street Where You Live, Kiss of Love, and 11 more.



**69** The exquisite playing of the Virtuoso Ensemble matches the beauty of Schubert's celebrated Trout Quintet, which contains some of his most famous melodies.



**65** Our Love is Here to Stay, The Nearness of You, Gully, and nine more great hits, all with America's top vocal group, the fabulous Four Freshmen.



**72** The magnificent Platters bring you Sixteen Tons, My Dream, Mystery of You, You'll Never, Never Know, One in a Million—10 superb numbers.



**32** Star cast and orchestra stage all the famous songs—Getting to Know You, Hello Young Lovers, I Whistle a Happy Tune, Shall We Dance, etc. Also in stereo.



**89** The one and only Dakota Staton sings If I Love Again, On Green Dolphin Street, Pick Yourself Up, Meet Me at No Special Place, etc.



**63** Cuban Carnival, Yesterdays, Blues in My Heart, and eight more great numbers played by George Shearing with vocals by Dakota Staton.



**60** Chabrier's colourful Espana, with Suite Pastorale, Joyeuse Marche and Bourree Fantastique. Paul Bonneau conducts Champs Elysees Theatre Orchestra.



**30** Ian Carmichael, Joyce Blair, star cast orchestra. As Long as He Needs Me, Consider Yourself, all the hit numbers from Lionel Bart's great show. Also in stereo.



**61** The world's 3 greatest sonatas—Moonlight, Pathétique, Appassionata—superbly played by famous T.V. pianist Joseph Cooper.



**25** Ian Wallace, Joyce Blair and chorus. Some Enchanted Evening, I'm In Love With a Wonderful Guy, Bali Hai, and all the unforgettable songs from this great musical. Also in stereo.



**48** Deep in My Heart, Drinking Song, Serenade—all the old favourites fresher than ever with Marston Gramkali, Linden Singers and Orchestra. Also in stereo.



**59** The silken voice of Nat King Cole in Walkin', Because You're Mine, You'll Never Grow Old, Baby Won't You Say You Love Me and 8 more.



**39** Great ballet conductor John Hollingsworth and the Sinfonia di London in a sparklingly fresh interpretation of Tchaikovsky's famous Ballet. Also in stereo.



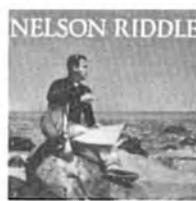
**73** Born to be with You, Mad about the Boy, Tomorrow but not Today, That old Feeling—and six more hits by the brilliant and beautiful Patti Page.



**2** Grieg Piano Concerto, Alexander Jenner in an electrifying performance with the Bavarian State Radio Orchestra conducted by Odd Gruner-Hegge.



**91** Barbara Leigh with all-star cast and orchestra sings It's Never Too Late, I could be happy with You, We said We Wouldn't Look Back, 12 in all. Also in stereo.



**71** The smooth sound of the Nelson Riddle Orchestra in Touch of Your Lips, Body and Soul, The Tender Touch, As You Desire Me—11 favourites in all.

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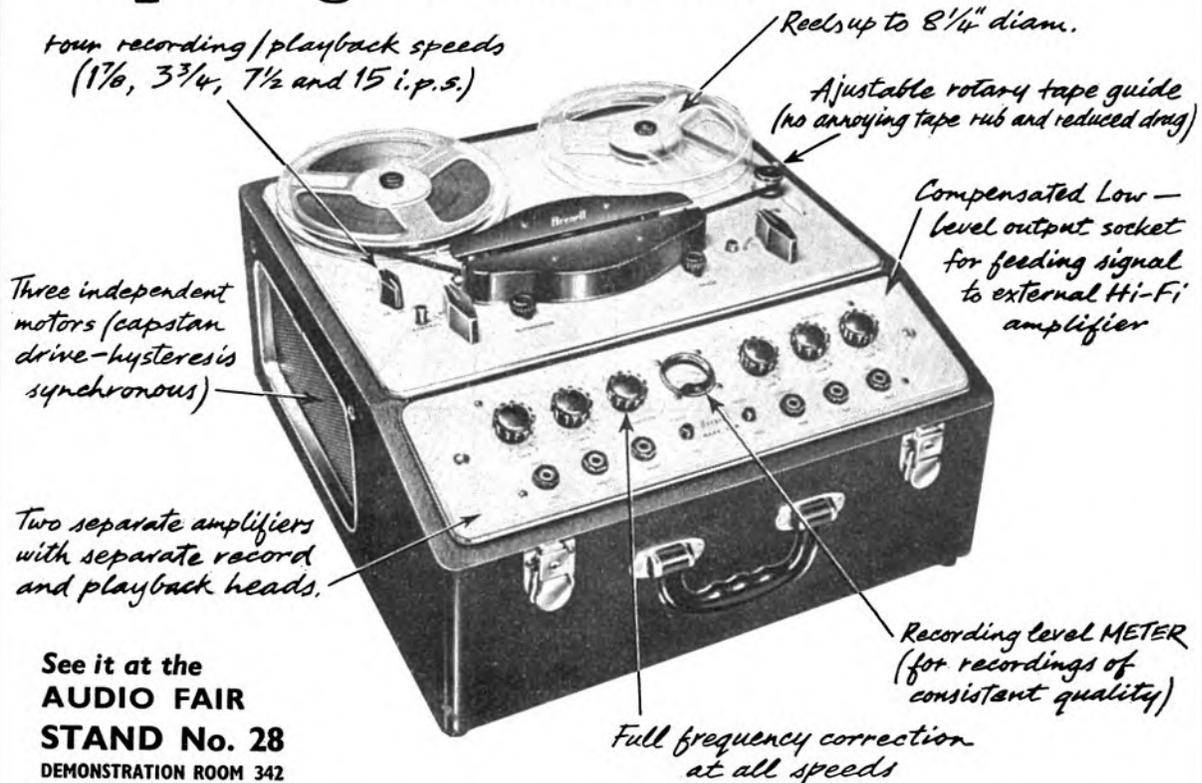
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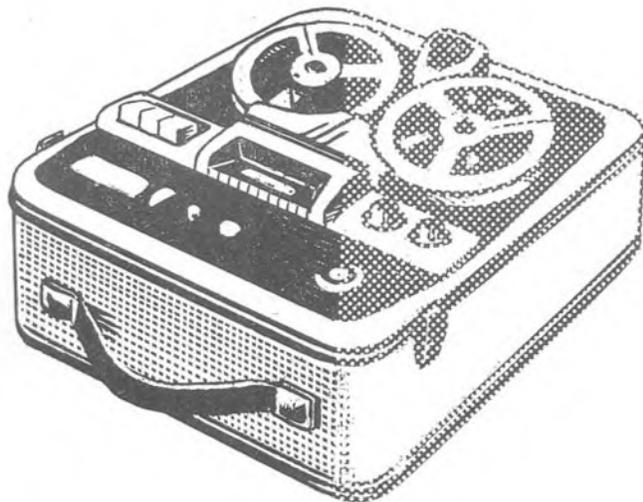
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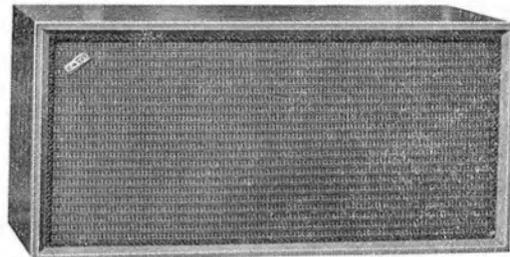


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**TAPE**  
 RECORDING  
 MAGAZINE

Vol. 8

No. 8

August 1964

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**COVER PHOTOGRAPH:** The chimes of the well-known Guinness Clock in London's Piccadilly Circus are recorded on Emitape 99 long-play tape. The clock chimes every 15 minutes and in the course of a year the tape is subjected to over 35,000 operations. Rigorous weekly testing by the equipment manufacturers (Associated Fire Alarms Ltd. for the Electric Sign Co. Ltd.) increases this to over 50,000 operations per year but A.F.A. Ltd. report no trace of wear or deterioration in quality of the tape when it is renewed each year. Our illustration shows the clock, and part of the chiming mechanism.

"TAPE Recording Magazine" is published on the third Wednesday in the month, by Print and Press Services Ltd., from 7, Tudor Street, London, E.C.4.

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Back numbers, if still in print, are available at 2s. 6d. per copy.

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**EDITORIAL**

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**ADVERTISING**

Advertisement Manager,  
 MISS PAMELA DURHAM

# Tape trends and tape talk

By the Editor

THERE ARE INDICATIONS of greater interest than ever before in this year's British Amateur Tape Recording Contest. Names of the judges—the panel has been enlarged this time—appear on page 319.

Apart from the prizes awarded in the British Contest, the best British tapes will compete for a dazzling list of prizes in the International Recording Contest, which will be judged at Lausanne, Switzerland, in late October.

Information just to hand shows these prizes to include one of 1,500 French francs (about £107), one of 1,000 Swiss francs (about £85), two of 5,000 Belgian francs each (about £35), and a number of other smaller, but substantial, sums, plus a number of other prizes, including a £100 recorder.

In cash or kind, therefore, it is possible this year for the best tape heard, should it prove to be a British entry, to win for its creator nearly £200. That is worth a lot of effort.

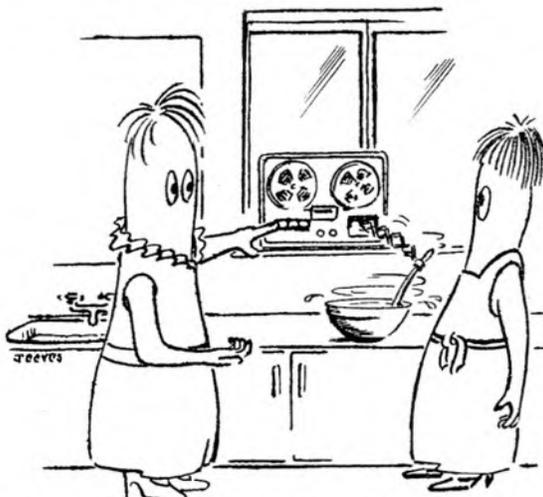
There is still time to compete, even if you haven't started yet. The closing date is July 31st. Entry forms are available from most tape dealers. If you have any difficulty write to us for one.

\* \* \*

THE BBC HAS agreed terms with the unions for the broadcast of a non-stop programme of music on the Third Programme wavelength and, almost overnight, there has come a decision to abandon the "Sound" programme in Network Three.

Readers will recall that there was previous occasion when the BBC, in anticipation of its new music programme, announced the death of "Sound." Many protests were made and the programme was saved.

## LAUGH WITH JEEVES



"I insisted on George getting a recorder with a built-in mixer."

It is difficult to believe that "Sound" would have run for so many years, or that an earlier decision to ditch it would have been reversed, unless there was a substantial and keen body of listeners for whom the programme caters.

I hope that everyone who believes it is important to have such a regular programme will make his or her views known immediately. Once before, quick action by listeners secured results. A sufficiently large post-bag of letters addressed to the Head of Sound Broadcasting at Broadcasting House, London, W.1, within the next week might save the programme again.

\* \* \*

I WAS SORRY TO HEAR of resignations from the Committee of the Federation of British Tape Recording Clubs. I must not get involved in inter-club politics, but I have always hoped that there would come naturally into existence a strong national Federation, linking a series of regional federations which, in turn, would organise the local clubs.

It is proving a difficult task to weld together the various groups which have sprung up—mainly because of financial difficulties.

Some further evolution must take place. The important thing is that a fully democratic machinery shall be built up and that it shall offer stimulus and assistance at local level and a united voice and action at national level.

\* \* \*

I AM VERY IMPRESSED by the new edition of the World Tapes for Education catalogue, just to hand from America.

It lists nearly 500 tapes from which dubbings are available to members of WTE who send a reel of tape on which to record.

WTE now has a widely-spread organisation in all five continents.

Some idea of the range of its library can be gauged from these section headings: Scouting, Holidays, Legends and Folk Tales, Oceanography, Foods and Cooking, Music, Literature, and Biography.

There are tapes to aid language tuition and there are tapes dealing with the life of many countries.

I feel that this pioneer educational work with tape should be more widely recognised and used on this side of the Atlantic. In the USA it enjoys academic recognition.

\* \* \*

IT WAS A GRIEVOUS shock to hear of the sudden death of Bill Walton, Managing Director of Stagesound, at the age of 42.

Since the war he has been spectacularly successful in building up his business, but he had a genuine interest in the amateur sound enthusiast and the organisers of the British Amateur Tape Recording Contest benefited from his kindness.

In ten years he took over the supply of sound effects and music in nine out of ten of London's theatres and he recorded radio programmes of all kinds in more than 60 languages for transmission all over the world. There are more than 60,000 items in the sound effects library he built up.

In the second article of a new series giving practical advice on script-writing the author—who writes scripts professionally—deals with “Shape and Structure”.

## Working on a tape script

By ROY RUSSELL

**T**WO attributes give polish and a professional air to a script and they are both very neglected. One is the overall shape, often difficult to delineate by the person who is closest to its creation unless he is very experienced. The other is, for want of a better word, tautness. If a script is taut, not a single word is a passenger.

To take shape first, as it comes chronologically first. It is as simple as the headings teachers used to drum into us for essay preparation; the introduction, and the conclusion with several paragraphs in between, each one having a subject matter heading of its own. Substitute “sequence” for “paragraph” and you have it.

Ideally the shape should be determined in advance, but this is not always practicable. Quite often existing material cries out to be fashioned into a programme. The existence of these recordings in a fairly intractable state may restrict your thoughts, but a structure built up out of a logic of sequences is still essential to good programme building. If it isn't possible then the chances are that the material has not the programme potential you thought it had. Note how actuality material is used, edited, linked and blended in a radio documentary. And remember how much more was left unused in the transmitted production because it didn't fit into the shape.

Ideally, the actuality material should have enough content and be sufficiently self-explanatory (in time, situation and character) to need only the simplest and briefest of introductions and linkages. But one is rarely this fortunate. On the other hand never

underestimate the listener's ability to re-orientate himself quickly. You don't have to tell him “And now over to a London bus” if the first sound heard is the conductor's “Hold tight. Leicester Square next stop” accompanied by the familiar sounds.

The introduction sequence has a special function. It must excite our interest, whet our appetite, make us eager to know what is going to happen next. Television script editors tell new writers “your script must capture the audience in the first five minutes.” In radio the buttonhole-time is probably less. But you can do so much in five minutes. Even in five seconds.

Take a stop watch in hand and put a radio script by say Durbridge or Alan Burgess to this test. It might amaze you.

Frank Richards used to do it in the very first word of his Greyfriars stories. “‘Yaroooh’ said Bunter, as he landed on the bottom step. ‘I say, you chaps . . .’” or words to that effect.

A common expedient for “opening in action” as it is called, is to jump into your story at a point of action and only when interest is established, go back to the beginning. Newspaper articles do it to an irritating degree. Note this “treatment” of news stories but try to do it more subtly. You know the sort of thing: “A girl whose sole aim in life was Bigglestown's Old Time Dancing Cup, was awarded £28,000 yesterday because she may never walk on a dance floor again.” Followed by details of the accident at the court case, is not too cruel a patch of this sort of thing.

Give your opening the does-it-immediately-establish-interest test. If at the same time you are setting the scene, the time and the characters, so much the better. This is taut writing and it applies whether you are treating a serious or a flippant subject,

whether it is fact or fiction, ancient or modern, drama or documentary.

The introduction must lead naturally to the second sequence and each sequence follows consequently from the last. Even a flash-back does this because listeners are quite used to the simple fade-out fade-in or a mix after one of many standard lead-lines such as “Ah was nobbut a little lad when it 'appened. I was kickin' a stone in the entry when . . .”

If your actuality material falls into categories which have no chronological or development order it pays to consider each of them by listening to the content several times and switching them around on paper in their little packages. Give them subtitles for this exercise. If one package proves a stumbling block, cut it, if it can be spared: it is usually worth losing one item for the sake of a smooth overall shape. And what the listener never has . . .

It is immaterial how absorbing your tape of “A Trip Round the Zoo” becomes later on if you lose your audience at the turn-stiles sequence. That vital opening sequence must make them sit up and take notice. Professional writers do this to such a degree that far too many professional scripts never live up to the promise of their opening sequences. Still, better that than no promise at all.

This is the reason why too many television programmes put the opening sequence before the credit titles. It so captures the viewer that he often complains aloud when eventually the credits intrude. It is a policy I do not advocate, particularly in sound.

Ruthlessly cut anything which does not strictly impinge on your story-line or tie in with the continuity of your sequence. You know the kind of thing. It sticks out like a sore thumb at a dinner. The speaker brings in irrelevances or tells a story which he hasn't bothered to relate to the rest of his speech. It can always be done if you work on it.

Let us take a simple example for which we have no defined order of sequences—“A sound picture of a Village”—and work from an imaginary opening sequence.

We will start (there could be a dozen ways) with the sounds of heavy traffic on the main road overlaid with dialogue from inside a moving car.

“This is the turning. It's signposted Compton Bassett: one mile. You turn left just after the Red Triangle Garage. Here.” The traffic noise then begins to fade. “There it is. You can see the church above the trees.”

Now what treatment have we decided on. We could have a reference to when all traffic was horse-drawn and flash-back with a mix to clip-clop and tranquility. Or cut straight from the reference to the church to an interview with the vicar. This might have been already recorded and the reference to the church is made the last line of this short opening sequence so as to lead to the church sequence, the next we wish to use.

If, on the other hand, the interview with mine host at the local would make a better second sequence for some reason, the last line of the opening sequence might be “Before I show you round we'll have a quick one at the Dog and Partridge. It's a genuine 15th century coaching house.” This is a way which comes instantly to mind. Deliberations would create ten or more others, one of which would appeal by its freshness, or humour or surprise or interest, and so on.

We will continue the village programme next month after we have gone into sequences and linkage in more detail.

Each summer thousands of enthusiasts explore for the first time the exciting possibilities when tape is linked with cine photography. For those who are thinking of embarking on this enlarged activity two experts provide advice on the techniques, and—on the facing page—the equipment available.

## Making a sound track

By PETER RYDE

**I**F you are interested in cine as well as tape, you will naturally tend to combine the two, and produce sound films. But even if you don't take your own cine films, it's still worth knowing something about sound tracks. These days, more and more cine workers regard some sort of sound as essential; but they often lack the necessary recording skill, and ask their tape recording friends to help them.

If you have had little or no experience of making film sound tracks, there are one or two things you need to know before you begin. First of all, it is very important to realise that there is a great deal of difference between a sound track and a feature tape. In the first place, they do entirely different jobs.

In the feature tape, all the information is put across by means of sound alone: what the audience is to know, they must learn or infer from what is recorded on the tape. The tape is therefore something essentially complete in itself. This is not true of a sound track. In a sound film, the impact is made, not by the sound or the picture alone, but by the combination of the two working together. The visuals or the sound track by themselves are probably completely meaningless; only when the two are brought together does either begin to make sense.

This means that the whole business of recording for films is radically different from producing tapes which are complete in themselves. Many experienced tape recordists, who have had no experience of film work, tend to overlook this vital point. The result is that their sound tracks are much too self-sufficient. In this case, instead of the sound and picture blending together to produce a single impression in the mind of the audience, the visuals and the sound track are in opposition to one another. Sound of this sort is worse than useless, because it lessens the impact of the picture instead of reinforcing it.

When sound and picture co-operate properly, the film can make its points much more economically. Suppose the scene is an interior, perhaps an upstairs room at night. Someone is moving about downstairs when they have no business to be. In a sound film, this could be put across by a picture of a man upstairs, listening, and registering alarm, mystification, etc.; at the same time, the moving-about noises would appear on the sound track. If we saw the picture only,

we should not know what was causing the alarm unless this had been previously established in a separate shot or shots. Similarly, if we heard the sound by itself, we should not be able to grasp its significance. But by putting sound and picture together, we learn a good deal in a very economical way.

The essential purpose of the sound track, then, is to act in conjunction with the picture, the two forming complementary parts of a single unity. Picture and sound must not fight for the audience's attention; but nor should one repeat points already made quite clearly by the other. It is obviously futile for a commentator to describe what is already perfectly well apparent from the picture.

The same sort of thing applies to sound effects. Except in very lavish productions, it is pointless to accompany every scene or action with the appropriate sound effects, unless the action cannot be understood without them, or the sound is of an unexpected kind.

The second major difference between film and feature-tape work is that the sound-track producer is dogged by the need to keep the sound in synchronism with the film. It is often supposed by the blissfully inexperienced that sound tracks can be produced simply by taking a recorder along with the camera and making recordings at the same time as the film is exposed. With simple equipment, this is just not possible, since there is virtually no chance whatever that the camera, projector, and tape recorder will perform absolutely consistently. The tiniest difference between camera and projector speeds, the smallest variation in the tape speed between recording and replay, are enough to wreck synchronism. The only sounds that one can afford to record during shooting in this way are "wild" effects, general background noises which are not required to synchronise with specific action.

Because of the difficulty of keeping sync during shooting and editing, most amateur sound tracks are post-recorded, and no attempt is made to record the sound until the picture film is edited and completely ready to project.

Projection sync is achieved very simply by means of a small automatic synchronising unit, often built into the projector, which uses the tape speed to control the projector speed. There are various types of automatic synchroniser, described elsewhere in this issue, but they all produce the same basic end result—accurate control of the film speed relative to that of the tape. If the synchronising device is used both during re-

recording and replay, sound and picture will remain in sync to within plus or minus a second or two.

However, even with post-recording, the synchroniser is not the complete answer. Sound tracks, like feature tapes, are usually composed of several separate elements—speech, sound effects, music from two or three separate master recordings, and so on—and these have to be combined onto the final tape without sync being lost.

In order to be sure of keeping sync, all compilation of the sound track has to be done onto the actual master tape that was synchronised with the film at the first recording stage. It is not good enough to dub from the original tape to another, and use this second one for replay, since dubbing will introduce errors of sync, because of differences in tape speed between various machines.

At first this strikes the tape worker as an appalling restriction, and it takes a bit of getting used to. In practice it isn't so very difficult, once you have got the idea. Simple commentary, music and effects tracks are usually produced in something like the following order.

First of all, the sound track is scripted, and cues noted down (e.g., music fades down at such and such a shot). A blank tape is now run in sync with the film, and all the cues are recorded onto this tape as they appear on the screen; the tape is then marked with visible cues in the appropriate places, and the recorded cues erased. The track is now compiled onto the master tape bit by bit, using the cues to ensure that each item starts and finishes at the right time. The actual compilation process will make use of all the facilities, such as mixing, superimposition, multi-track, etc., which the tape user has at his disposal. Provided the various components have been laid on the master tape according to the cues, the finished track will replay in sync.

Most amateur sound tracks are of this commentary, music and background effects type, which can easily be post-recorded and which do not need to be synchronised with precise accuracy. However, it is possible, by using perforated tape, to achieve 100 per cent accurate sync, still by the post-recording method. The perforations, which are rather like film sprocket holes, engage with a toothed wheel on the synchroniser and thus prevent the possibility of sync being lost because of tape slip or stretch. No modifications to the recorder are needed.

Perforated tape enables you to reproduce effects or speech in exact synchronism—often called "lip-sync," because only 100 per cent exactness produces acceptable matching of dialogue to lip movements. Rather more ambitious tracks are possible with perforated tape, scenes with synchronised dialogue, action cut to music, and so on, but you still have to solve the problem of getting the recording in sync with the film in the first place.

If you are prepared to go to quite a lot of trouble, you can make recordings at the time of shooting, and keep sync throughout editing, but this is rather more involved, and except for extremely ambitious productions, it is hardly worth the trouble.

So far, we have been dealing chiefly with recording on tape, either plain or perforated. But, as readers will know, more and more amateur sound tracks these days are recorded on a magnetic stripe which is bonded onto the film itself. As with tape, stripe recordings are usually made after the film has been edited, you can record on the stripe whilst shooting, but the difficulties which arise during editing severely limit the value of this technique, and it is little used except for news and reportage work.

At first sight, stripe seems to be the complete answer, since a sound track on the film cannot possibly get out of sync, once recorded. In practice, stripe is a mixed blessing, especially on 8mm. (16mm stripe is another story altogether).

For the benefit of newcomers to the cine field, who may find themselves called upon to work with either system, the tape/8mm stripe situation at present may be summed up as follows.

**Convenience:** Stripe is an excellent projection system—no sync worries, no extra apparatus to set up and operate. But for the film producer, stripe is less handy. Stripe is almost useless without tape equipment as well, to help produce the tracks. The projectors are noisy, so microphone recording needs to be done on tape and dubbed afterwards. Compilation onto stripe tends to be difficult, since mixing and super-imposition facilities are usually minimal, and 8mm stripe is too narrow for split track work. Nor can you cut the stripe to fit the picture, as you can with tape. Obviously, the answer is to compile the track on tape and then dub onto the stripe.

But then what about sync? You have to be very careful how you mess about with the projector speed to keep sync, otherwise you will get a lot of wow on the stripe track. Nevertheless, despite the difficulties of dubbing in sync, you'll need all the tape facilities you can muster for producing your striped tracks, even though stripe simplifies things during the performance.

**Quality:** Although with care you can get good results, the point is that you have to be very careful to take note of stripe's limitations, and not to overstep them. The low linear speed, and the need to smooth out intermittent film motion below the gate, mean that wow and flutter are either very evident, or, if they aren't, they're only just round the corner. You have to choose your music carefully—no long drawn out notes.

The poor compliance of the thick film means poor contact between the stripe and the heads. This produces mushy recordings with a poor signal-to-noise ratio, which isn't helped by the need for a good deal of amplification to get adequate volume from the very narrow track.

What it comes to is that 8mm stripe can be satisfactory, but only within very narrow limits. It gives you no latitude, no margin of error. Everything has to be exactly right, or you run into trouble. So you have to choose, in the end, between stripe, which gives you convenience during projection, but poorer quality; and separate tape, which gives you all the quality and facilities you want, but is more troublesome during a performance.

If you want to make simple sound tracks with the minimum of fuss, then stripe is probably your best bet. But if you want to produce something more ambitious, and are critical about quality, stick to tape every time.

# Sound recording for amateur films—choosing your equipment

By JOHN ALDRED

**S**ILENT amateur films are rapidly becoming a thing of the past, and a sound track on tape accompanies even the most simple family or documentary film. Sound recording and cinematography are two hobbies which blend well together, although the accent is on a post-synchronised sound track (recorded to an already edited picture) rather than an imitation of the professionally produced photoplay.

Amateurs have received little encouragement from equipment manufacturers to record lip-synchronised dialogue anyway, and there is little chance (let's face it) of achieving professional results! So let us consider a film sound track as a separate operation from the actual filming; something to look forward to after you have put away all your editing equipment.

## TAPE OR MAGNETIC STRIPE?

You have the choice of using ordinary tape or magnetic stripe as a recording medium, and there are several advantages in both systems. Magnetic stripe is a narrow coating of iron oxide, applied down one edge of your film after you have completed editing. This means that you will have to part with your film for two or three days before you can start recording. It also means that you will have to purchase a special magnetic recording projector with a built-in sound head, and this will cost two or three times as much as a good silent projector. The stripe itself will cost you approximately 2d. per foot in any gauge, 8mm, 9.5mm, or 16mm.

Tape as a recording medium is cheaper to use of course, and also the sound quality is better. This is because the track width and tape speed (usually 3½ ips) enable a greater signal-to-noise ratio to be obtained, as well as an improved hf response. For example 8mm film running at 16 frames per second, the normal filming speed, is only 2.4 inches per second. But even so stripe equipment is improving all the time and quite acceptable results are now possible, covering a frequency range of 60-6,000 cycles at 16 fps, and 60 to 8,000 cycles at 24 fps. But when considering a film sound track, one must not become bogged down

in the technicalities of hi-fi. More consideration must be given to the actual compilation and synchronisation of all the various sound sources, rather than the frequency range of the equipment. After all the film is really more important than the sound track, although naturally one should aim for the best possible sound quality as well.

Possession of a good tape recorder may sway you into abandoning stripe as too expensive and necessitating a duplication of your recording equipment. In which case you need only purchase a silent projector which is capable of being synchronised with your recorder. Two projectors, the Eumig and the Noris, have sound couplers actually built-in; whilst others, such as the Bolex, Bauer, Specto, and Zeiss Movilux, use separate tape couplers sold as an accessory. But even if you already have a projector without a coupler, you can purchase an automatic Synchronodek unit for 19 guineas which will do the job for you. All these sound couplers operate at a tape speed of 3½ ips, although the Synchronodek can occasionally be used at 7½ ips.

If you decide on using tape for your sound tracks, bear in mind that you will have two reels to thread up every time you show a film, and that you have to maintain synchronisation by using start marks on tape and film. Magnetic stripe has the advantage here, since synchronisation is guaranteed with sound and picture on the same piece of film. But a magnetic stripe projector by itself is not entirely satisfactory for the actual compilation of your sound track material, and a versatile tape recorder will still be an essential item of equipment.

## TAPE SOUND TRACKS

There is a basic need for accurate synchronisation between your recorder and projector. For instance every time you show your film you will expect to achieve exactly the same degree of synchronisation as when you made the original recording. Tape recorders run at a pretty constant speed, but projectors do not—especially those with AC/DC motors. Even projectors with induction type motors are not always accurate enough, making your picture get out of step with your sound track after a relatively short time.

The Sound Coupler previously mentioned (also known as a tape loop synchroniser) is

(Continued on page 310)

## SCOREBOARD

### QUARTER-INCH MAGNETIC TAPE

FOR

1. Better sound quality
2. No special projector
3. Easily joined or edited
4. Greater recording flexibility
5. Cheaper than stripe

AGAINST

6. More equipment to set up, therefore less portable
7. Tape liable to slip or stretch
8. Synchronism lost if film or tape breaks
9. Perforated Cinetape is as expensive as stripe
10. Suitable mainly for personal films

### MAGNETIC STRIPE

FOR

1. Sound and picture on one film
2. Only one item of equipment to set up
3. Broken joins do not cause loss of sync.
4. Synchronism always correct.
5. Library films available with sound

AGAINST

6. Special recording projector required
7. Equipment limited to film use
8. Editing after recording difficult
9. Costs from 2d. to 3d. per foot
10. Films must be sent away for 2 or 3 days

# TAPE AND CINE

Continued from page 309)

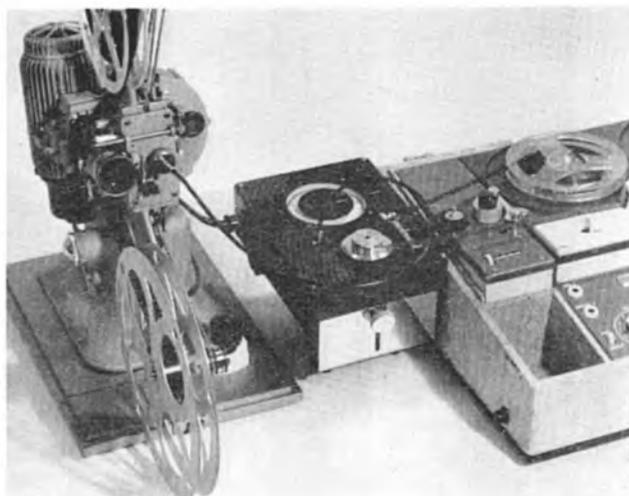
a device for making the tape itself control the projector speed automatically. This is achieved by passing a loop of tape around an additional capstan and pressure roller (driven by the projector), and a swinging roller to which is attached a variable resistor. This swinging roller assumes a central position according to the speed of the tape, and inserts exactly the right amount of resistance in the projector motor circuit to maintain a constant film speed.

Only two factors can upset synchronisation slightly, tape stretch and tape slip. Providing you use standard play tape, tape slip should not worry you. But in cases where you require 100 per cent synchronisation guaranteed, it is preferable to use perforated Cinetape. This is a Mylar base tape containing 16 perforations every 3½ inches, and costs £3 7s. per 600 ft. The projector capstan must be exchanged for a special sprocket (the Eumig projector is ideal for this), and a mechanical "lock" is formed between film and tape. At no time does perforated tape interfere with the running of the recorder, except that you lose one track out of a possible four.

Cinetape is useful for sound tracks containing highly synchronised sound effects, lip-synchronised dialogue, or for any other special reason. But for all normal purposes plain tape is quite adequate and should not be despised.

When setting up to record, make a clear start mark with white adhesive tape on your film—either on the frame entering the gate,

**The Automatic Synchrodeck unit which can be used to synchronise almost any projector with a tape recorder at a tape speed of 7½ or 3½ ips. It is shown here with the Bell and Howell 613H 16 mm. projector**



or on the frame actually in the aperture of the gate, whichever is the easier. Then make a second start mark on your tape (after you have threaded up the sound coupler) at a point opposite the record head, or some other more convenient place. The sound coupler usually contains a micro-switch, so the projector will not start until tape is passing through. So you can leave the projector switched on, and control the starting operation from your recorder. Once up to speed, usually 16 frames per second of film and 3½ inches of tape, the equipment runs accurately in sync. for the entire film; which leaves both your hands entirely free

to concentrate on the actual job of recording.

When playing back your sound track, make sure that you thread up accurately on the two start marks. Should your film look out of sync. at all, it is possible to make a correction during running by moving either the projector or recorder slightly (and slowly). Moving the two machines closer together will *advance* the sound, moving them apart will *retard* the sound. A distance of only one inch will make a difference of eight frames, which is half a second.

Should you make any mistakes whilst recording, some projectors can be made to reverse whilst maintaining tape sync. This permits a section only to be recorded over again, instead of having to return to the beginning of your film every time.

## PROJECTORS WITH TAPE SYNCHRONISING UNITS

	£	s.	d.
BAUER SOUND COUPLER for Bauer T10 projector (3½-7½) .. .. .	27	10	0
BOLEX SYNCHRONISER for Bolex 18-5 projector (3½ only) .. .. .	25	10	0
CINEREX SYNCHRONISER for Cinerex projector (3½ only) .. .. .	7	10	0
CINOVID SOUND ADAPTOR for Leitz Cinovid projector .. .. .	8	10	0
EUMIG PHONOMATIC PROJECTOR with built-in sound coupler .. .. .	44	0	0
ELMO TAPE SOUND UNIT for Elmo FP8 projector (3½-7½) .. .. .	19	19	0
HEURTIER TAPE COUPLER for Heurtier projector (3½-7½) .. .. .	13	10	0
NORIS AUTO SYNCHRONER PROJECTOR with built-in coupler (1½-3½-7½) .. .. .	69	6	0
SPECTO SOUND COUPLER for all Specto 8mm projectors .. .. .	12	12	0
SYNCHRODEK UNIT for projectors not having sound couplers .. .. .	19	19	0
ZEISS SOUND COUPLER for Zeiss Movilux projector (3½ only) .. .. .	11	15	0

No 16mm projectors are made with tape coupling units, but the Synchrodek is suitable for most machines available today.

## LIST OF AVAILABLE MAGNETIC STRIPE APPARATUS

### 8 mm. Projectors and Attachments

	£	s.	d.
AGFA SONECTOR 8—speeds 18 and 24 fps .. .. .	187	5	9
ALDIS Magnetic attachment (for Aldis CP8 projector) .. .. .	available soon		
CARENA CONCERTO—variable speeds 16 to 25 fps. Reverse .. .. .	149	0	0
DOMINUS—combined projector and tape recorder (3½-7½) .. .. .	120	0	0
ELMO TP-8—speeds 16 and 24 fps. Reverse .. .. .	165	0	0
EUMIG P800—speeds 16, 18 and 24 fps. Reverse .. .. .	95	0	0
KODAK SOUND 8—speeds 18 and 24 fps. Reverse .. .. .	185	0	0
PETERSON Magnetic attachment (suits many projectors) .. .. .	59	17	0
RIKOH SOUND 8—speeds 16 and 24 fps. Reverse .. .. .	139	15	0
SIEMENS 800 Magnetic Film attachment (for 800 projector) .. .. .	86	10	0
SILMA SONIK—speeds 18 and 24 fps. Reverse .. .. .	139	10	0
SUPERSOUND Magnetic attachment (for Bolex, Bell and Howell, and Eumig projectors) .. .. .	54	12	0
TOEI (available from Dixon's Ltd. only) .. .. .	99	10	0

### 9.5 mm. Projectors

	£	s.	d.
HEURTIER MONOSON 60—16 and 24 fps, mixer and monitor .. .. .	238	5	0
HEURTIER SUPERSON 60—(handles 8mm and 16mm as well) .. .. .	279	2	0
PETERSON Magnetic attachment .. .. .	59	17	0

### 16 mm. Projectors

	£	s.	d.
A.E.I. Model 700-R (magnetic replay only) .. .. .	281	0	0
A.E.I. Model 702 4-way mixer, 16 watt transistor amplifier .. .. .	425	0	0
BELL AND HOWELL 643 (magnetic replay only) .. .. .	289	10	0
BELL AND HOWELL 644 2-way mixer, 18 and 24 fps .. .. .	340	0	0
BOLEX S221 (sync. separation 22 frames), 2-way mixer .. .. .	445	0	0
DEBRIE D16—3-way mixer, film or direct monitoring, 18 and 24 fps .. .. .	519	10	0
R.C.A. HOLLYWOOD CONSTELLATION 4-way mixer, 18 and 24 fps .. .. .	375	0	0
SIEMENS 2000 single and double film models .. .. .	Prices on application to Hanimax Ltd.		
HEURTIER UNIVERSAL 60—16 and 24 fps, 6 watt amp .. .. .	474	10	0
EIA GARANT—16 and 24 fps, 10 watt amp .. .. .	198	0	0

## STRIPE SOUND TRACKS

Magnetic stripe has several advantages over tape, the main one being that all recordings are made on the actual picture film itself and remain in indestructible synchronism. Then there is only one item of equipment to set up before you commence recording or projection—a great time saver. The important point to remember is that sound on 8mm stripe is recorded 56 frames *below* the picture gate, and on 16mm stripe the separation is 28 frames *below*. Most stripe projectors adhere to this international standard.

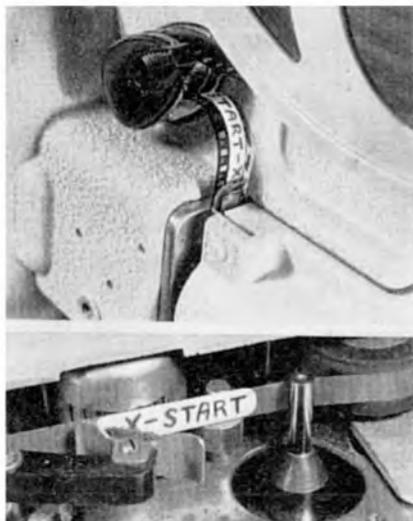
There are six variations of magnetic stripe; (1) Full width 16mm (0.1 inch); (2) Half width 16mm type A (0.05 inch) for retaining one half of a previously recorded photographic track; (3) Half width 16mm type B (0.05 inch); (4) Edge stripe 16mm for use with double perforated film; (5) Edge stripe 9.5mm; and (6) Edge stripe 8mm (0.03 inch). The full width stripe gives the best signal-to-noise ratio, but can only be used with 16mm film having perforations down one side. Your camera may have to be modified to accept this type of film. 8mm stripe gives the worst signal-to-noise ratio, but with a good magnetic projector you should achieve a figure of about 35 dB.

Before you send your film for striping by one of the firms advertising this service, it is essential to make sure that (a) a length of spacing has been added to the front and end of the reel, (b) all editing has been completed to your satisfaction, and (c) all your joins are good ones. A break on the striping machine could cause damage to your film, and maybe somebody else's. If you use adhesive tape for your film joins, make

sure that the tape does not intrude into the stripe area (outside the perforations on the base side of the film). Magnetic stripe will not bond to adhesive splicing tape.

Apart from the liquid type of stripe, there is laminated stripe—a narrow strip of double-play tape which is stuck on to your film. This has been found to give slightly better results, but is a little more expensive. Any local cine dealer can arrange to send your films away for you, or you can post direct to Zonal (Film Facilities) Ltd., Zonal House, Westfields Avenue, Acton, W.3 (liquid stripe only), or E.V.T. Magnetics Ltd., 157, Long Lane, Bexleyheath, Kent (liquid or laminated). The price is 2d. per foot all film gauges.

Amplifiers fitted to stripe projectors usually have two inputs which can be mixed together, or alternatively a small resistive mixing unit which can be purchased as an



Using white adhesive tape or an "Arrowtab," place a start mark on your film just above the gate (top), and on the tape (bottom) opposite the record/playback head

accessory. Some machines include a superimposition control, achieved by varying the recording bias, and some can be run forwards or in reverse with the film threaded. Others can be stopped and started instantaneously with the motor switch, or with a clutch, whilst some have a heavy flywheel assembly which takes a few seconds to come to rest. The most important feature is to run in reverse, to enable recordings to be "patched" up and hide mistakes.

One 16mm projector has interchangeable edge and full stripe heads, which enable two tracks to be laid on a full width stripe. Then there is a new French projector, the Heurtier, which will accept any gauge of film and all types of stripe and photographic sound tracks. One English firm is now manufacturing an 8mm magnetic stripe attachment for fitting to three types of silent projector, giving stripe facilities for just over £50.

One feature of magnetic stripe has not been mentioned yet, and that is the large variety of printed films available for home showing with magnetic sound. These consist mainly of shorts, documentaries, and cartoons, with magnetic sound recorded 56 frames below the picture, and the projection speed is 24 frames per second. Add one or two of these to your programme (they can be bought or hired), and you can build up a lively show.

# How we made a film sound-track

By PERCY CHILDS

**T**HE first time I saw the film "The Rest is Silence," then in its rough-edited state, its impact was so moving and unusual as to provide two instant reasons for undertaking its sound track: first because there was so much scope for ideas, and second, because there were obviously several interesting problems to tackle. The dialogue, already scripted, needed accurate timing. Some of it was lip-sync.; a wealth of effects were implied; and the film cried out for music. No point in asking why it wasn't on 16 mm at 24 fps with striped sound, because there it was on 8 mm at 16 fps, and the sound had to be on tape.

Can unmarried sound tracks work? No doubt about this—our first talkies had them, 36 years ago. Al Jolson's voice was a sensation on a 16-inch disc, with no trouble, barring accidents in projection. We're better off, we have tape, which is at least the same shape as film, and we can choose from a host of little gadgets for interlocking it with film. However, a little simple arithmetic is very effective as the pinch of salt to take with the claims for systems which rely on a capstan gripping plain tape. Capstans on different machines *cannot* be the same diameter, even if tape never expands or contracts, and there is no joy in making a film which will only work on one projector.

Caution and experiment made us decide to use perforated tape and a toothed wheel; we were taking a leaf out of the pioneers' book, remembering that the 16-inch disc had a notch to locate over a peg on the turntable. This does not guarantee synchronism, because in the last analysis it depends on the projector and the projectionist, and they might both get into trouble. What we can and must do, however, is to make a synchronisable tape with proper start and end marks both on it and the film. Also, we can look critically at the interlock mechanism between coupling wheel and projector. The Bauer has a selsyn (electrical) link which is sophisticated and easy to use, but the mechanical systems have the advantage that sync., like justice, can be seen to be done, and the interlock is retained while stationary.

Given reliable interlock and perforated tape, what else is needed to achieve synchronised sound? We can forget all the talk about tape speed, and frames per second; it is all irrelevant. The secret, if any, is contained in the old saying "a place for everything and everything in its place."

Note the word "place," not time. While each frame of the film stands in the gate its "doppelganger," a piece of tape 15/32-inches long, passes the playback head. All we have to do is to find the place for each appropriate sound, and put it there.

Before starting to make recordings, the film needed analysing in detail, and this was done by recording a running commentary on tape interlocked to the film. The microphone also picked up the clatter of splices going through the gate, and these served as milestones to be plotted later on squared paper scaled in frames of film. A counter coupled to the toothed wheel and mounted alongside the tape deck provided the means of logging the position of every splice, and finer accuracy, when required, was achieved by coupling up the counter to a viewer. From the resulting plot, the tape was planned to suit the film.

The story of the heart-searching and discussions over the treatment in sound of "The Rest" film, made even more tricky by its origin as a tape play, is a fascinating one which must wait to be told, if at all. More than a hundred separate items were involved, all original recordings, including Ted Dicks' music, and these sessions, spread over several months, make another untold story. Stop-watch and chart were much in evidence, and the music was both scored and performed to the dot. Everything was put into store for copying later onto the final track.

The judge's pronouncement of the death sentence was the only occasion when we recorded while filming. There was no interlocked camera to be had (does one exist?). Two questions were asked: was the camera speed exactly 16 fps? Was the tape speed exactly 3 1/4 ips? The first question is all-important, the second totally irrelevant. The answer

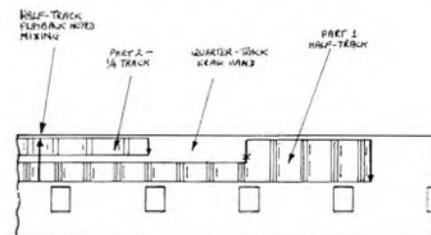


Fig. 1. Dual-track system for half-track mixed playback

to the first was to be found in the negative! The discrepancy of about five per cent was small enough to be corrected on final copying, by adjusting tape speeds, but we only got away with it because speech, the only sound involved here, is tolerant of pitch variations.

Before assembling the final whole, we had to make big decisions about standards. Speed had to be 3 1/4 ips to ensure compatibility with all coupling systems. We desperately needed multi-track facilities to ease mixing problems, but the conventional double quarter-track system not only fouls the perforations when tape is the standard way up to fit wheels, but also limits projection to a less common type of machine. We decided to use the scheme of two quarter-tracks in positions 1 and 2, which mix when played on a standard half-track machine.

The problem of laying the tracks is easily overcome by using a half-track machine for the first, and a quarter-track machine for the second. Providing head alignments are correct (essential to check with Indicord first), the quarter-track erase head leaves a residual band about equal to the quarter-track laid outside in position 1, and the

(Continued on page 313)

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# TAPE AND CINE

(Continued from page 311)

half-track head fully scans the two programmes. It pays to allocate the unambiguous, top-level material—such as dialogue—to the first track and use the other for effects or background so that the balance can be changed without starting again from scratch.

The immense advantage of two tracks is that the sound can be assembled a piece at a time without introducing either unwanted silences or disastrous discontinuities. Short oases of silence are a convenient refuge between sections in which to stop and re-load, and mostly they can be arranged where they are masked by sound on the track alongside. Unavoidable discontinuities can be similarly masked.

In some places there were pauses in dialogue requiring accurate register, but impossible to time accurately enough when recording. For these, we recorded lengths of stock "silence" and inserted it as required, to maintain continuity of room background sound. In these cases, the copying machine had to be stopped on a hairline with the pause control with the gain up, and restarted after re-setting the store tape. The designer of the Telefunken 85 is to be thanked for making a machine that does this without recording a click. It is regretted that he is in a minority.

A rigorous routine was essential for copying all the sections of sound, long or short.

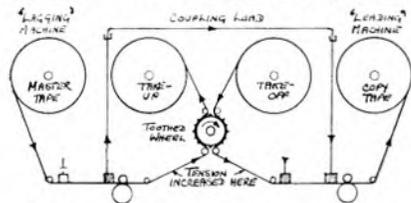


Fig. 2. Making an exact copy with perforated tape

The data was tabulated in columns: index to exact place on store tape, position on copy tape by counter number, position at which sounds had to register, positions at which level should change, exact figures for levels, and position to stop. Fortunately, there was usually only one critical sync. point in each section.

After recording pips for start marks in case the self adhesive marker fell off, the final exercise was to make a dupe. After prolonged brooding, I put two identical Telefunken 85s alongside and found which one was faster than the other. The toothed wheel was mounted on the take-up side of the "lagging" machine and on the take-off side of the "leading" one, with both tapes laced over it (see illustration). The two machines are pulled into line by the slight increase of tape tension which speeds the slower one and slows the faster one. This crude arrangement will make a true copy of a perforated tape, but there are several potential snags. The increased tape tensions threaten to introduce wow and 16 cps flutter from the perforations, so the speed differential must be a minimum.

Perhaps soon someone will market equipment for transferring sound from one medium to another with both interlocked, tape to tape, tape to 8 mm stripe and perhaps, most important of all, perforated tape to 16 mm stripe.

Then all we would need would be an 8 mm camera interlocked to tape to pave the way for tape and cine amateurs to combine forces and open up a whole new field of do-it-yourself popular entertainment.

# ALAN EDWARD BEEBY

By MRS BEEBY

JUST off-stage in the small church hall, my husband jabbed impatiently at the Vortexion's stop-button. A tall, thin, fussy man pranced up to him carrying a violin which he waved about excitedly as he talked.

"I tell you the balance will be hopelessly wrong with the second microphone in that position!" he protested. "And I'm telling you," retorted my husband, "that it'll be perfectly all right!"

The leader of the small string group started jumping up and down, thrashing the air with his bow. "This is an orchestra, not a jazz-band, young man, and what I say goes!" But Alan, snatching off his headphones, and disappeared momentarily, returning a few seconds later to find that, in his absence, the orchestra leader had again moved the microphone to his own chosen position. The two of them stood glaring at each other.

"I should like to impress upon you," the leader began loftily, "that I am not in the habit of allowing my decisions to be questioned by . . ." eyeing the recordist imperiously, ". . . amateurs!" "And I should like to impress equally upon you, 'Sir Malcolm'," flung back my husband, "that I am not normally expected to record a string quartet in the middle of a blasted machine-shop!"

The leader, swallowing hard, inquired what he meant by that remark. "You leave the microphone there," replied Alan, "and you'll soon see what I mean." They recorded a short passage and then listened to it. In the background could clearly be heard a sort of muffled, intermittent thumping. "Builders working in the cellar of the house next door," Alan explained. "The microphone's standing on unropped floor-joists." The leader said nothing. "Now," he reasoned, "you put microphone No. 2 back where it was in the first place, directly over one of the basement pillars, and you'll find the bumping will disappear." They did so, recorded another short section and listened again. Sure enough, the intruding sound had completely vanished . . . and the microphone stayed put. Alan's colleague beneath the stage had faithfully observed his instructions: "Bump the ceiling during the first piece, but not the second."

HE has a talent for cutting people down to size. Recording a piano-recital in a somewhat snooty household on one occasion, he was told by the woman soloist after a short test-run: "I shall record the piece once, and once only. You will, therefore, kindly ensure that the recording is technically perfect the first time." "With pleasure," replied Alan. "I never did like Scarlatti anyway," he added. The pianist looked thunderstruck. "That," she informed him patronisingly, "was Tchaikowsky!" My husband's eyebrows lifted in feigned surprise. "Oh?" was all he said. They did four "takes" altogether!

One day last summer, we took the Mini out to a lonely stretch of country road to

record some "Car" effects. The microphone-stand was placed on the edge of the kerb, and I operated the recorder (mains-fed from the house of a couple we knew who lived on the spot), while Alan started, revved, drove, braked and skidded the Mini as planned.

Listening to the first playback, we failed to hear the "prowl" car draw up silently behind us. "And what," inquired an official-sounding voice, "is all this then?" We explained our purpose to the Police-Patrolman, adding that we weren't having much success with the "skid" effect. "I'm not surprised," he answered. "There's too much sun here for a start." Alan looked puzzled. "Road's too sticky," the constable explained. "Try round that corner, where those big trees are. There's more shade there, and the road's harder." Accordingly, we ran out more cable across the intervening stretch of grass to the suggested spot, the police-car following.

The skid turned out perfectly, and Alan expressed his gratitude for the tip. "That's OK, Mr. Beeby," replied the cop. "Always glad to be of service." Alan, preening himself on being recognised, asked how the policeman knew his name. "I didn't really," he confessed, "but my mate here," he indicated the driver of the patrol-car, "is your cousin." He was, too. Alan hadn't spotted him in the shadows of the car, and in uniform.

RECORDING a performance by an amateur variety company, he'd instructed the producer beforehand to ensure that the artists, whenever possible, played directly to the microphone. The producer, an absent-minded old man of about seventy and not quite "with it" recording-wise, forgot to do so, with the result that approximately three-quarters of the show's vocal items were severely off-mic.

During the interval, Alan got chatting to an attractive young girl who'd shown a sympathetic interest in his recording problems, and proceeded to unburden his soul to her. "I've just told that dodderly, old twit," he snorted, jerking an angry thumb towards the Ancient Producer. "that he couldn't run a flamin' raffle!" "Really?" said the girl with icy sweetness. "And what did daddy say?"

SOME time ago, during a visit to a Home for Mentally-Handicapped Children, he collected half-a-dozen or so 14-15-year-olds together in a small room and proceeded to show them how to work the Vortexion. In less than an hour, two of them had mastered the controls sufficiently to be able to make a reasonably fair recording, with little or no guidance. Then, in strod Authority in the shape of a Battle Axe-like Matron.

"Forgive my saying so, Mr. Beeby," she barked disapprovingly, "but I think you're most unwise to allow the patients to handle such delicate equipment. They're hardly what one might term responsible, you know." "That's done it!" I thought, and waited for the storm to break. . . .

"Can you operate one of these things, madam?" Alan inquired politely. The Matron admitted she couldn't. "Then it's you who has the catching-up to do," he replied, "not these youngsters. I suggest," he went on, staring the Amazon straight in the eye, "that you begin by tackling one of those damn-fool psychiatric 'wooden-pegs-in-different-shaped-holes' games you've bored 'em silly with for the past year or so!"

Those youngsters now have a tape recorder of their own. Officially, it's described as part of the Home's Speech-Therapy Equipment. My husband, however, prefers the unofficial explanation. And so do I.



**Horses hooves.** This 1938 picture shows specially made wooden cups being used. Nowadays it really is coconut shell, all the way.

**F**EET are always with us. Among the principal sounds associated with human activity are footsteps. Listen with a fresh ear to the background of sound during one day, and you'll hear what I mean.

Films are full of feet. When the talking stops the feet begin, in sound even when they are not in the picture. In feature films, scenes without dialogue are often shot mute (i.e. silent) and appropriate sound added afterwards—this is because good picture and sound quality are generally at odds with each other and the more often they can be dealt with separately the better. But some sound *has* to be added; you cannot get away with complete silence even when nothing in particular is happening. The ear must be given continuity of the sound track, otherwise attention will be diverted from the picture.

The minimum is a sort of nothing mush of hush, something to prove the sound has not broken down or the viewer gone deaf. But it's a relief to be able to have a more definite sound, and failing all else the film-maker turns to footsteps.

So there are people who are specialists in simulating the fall of filmstar feet. Oddly enough, it's not a job which anyone could do just like that; people who can do it really well are rare.

And it's not only films: for sound radio, too, the effects man must have—if you'll excuse the expression—a grounding in feet. But there's one vital difference. Working in pure sound—in, say, a taped drama—there is not the psychological need for continuous background sound. In these circumstances effects should only be added if they have a *constructive* purpose.

Let's go back to that experiment of listening for the number of times you can hear footsteps around you. If you suddenly found there are many more than you had noticed before, this is because you had only registered them when they were significant,

i.e. when the sound contained useful information. When there was no information content the sound is discarded by the mind. However, when we tape something we do so because it is significant—or, at least, such a significance is presumed by the listener.

In visual art the moment we put a frame round any picture we create a relationship between all of the elements within the frame. Every detail becomes invested with meaning—real or apparent. If a frame is imposed arbitrarily the eye searches for the artistic relationship even though no artistry has been exercised.

And so it is with sound also: we must include only detail which has a purpose, otherwise the listener will attribute a meaning which we do not intend. This is true even for actuality sound; after making a recording we must listen to it with this in mind, and more often than not we will then have to choose between (a) retaking, perhaps with a different microphone position, (b) editing—sometimes extensively—or, (c) providing a verbal explanation (this can often be done neatly by adding a word or two to preceding speech).

## Footsteps in plays

As far as footsteps in plays are concerned, it means that whereas sometimes they may be permissible, useful, or even necessary, at other times they should not be heard in the programme at all—this despite the fact that in reality the two sets of footsteps would be equally loud. This creates problems of transition: the occasions will have to be separated by time or by some distraction. But rule one remains: *get rid of footsteps* as far as is possible.

It is a rule that has a reverse angle: when you have excised all the inessential feet, the ones that remain are there because they are important. So rule two, about the footsteps that remain is: get the right sound, because they are there to be heard. And rule three is, get the balance right. Most of the time we are trying to create a mental image of the actor's face, not a close-up of his feet, however significant.

Footsteps are best created as spot effects, if possible. Their pace, weight, hesitations, stops and starts can then be matched to each mood and nuance of the dialogue. Besides

# SOUND EFFECTS

In the second of his new series of articles on 'easy' sound effects, ALEC NISBETT goes to extremes. Below he describes ways of recording the sound of feet.

which, changes of acoustic and surface can be fitted in better. Nevertheless the professional can all too easily be tempted to use effects records because he knows how much extra work (for which there may be neither rehearsal time nor feet available) can be involved in getting just the right results. For the amateur the decision is usually simpler. He doesn't have an effects record.

When making the sound, whether in the studio or out, it is best to walk about freely, rather than march on the spot. Unfortunately, however, this is not very convenient: you would normally need to keep at a constant distance from an omnidirectional microphone. Even in the studio where a separate microphone can be used there is often insufficient space (or too small an area of the right surface). A way out of this for the amateur who belongs to a club with facilities for mixing tapes is to record speech first and then to a playback (on headphones) create and mix in the effects. (This is rather like "cutaway" shots on film, which are "shot to playback" to ensure that action—e.g. the finger tracing the route on a map—synchronises with speech.)

A less sophisticated method is to record "on location" with the speakers making their own footsteps. But be prepared for several takes, listening carefully to the balance between speech and effects. In some cases it may turn out that no satisfactory microphone position is possible.

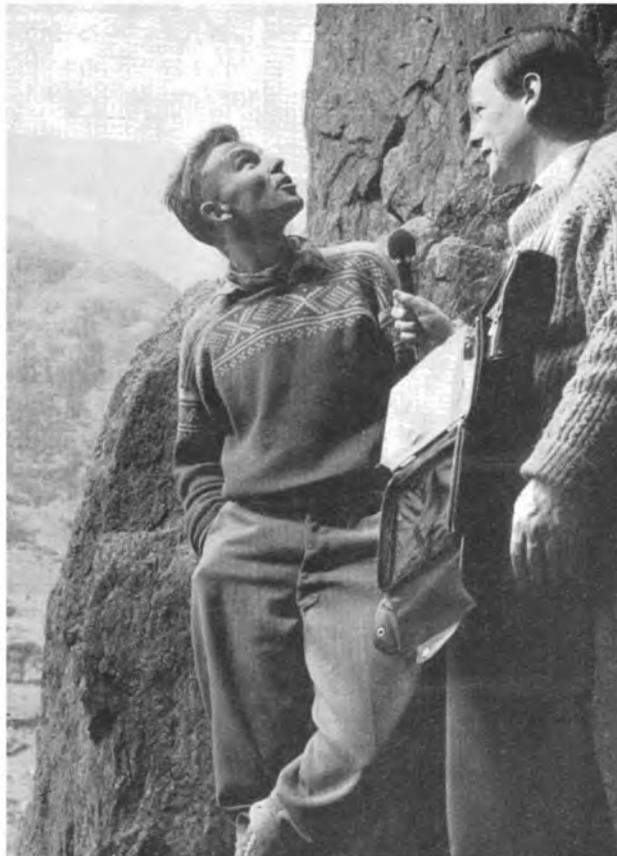
A drama studio at the BBC will have several surfaces available: in particular wood, stone and gravel. Some BBC studios have a "gravel pit" under boards, which in turn are under the studio carpet. If single boards are used to represent a wooden floor they should be pretty substantial, and it will generally do no harm to lay them on top of a carpet. The same goes for stone slabs (for a gravel effect put small gravel on stone slabs). On these surfaces it may be possible to walk forward a few paces. If this is all the script demands, a little rehearsal will soon set the effect.

## Long sequences

But with long sequences of footsteps we may have to resort to walking on the spot. Perhaps the best way of going about this is to check first of all what the real sound should be like, by walking along and listening to the way the foot falls: heel, sole; heel, sole. When you walk on the spot you normally put the foot down sole first. So try to imitate the correct noise: heel sound, then a soft sole sound. And move about

Away from the Studio—actuality effects only. In this case, where mountaineer John Longland was being interviewed by Alec Nisbett on a cliff face, the only other sound was the trickle of a small waterfall; this was referred to early in the discussion. The most important result of choosing to record an interview just here was to generate in the voices of the speakers themselves, a highly authentic sense of location. But besides this the open air “acoustic” was a help. (This is a subject which the author will return to in a special article for the 1965 “Tape Recording Yearbook.”)

BBC Photographs



within the permissible area in order to vary the quality of sound due to the surface. It is also better to use real steps for going up and downstairs—then each step will sound different, as it should.

Several BBC studios have “stairs” in the form of a movable flight of half a dozen treads and some a complete fixed stairway going nowhere. To “walk upstairs” on the spot start once again by listening to the real sound and then re-create the same action: going up, it will be just the sole of the foot; going down it will be sole-heel.

Use the right sort of shoes; leather heels and soles are best for most purposes; soft rubbers are pretty well useless except for cat-burglar effects. To get the right weight of step, do use feet rather than hands (though a man won’t be able to do high heels this way!). For two sets of footsteps have two people (they won’t usually be marching in step); for higher numbers it is better to economise.

But if you have a troupe marching in step you may have to turn to an old trick: a cardboard box containing dried peas. Holding the box in both hands, throw the peas first to one end and then to the other. But if this is done to music remember that it is the actual sound which has to be got in step, and not the hand movement which precedes it. Footsteps in snow can be produced with a roll of cotton wool: gripping it firmly with both hands twist it one way and the other in the rhythm of the steps. A useful commodity for suggesting undergrowth, whether for walking through or for “pushing aside” is scrap magnetic tape: a quantity of this all tangled up in a heap makes a crisp and definite sound when handled. Alternatively a stiff brush may be used, with thin wood to snap for “twigs.”

For a contrast to human footsteps let’s turn to those of the horse. And it really is a contrast. Feet can be conveniently tidied

away in most circumstances where they would normally be audible in a real-life situation, but horses’ hooves cannot. With no picture to help, the horses hooves *are* the horse, its most characteristic sound (apart from that most unconvincing—and rare—noise, the whinny). So the rules for the use of horses hooves are quite the opposite from those for footsteps. If the horse isn’t going anywhere it can only assert its presence by stamping or scuffling its feet, which by convention it may do at any point at which the script permits the horse to take part in the conversation.

### Coconut shells

And it is at this point in our journey from the ludicrous to the ludicrous that we meet that splendid symbol of the spot effect: the pair of coconut shells. (In fact it’s a single shell sawn in two across the widest part.) Many of the effects techniques of the thirties have been left behind because better equipment revealed inadequacies of the simulated effect and permitted good recordings of the real thing. But not with horses’ hooves. After all, a half shell is not only about the size of a horse’s hoof, it is also the right texture; both are composed of a hard fibrous material. The extra resonance of the shell serves only to emphasise the characteristic sound to a greater degree. And it’s not so easy to record a good balance of a real gallop as heard by the rider, as would be for say a car interior in constant running.

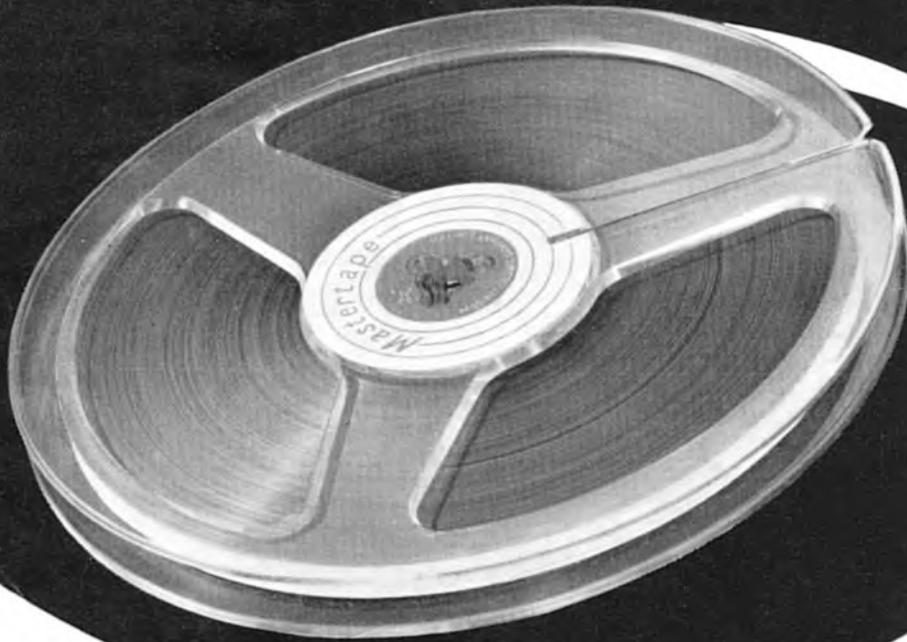
Given the shells the secret of good sound

lies in the surface they are used with. I was taught the job ten years ago by an old time spot-effects man who took a pride in his role of Don Quixote’s horse. (I, the acolyte, was given a pair of wooden piano castors to trot alongside as Sancho Panza’s donkey.) In a good sized tray we put several inches of a hard core of stones and then filled it with smaller stuff, sand and gravel. Half bricks at one end were to act as cobbles, and when we needed turf we put cloth on top of the sand. (Had we had to provide hard snow a tray of block salt would have been used.)

I was introduced to the three basic actions: walking, cantering, and galloping. The walking rhythm is clip, clop . . . clip, clop. . . With a shell in each hand you move forward with one digging in the “toe.” Then for the next step with the other shell, move back on to the “heel.” Then pause and repeat the movements in reverse. The sequence is left forward, right back (pause), left back, right forward (pause) . . . giving a four-legged rhythm. For the canter the same basic action is used but without the pauses, so that you get a faster, but more even clip, clop, clip, clop. For galloping the rhythm changes again to quick groups of four with a short pause between fours: clipetty, clop . . . 1, 2, 3, 4 . . . clipetty, clop. . . At this pace there will be no time for the forward and backward movements.

Of course, nowadays, the BBC has a good range of recorded horses on a variety of surfaces. But some of the best are recorded spot effects.

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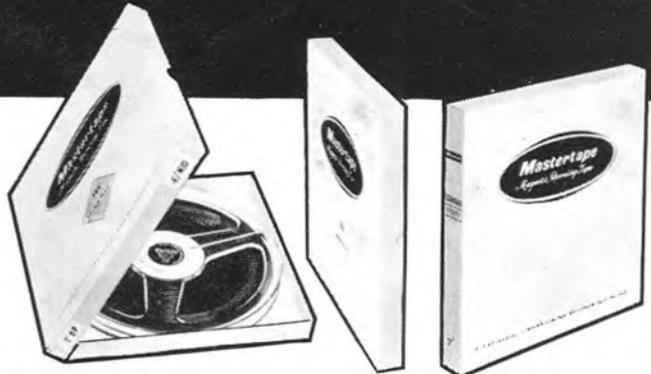
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# Dramatape miscellany

By PERSPECTIVE

**B**Y tradition, amateur drama closes down in summer. But the executives of a dramatape society still have things to do. This year, for example, I have an arm-length sound-effects schedule.

There is nothing so delightful as "going on location." Based on some old country inn, you trudge through dewy orchards for early birdsong; you seek out farmyards to record stable-latches, milk-churns and pony-traps.

Scenery-in-sound is particularly fascinating to record. But a beginner tends to say: "This is a beautiful view of the harbour. I'll set the microphone right here." He doesn't know the view is meaningless. (Better results would probably be obtained by crouching between the smelly fish-crates). All he brings back is a general confusion of sound—which he calls "background noise." That's the last thing we want! (Never refer to background effects as "background noise." You'll be drummed out).

Consider the scenery for *The Constant Lover* (St. John Hankin's Victorian but witty one-act play). The producer tells you: "It takes place in a sunlit wood. The two characters are on the banks of a mill-stream."

You can easily create this scenery—if you think in terms of three perspective levels. Birds will be singing overhead—i.e., on the *background level*. The stream will be

nearby—i.e., on the *middle-distance level*. And the *foreground level* is "left open" for the dialogue—which is usually added in the studio.

Your job, as effectsman, is to keep these levels nicely spaced out—i.e., "separated." The listener then experiences an impression of scenic dimension.

Does this seem difficult to appreciate? It's easier than you think. For example, you don't even need a real wood and a real stream. I've just recorded this scenery for *The Constant Lover*—and I did try a stream in a glen. But I couldn't get adequate separation of my two levels. The water was either too loud or the birdsong too soft (and vice versa), no matter how I manoeuvred.

I finally set the microphone in the lee of a mossy churchyard. Plenty of birdsong but no stream. However, a very light breeze was rustling long grass against the tripod—and, no doubt, playing on the microphone-face. Result: birdsong overhead, plus a wonderfully "fresh" mill-stream.

You must, of course, know the duration of the dialogue; and this is established in rehearsals during winter. For critical lengths, in fact, it's wise to prepare dialogue-tapes. The dialogue (which is only a guide) is erased when you use the same tape in the field. Do you get the idea?

You don't even need a mixer for the completion of the scene. Owners of sole machines can easily superimpose studio-dialogue over simple backgrounds. Often, however, you need only a "snatch" of background—as when a character opens a door or window. You simply splice a tape-section between the opening-and-shutting. Try it . . .

But what if the window is to be opened for (say) several minutes? *And the charac-*

*ters continue talking meanwhile?* How would you produce the scene? No, you don't need a stop-watch and cue-lights . . . only a tape recorder and splicer.

## THE HUNT IS ON . . .

Who wants to think of winter? A dramatape enthusiast! Like you, he sits in a deck-chair. But he is on a hunting expedition at the same time. Hunting for plays.

Why not join him? Play-reading in the open-air is very relaxing. As member of the reading committee, you help to choose plays for the winter session.

Browse round the drama shelves at your public library. You'll have to wade through a lot of trash, but don't give up. You'll soon develop an instinct for a good dramatape play. The ideal duration is about thirty minutes—so look for short plays. But major plays will often boil down to an hour—which is around the maximum length. Also, look for short stories with a "run" of dialogue; these, with simple amendments, can make excellent dramatapes.

Frankly, I approach every new script with distaste. A script is merely a cold blueprint of the play-to-be: no atmosphere, no warmth. All my colleagues say the same. So don't hesitate to join us if you share the same feeling. It's normal—like the dislike of reading stage-directions. (Never attempt to read those woggles of italic).

Our excitement only awakens when the script passes its "first reading." From then on, the play becomes a living production. We sit forward in our deck-chairs, eagerly discussing our ideas. . . .

No, we don't mind the arrival of winter. To us, every winter session is a memory of summer.

## Two-minute tape sketch by David Haines

**Y**OU can convey narrative through a sequence of sound-effects alone—without any words but an announcement of the title. The first of these "aural mimes" was introduced in the January issue. Here is another example.

### OILING THE LAWN-MOWER

A man walks down a garden path. He stops and unpadlocks the garden-shed. The rickety door is dragged open.

He enters and rummages wearily inside, emerging with a lawn-mower. The door is then pushed shut.

Lawn-mowing begins. But the machine appears to grow stiffer and heavier. Several pauses are filled with birdsong. Eventually, he stops. . . .

He goes to the shed, drags the door open and grimly rummages among the assortment of junk and tools. He then emerges and returns to the lawn-mower. We then

hear the fierce *prink-prink-prink* of an oil-can.

He returns to the shed, throws the oil-can inside and slams the door. Mowing then savagely continues.

Suddenly he stops . . . he rushes to the shed and drags the door open. A most zealous rummaging now ensues: *ding, bang, wallop*. He finally emerges and shuts the door. Pause. . . .

We hear him draw a cork from a bottle. The bottle is then up-ended—and long gulps follow on.

We fade out on erratic (but enthusiastic) lawn-mowing.

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  - ★A chapter on the basic facts concerning tape recording
  - ★Technical, creative and organised activity
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## 1964 BRITISH AMATEUR TAPE RECORDING CONTEST

*Now is the time to enter  
your tape—*

### THESE ARE THE PRIZES

**Eight silver cups and trophies;**

**Fifty guineas CASH;**

**A trip to London.**

**T**HERE is just time to make a winning tape and enter it in the 1964 British Amateur Tape Recording Contest.

The closing date is FRIDAY, JULY 31. Tapes will be judged early in September and the best British entries will be sent forward to the International Recording Contest in October.

Prizes will be presented at a special gathering in London early in November.

#### THE JUDGES

The panel of judges for the British Contest this year will be:

**Jo Douglas**, TV star and producer.

**Eric Robinson**, popular music and TV star.

**Timothy Eckersley**, Assistant Head of Central Programme Operations (Recording) at the BBC.

**John Gilbert**, Head of the Telecommunications Department at the Northern Polytechnic.

**John Borwick**, well-known author, journalist and broadcaster on audio topics.

**Donald Aldous**, Technical Editor of *Audio and Record Review*.

**Douglas Brown**, Comper of BBC programme *Sound* and Editor of *TAPE Recording Magazine*.

The Federation of British Tape Recording Clubs have nominated the following to the jury:

Alan Stableford, Roger Aslin, Ken Blake, John Bradley and Maurice Webb.

#### CATEGORIES

The Contest is divided into two main sections; the first for individuals, the second for group entries by schools and clubs. The **Individual** entries may be made in any or all of the following five classes.

**COMPOSITIONS** (radio plays, drama, sketches, etc.). Entries must not exceed 15 minutes' duration. The winner in this class will receive the **Philips Shield**.

**DOCUMENTARIES and REPORTAGE**. Entries must not exceed ten minutes' duration. The winner in this class will receive the **Irish Trophy**.

**MUSIC or SPEECH** (Solo singer or player, orchestras, choruses, poems, etc.). Entries must not exceed four minutes' duration. The winner in this class will receive the **Acos Cup**. (Unless the work recorded has been composed and/or is performed by the entrant, this class will be judged on the quality of the recording alone.)

**ACTUALITY** ("snapshots" of unusual sounds or historic moments). Entries must not exceed four minutes' duration. The

winner in this class will receive a cup or trophy (details to be announced later).

**TECHNICAL EXPERIMENT** (Electronic music, trick effects, etc.). Entries must not exceed four minutes' duration. The winner in this class will receive the **Kodak Shield**.

**Group** entries may be made in either of the following classes.

**SCHOOLS** (features illustrating any aspect of school life or children's interests made with the participation of groups of children). Entries must not exceed 15 minutes' duration. The winner in this class will receive the **B.A.S.F. Trophy**.

**CLUBS** (feature tapes on any subject and of any type). Entries must not exceed 15 minutes' duration. The winner in this class will receive the **Amphlett Shield**.

\* \* \*

After the seven class winners have been selected, the judges will pick one of them as the "Tape of the Year." This tape will be awarded the **Emtape Challenge Cup** and a cash prize of FIFTY GUINEAS. The tape which was placed second in the class in which the "Tape of the Year" was submitted will thereupon be declared the class winner and will qualify for the prize in that class.

All cups and trophies will be held by the winners for one year and will be returned in time to be re-awarded in the 1965 Contest. Miniatures or illuminated scrolls will be awarded for retention by the winners.

The prizes will be awarded at a special social event in London, to which all winners will be invited. Train fares to London will be paid.

Afterwards six of the winning tapes will be submitted as the official British Entries in the International Recording Contest (C.I.M.E.S.) which will be judged in Switzerland in October. They will have a chance to win other valuable prizes, including substantial cash awards, in this event.

Rules and Entry forms containing full details are available from the British Amateur Tape Recording Contest, 7, Tudor Street, London, E.C.4. An entry form fully completed must be included with each tape entered in the Contest.

## TAPE RECORDING IN JAPAN

The author of this article has recently founded the first amateur tape recording club in Japan—the Nippon Sound-Hunters Club.

By KAZUKO NISHIOKA

**E**VERY tourist who visits Japan wants to see Kyoto and cherry blossom—and the electric appliances in the shop windows. Stores are overwhelmed with transistor radios, television sets, washing machines, refrigerators and, of course, tape recorders. On the roofs, television antennæ rise like weeds.

The Japanese have a great concern to be equipped with all modern electric equipment, even though their incomes are small.

The output of the Japanese electrical industry is made up in this way: 59.9 per cent television sets, 23.1 per cent radio sets, 7.5 per cent record players, 7.0 per cent tape recorders, and 2.5 per cent other products.

The principal Japanese exports in this field are transistor radios and tape recorders. Manufacture of tape recorders is the second highest in the world (after Germany) in volume. Exports of tape recorders almost surpass domestic sales.

It is interesting to compare the distribution of television sets and tape recorders in Japan. TV sells well in town and country, but recorders are almost entirely sold in the towns today. Only nine per cent of households in all Japan possess tape recorders—which means about 1,500,000 households.

Four big makers dominate the tape recorder market in Japan. Akai, Sony, National and Toshiba. Other manufacturers are Sanyo, Victor, Hitachi, Columbia, Onkyo, Crown, etc.

Beside these, there are a few tape recorder accessory manufacturers. Sub-contract factories are numerous.

Several years ago, when I was in France, I heard for the first time of sound-hunters' activities in Europe. Since then I have been a tape recording enthusiast. Upon my return to Japan I looked for some amateur tape recording activity and found, to my disappointment, that no organisation existed.

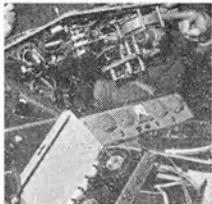
So I decided to form a club.

Educational broadcasting for schools is quite popular and many schools are well equipped for this purpose, but unfortunately the proper study of tape recording is neglected. They use recorders to leave messages on record, but no more than that.

It seems to me strange to find photography clubs, but no tape recording clubs. Many photographic contests are held in Japan, but none for tape recording.

One of the aims of our club is to let people know how to make good use of the tape recorder.

At the present time the main uses to which it is put in Japan are for advertising (sandwich-board-men carry recordings as well as boards), to play background music at work places, to teach foreign languages in language laboratories, for libraries for the blind, for teaching calculation with an abacus or shorthand, etc., and to record telephone messages.



## SLEEP-LEARNER

By John Borwick

**T**HE idea of learning while you sleep has received only a little publicity in this country and cannot so far have attracted many disciples. Therefore, while this machine was specially developed by Symphony Amplifiers Ltd. as a pre-sleep study instrument, they have clearly had to bear a wider usership in mind. So the machine's potentiality as a general purpose recorder will be commented on also in this review.

### WHAT IS PRE-SLEEP STUDY?

It seems that our sub-conscious *never* sleeps, so that it is capable of taking in and retaining information and impressions while we sleep. In one type of experiment, foreign words with their translations (or other data) were whispered into the ear of a sleeping subject. Sufficient evidence of retention was obtained to satisfy the researchers and now, with the advent of the tape recorder, a ready-made means is available of repeating formulae, dates, song lyrics, etc., in the still of the night.

The degree of success appears to vary very much from one person to another, but the ideal times for learning have been established as the first hour after falling asleep and the last hour before waking up, with a possible transitional period lasting thirty minutes about 3 hours 40 minutes after falling asleep.

The ideal sleep learning machine therefore incorporates a time switch which will give up to three on/off sequences in a twenty-four hour period. If you normally retire to bed at 11 pm for example and waken at 7 am, a suitable schedule would be 11 pm switch on by hand; 1 am switch off automatically (i.e., you have allowed about one hour for listening before and after falling asleep); 6 am switch on automatically; 7 am switch off by hand. To use the transitional period (only recommended to those who have mastered reception in the "reverie" periods) you could add the following steps: 3.40 am switch on automatically; 4.10 am switch off automatically.

### THE SYMPHONY RECORDER

To meet all these requirements, the Symphony recorder consists of a large rexine case containing a three-speed half-track recorder (basically the Stuzzi Tricorder, reviewed in *TAPE Recording Magazine*, November 18, 1959), a 10 x 6 inch elliptical loudspeaker, a twenty-four hour time switch which can be set to three On and three Off timings simply by sticking pins into holes in the clock face. An extra mains outlet is also fitted, to provide for the switching on and off of any auxiliary apparatus such as a radio or electric fire, etc.

Using a 5½-inch reel of Double Play tape at 1½ ips would give a playing time of

3½ hours, which adequately covers the sleep study schedule.

There are two other features of the Stuzzi Tricorder deck, besides its three speeds (3½, 1½ and 15/16 ips) which make it suitable for time switching. First, it is a double-action machine; that is you normally select the replay or record function on one control and press another to start. Suitably modified, this has made the stop/start easy to operate by just switching the mains off and on.



Second, the machine is solenoid-controlled, so that the pressure roller is withdrawn from the drive capstan when the mains are switched off, and so no "flat" will be worn during the periods of waiting in time-switch operation.

### ON TEST

Supplied with the review machine was an American booklet on "Sleep-Learning," Induction Tape No. 1 by Psychology Tapes Ltd., and a pillow loudspeaker. I found that from the mechanical point of view everything worked perfectly. The time switch is easy to select and operates without any unduly loud clicks. The Induction Tape has been pre-recorded with a spoken step-by-step relaxation "affirmation."

This uses the "relax . . . relax" and "descending escalator" commentary which I believe is common to most types of sleep-inducement media. It lasts about twenty minutes (and has been recorded at the beginning of both Tracks 1 and 2) so that the user has about forty minutes per track for recording the material he wishes to commit to memory.

I have to admit that my own "inherent resistance to the method" (to quote the leaflet) must be fairly high. But a single person's reactions to anything so subjective as this learning method would not be much value in any case. Suffice it to say that the machine itself does what is claimed for it.

### OTHER USES

For other recording purposes, the machine performed well up to the standards reviewed for the Stuzzi Tricorder, with the additional quality contributed by the larger cabinet and built-in loudspeaker. The time-switch facility was found to operate very well for recording radio programmes, etc. The auxiliary, switched mains point could also

be put to good use in switching bedroom radiators on, etc.

For sleep learning, therefore, or general purpose, time-switched recording and replay, this Symphony Amplifiers instrument is custom-designed and deserves the serious attention of the special types of user for whom it is intended.

### MANUFACTURER'S SPECIFICATION

Tape speeds: 3½, 1½ and 15/16 ips.  
Recording sense: Half track.  
Maximum spool size: 5½ inches.  
Power supply: 110-240 V 50 cycles AC.  
Inputs: Microphone and radio/pick-up with mixer controls.  
Output: Extension speaker.  
Output power: 2½ watts.  
Loudspeaker: 10 x 6 inch.  
Dimensions: 17½ x 13½ x 10 inches.  
Weight: 20 lb. approx.  
Price: £72 9s. Pillow speaker: £3 3s.  
Manufacturers: **Symphony Amplifiers Ltd., 16, King's College Road, London, N.W.3.**

## Q-CORD 203

By H. Burrell Hadden

**T**HE Q-Cord 203 is a small, lightweight, battery operated portable recorder manufactured in West Germany, and distributed in this country by C. Braddock Ltd. of Blackpool.

The first impression is that it is certainly lightweight, indeed when I picked it up immediately after handling a fairly normal mains machine it almost seemed to rise into the air of its own accord! Its weight is actually five pounds without the battery, so by any standards it is certainly light. The dimensions of the "High Impact" plastic case are 9½ x 4 x 9½ inches.

The machine will accommodate 4½-inch diameter tape spools, which will permit a maximum recording time of 64 minutes at the single tape speed of 3½ ips, on each of the two tracks. A very useful feature is the quickly released plastic nut which prevents the spools from falling off whilst the machine is in transit. Fast rewind is provided, but there are no facilities for fast forward wind.

The normal power supply for this portable is four standard dry batteries of the "U2" type, but several other possibilities exist as accessories available from the manufacturers. Perhaps the most useful is the re-chargeable dry accumulator, which fits into the battery compartment. This accumulator can be charged without removal by means of the AC mains adaptor, which can also be used to run the machine direct off the mains if required. An alternative, simpler mains unit is also available without the charging facility. Adaptor leads are also obtainable so that the machine can be run from a six volt or a twelve volt car battery.

Operation of the Q-Cord 203 is very simple. There are only three knob controls, and three push buttons. The push buttons are for playback, recording, and quick stop, or pause control. The rotary controls are record gain/playback volume, and playback tone. The rotary switch has three positions;

start, which also switches on the amplifier, off, and rewind.

Input and output connections are even simpler than the controls; there are only two sockets, one catering for inputs from a variety of sources, and the other giving output facilities to feed an external loudspeaker, headphones, or an external amplifier. I have some reservation about the position of the microphone socket; it is under a removable plate on the bottom of the machine, this plate also covering a storage compartment for the microphone. The plug can be left in the socket if desired, and once the plate has been replaced it cannot easily be knocked out, but the socket is rather inaccessible.

The amplifier is fully transistorised, except for the recording level indicator, which is the "Magic line" type DM70. The amplifier contains six transistors and two diodes,



and shows some interesting design features. Incidentally, the manufacturers provided an excellent circuit diagram with the machine, an item which somehow seems so often to be forgotten.

The output stage of the amplifier operates in the push-pull mode, giving one watt output into the 5 x 3 inch elliptical loudspeaker. These same two transistors, when the machine is switched to record, are arranged in the circuit so as to make a push-pull oscillator for high frequency bias and erase current. The amplifier feeds record/play and erase heads made by the famous Bogen company.

The drive motor deserves some mention. Smooth running and constant tape speed is achieved by means of a heavy flywheel, combined with a transistor control circuit. The machine can be operated in any position.

With such an interesting specification, and particularly because the machine is so light in weight, I looked forward to finding out how well it would perform. On practical tests it did very well on speech, the lightness making it a very sensible interviewing machine, but although it would certainly record in any position, I found that there was considerable speed variation if the

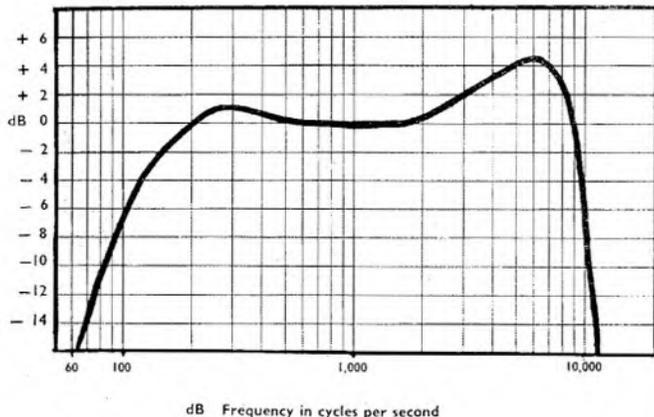
machine was moved whilst it was running. On music the results were not so good, there being noticeable wow and flutter, and the particular machine sent to me was certainly not good enough to satisfy my favourite recording test, the successful committing to tape of a piano.

The frequency response of the machine from microphone input to the external amplifier output, via the tape, was measured, and here too, unfortunately, it did not come up to my hopes, or indeed to the manufacturer's specification. As can be seen from the accompanying graph, the response of the machine sent for review does not really come up to what is expected of a modern machine running at 3½ ips. The measured signal-to-noise ratio, on the other hand, was very good for a small battery portable in this price range, the figure being 49 dB.

All in all, I was rather disappointed, with the review machine at least, which appeared to have so much promise; indeed I have reviewed several machines in this magazine which had better performance at less cost. The Q-Cord 203 is supplied complete with microphone, tape radio lead, and batteries, and sells at 34 guineas. An alternative version, in a shock resistant leatherette covered case, model R119K, is also available.

#### MANUFACTURER'S SPECIFICATIONS

- Speed: 3½ ips.
- Frequency response: 60-12,000 cps (60-10,000 cps  $\pm$  3 dB).
- Wow and flutter: Better than 0.5 per cent.
- Signal-to-noise ratio: 50 dB.
- Spool size: 4¼ inches.
- Recording time: Sixty-four minutes per track.
- Recording sense: Two-track, left to right.
- Loudspeaker: 5 x 3 inch permanent dynamic.
- Power output: One watt.
- Inputs: 50 k ohms/2 mV for microphone, radio and pick-up; telephone adaptor.
- Outputs: For 5 ohm loudspeaker, radio, extension amplifier, monitoring headphones.
- Power supply: Three LP Ray-o-Vac batteries; a six or twelve volt car battery; six-volt accumulator, or AC mains with adaptor.
- Current consumption: Amplifier: 30-150 mA; motor, approx., 150 mA; fast rewind, 250-300 mA.
- Recording level indicator: Luminous DM70.
- Transistors: Three OC75, two OC74, one OC79T, one OA81, two M3 standard-electric, one NTC valve, and one DM70 valve.
- Size: 9¼ x 9¼ x 4 inches.
- Weight: 5 lb. without batteries.
- Agents: C. Braddock Limited, 266, Waterloo Road, Blackpool, Lancashire.



Record/replay characteristics of the Q-Cord 203 battery-operated recorder

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## SERVICE BUREAU

# Testing second-hand tape recorders

By HARRY MACK

SEVERAL readers have asked for guidance in the purchase of "bargains." Being something of a cynic, who has had his fingers burned on too many occasions, I am mistrustful of bargains, and when our Editor suggested a few words on the subject of purchasing and—more important—testing second-hand machines before purchasing, my first reaction was to say, "Don't."

But that is a pessimistic counsel, especially in these days when so many enthusiasts are going in for the machine that suits their developing tastes and a great number of perfectly trustworthy tape recorders are being offered for sale at reasonable prices. The problem is to know whether the "hurry—last chance" offer is a genuine snip or just another sample of unloading unwanted goods.

First test, quite obviously, is to weigh up the source. Buying a second-hand machine from one of the several people who advertise regularly in these pages should be safe enough, but to pick up a cheap offer from a fly-by-night market stall is to invite trouble. Just down the road from our establishment is a corner shop that has had a legend, "Closing down Sale" on its window for at least three years. Maybe the sale was too successful and they dare not close down—but to judge by the number of bargain-hunters with their noses pressed to the window, the common human failing of wanting something for nothing is not on the wane. The following notes are therefore not a guide to the best bargains, but an attempt to show the tests and inspections that should be carried out on a strange machine before one can be sure it is in reasonable working order. These tests are from an engineer's point of view, but most will give a clue to any deep-seated trouble, and should be fairly easy to carry out.

Condition: the exterior of a tape recorder can often give some idea of the treatment—or maltreatment—it has received. Look especially for loose hinges, ill-fitting clasps, deck-plates that do not seat properly, dress covers that are cracked at the edges, and odd securing screws. The problem of dirt on the cabinet is not so important, for rexine or plastic can pick up considerable discoloration merely by being put in the attic for a while; and this kind of discoloration is easily cleaned with upholstery shampoo. The surface of plastic cabinets will come back to its original sparkle with the aid of a gentle abrasive cleaner, such as Vim or Chemo.

Look for the obvious physical snags: jammed keys or controls, knobs with cracked centre flanges and loose screws, or

worn centre holes, head covers with cracked clamps, spool carriers worn at the spindle and flanges, and so on. Operate the manual controls before plugging the machine in. Check for positive action and a prompt return to neutral where this is required, as in those machines with a common "Stop" key. Take care with the speed change action, which has to be operated in some machines only when the motor is turning. A warning to this effect is usually somewhere prominent. In general, this applies to the tape recorders that employ a common belt drive which is diverted to the appropriate step on a motor pulley when the speed change control is operated.

Next step is to plug in and switch on. This is actually jumping ahead of the procedure an engineer would follow, but it is unlikely that the intending purchaser is going to wander around the shops with a multimeter in his pocket. As the machine warms up, listen for odd noises, especially the small crackles and buzzes that can occur from loose joints, and which are normally masked by the sound of the machine playing. Try to make the opportunity of moving the machine slightly, after switching on and before loading the spools. Microphonic valves will "ring" and poor switch contacts crackle if a sharp movement disturbs them.

Listen for motor noise. A single motor machine normally has the motor in action all the time, with engagement effected by clutch and idler wheel action. Three-motor machines sometimes have all motors dead until the function selector switch is operated, and at other times one may find the capstan motor is in motion as soon as the mains switch closes. Listen for regular noises, caused by the slap of loose belts, knocks due to malformed belts or flatted idler wheels, and the rapid whirring noise that can indicate a loose motor fan or worn bearing. The frequency of the noise will often give a clue as to its origin.

Note that some machines employ a safety switch—the type of auto-stop that acts by the lack of pressure on a pin, coupled to a switch, in the absence of the tape. It will be necessary to wedge the stop pin back on these machines to make these "unloaded" tests. Check that the pinch roller engages cleanly and observe the rotation closely for possible bumps. All this can be done before the tape is put on the hubs.

After loading, and before switching on again, see that the tape runs correctly through the guide flanges and does not foul the edges of head covers, shields, etc. If the spools are part of the purchase, inspect these closely for cracks and worn hub seatings, and spin an empty spool on a polished table or counter to check possible warping.

Fit a spool to the hub and, with the machine in the "Stop" position, turn the spool by hand in its normal direction. A definite brake pull should be felt. On the

machines using "wrap" brakes, a lesser restriction will be evident when the spool is turned in the opposite direction. Some tape recorders use a form of eddy current braking, so that spools tend to spin freely when the motor is not energised. Quite in order on this type of machine—but only on this type.

Gravity and pressure assisted clutches can be checked by running the machine through so that switch action is tested with both an empty and a full spool on the turntable. Do not neglect this simple test, which can indicate a worn spool bearing or a binding clutch if the "Fast Wind" begins to slow as the spool fills. Similarly, when the machine is switched to "Play," take-up clutching should be checked first with an empty, then a full spool on the right-hand carrier. Hardened felt spool pads will often cause erratic action with a near-empty spool. A binding clutch-drum can cause "snatch," which is often more obvious when the drum is near empty.

The efficiency of brakes should also be tested with both empty and full spools loaded. It is also necessary to check that no spillage occurs when stopping the tape run from either "Fast Forward" or "Rewind" function. Very often, a small adjustment will correct faulty brake action, but it is as well to check the pads and fabric strips and take note whether levers, stops and brackets are at the utmost extent of their travel. It is very seldom that brakes cannot be re-adjusted to normal action—and this is surely the point: very many machines come on to the second-hand market because a minor fault has not been corrected. The secret is to determine which faults are minor, and adjustable, and which major, and ineradicable.

Thus far, it may be possible to say—what is there about this article to call it a useful guide to the choice of a machine? But, allied to the previous articles which have attempted to give definite, practical information, the foregoing tentative comments take shape as a guide to purchasing procedure. And if the salesman is not willing for you to carry out these simple tests, my one straight word of advice would be—take your custom elsewhere.

For example—when making your shopping expedition, carry a spotlight torch with you. One of the popular pencil types fitted with a spotlight bulb is ideal. Shine it across the heads when the tape is playing, to note the tracking level. Shine it across the spool carriers during "Fast Wind" to see whether the spools are rotating level and true.

Do not be afraid to use your fingers. Retard the right-hand spool slightly during "Play," to check whether the pinch wheel is being "assisted" by excessive take-up torque. Make a loose loop prior to the first guide to check whether reverse torque is excessive—a common cause of "wow." Where tape-pin pressure is used for brake regulation, as in some older machines, hold off the pins slightly when the machine is running, to prove whether the brakes are binding, or set too tightly.

In the same way, it is possible to hold off the pressure pads to check head response, noting the high frequency loss that should be immediately evident, and to hold back the pinch wheel slightly, to check the inward pressure. This should be enough to pull the tape past the heads at the correct speed, without any other assistance. The correct level of the tape is tested by pressing down, very gently on the upper edge of a tape as it enters the head shield—a loss in output should result, especially with four-track machines.

As to speed: modern motors are pretty

accurately synchronised, but if you want to make sure, prepare a 37½-inch loop of tape before leaving home, and make a butt joint at that exact length. Load this, and replay. The joint should make an obvious click once every ten seconds if the machine is correctly running at 3½ ips. Do not judge on one click, but take the average of several. A temporary holding post, such as the neck of a bottle or a firmly held pencil, can be used.

Check the oscillator by switching to "Record" and, with no input, running over a pre-recorded tape. There should be no residual signal, after erasing a normally recorded tape. As most modern machines in the "domestic" bracket use a common oscillator for bias and erase, there should be little need for worry over biasing if this erase test is satisfactory. Check also the input noise, by recording with no microphone, when there should be little or no hiss or hum.

To sum up: do not be satisfied with a mere demonstration of the machine's ability to record and play back. It is your money the dealer is after—spend it wisely by making intelligent tests of the machine. Speaking from experience, this writer can assure you that your custom will be more highly valued if you show that you know what you are buying. And the regular reader of this magazine should have very little excuse for buying a pig in a poke.

## NEWS FROM THE TRADE

**T**HE MSS Recording Co. announce they have reached an agreement with Vidor Ltd. for the UK distribution of Mastertape.

This important departure from the usual methods of distribution to dealers will enable the retailer to obtain tape weekly and to economically cope with any rapid fluctuations in demand for any item in the Mastertape range. This range now covers twenty-one items of all spool sizes in standard, long-, double- and triple-play tapes.

Vidor announce they will be happy to supply any quantity from their vans, even as little as a single mini-voice letter at a time.

*MSS Recording Co. Limited, Poyle Trading Estate, Colnbrook, Slough, Buckinghamshire.*

**E**NGLISH NUMBERING MACHINES, manufacturers of tape recorder revolution counters, have recently published a comprehensive folder detailing their new Series 433 counters.

Three- and four-figure push-button reset control rev. counters, with seven drive variations are illustrated with exact dimensions.

The folders are available free on request. *English Numbering Machines Limited, Queensway, Enfield, Middlesex.*

**A**SERIES of demonstrations of the new Celestion Studio Series twelve-inch coaxial loudspeakers are announced.

The demonstrations will be held at the Rembrandt Hotel, Thurloe Place, London, S.W.7, on the following dates. Friday, August 28 (12 noon-9 p.m.); Saturday, August 29 (10 a.m.-9 p.m.); Friday, September 4 (12-9 p.m.) and Saturday, September 5 (10 a.m.-9 p.m.).

These demonstrations will be open to trade and public, and tickets will not be required for admission. Further shows in the provincial towns will be announced in due course.

*Celestion Ltd., Ferry Works, Thames, Ditton, Surrey.*

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## **NEW PRODUCTS**

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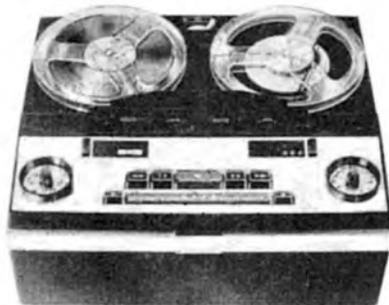
**T**HE latest in the range of Saba tape recorders was introduced at a recent London Trade show. The demonstration was organised by the new Saba Electronics Ltd., formed for the first all-out effort to market the Saba sound reproducing equipment in the UK.

The Sabafon TK230-S, illustrated below, is a two-speed quarter-track stereo recorder. It has a quoted frequency response of 40-20,000 cps at 7½ ips, and 40-15,000 cps at 3½ ips. Wow and flutter is given as better than 0.15 per cent at the top speed, 0.25 per cent at 3½ ips and the signal-to-noise ratio is rated at 48 dB.

Seven-inch spools can be accommodated, providing a playing time of 64 minutes per track using standard-play tape at 3½ ips.

Among the many features is a built-in transistorised mixer unit with inputs for two sound sources, digital type rev. counter with push-button reset, facilities for trick recording synchronised and multi-playback, neon recording level indicator, and spinning tape guides to minimise tape wear. Other features include automatic tape cleaning during fast rewind, and push-button operation.

Inputs are provided for microphone (0.1 mV/200 ohms); radio (10 mV/100 K ohms); and pick-up (200 mV/1 M ohm). Outputs are also provided for 3-6 ohms extension loudspeakers, and 1 K ohms moving



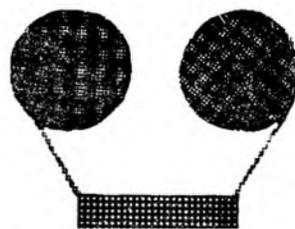
coil headphones. Two 6 x 3½ inch permanent magnet loudspeakers are built-in to handle the power output of ten watts (mono), five watt each channel (stereo).

The power supply is 117/220/240 volts, 50 cycles AC, and power consumption is rated at approximately 70 watts. The valve line-up includes two ECC83, two ECL800, an EC92, an EM84, plus two AC107 transistors, and four rectifiers.

Accessories available include slide synchroniser, various stereo microphones, headphones, footswitch, and telephone adaptor.

The Sabafon TK 230-S measures 16½ x 14½ x 7½ inches, and weighs 30 lb. The price is 95 guineas.

Saba Electronics Ltd., Eden Grove, Holloway, London, N.7.



## **WYNSOR ANNOUNCE THEIR LATEST RECORDER**

**W**YNSOR RECORDING CO. announce the latest of their tape recorders, the Sabre II, illustrated below.

This is a two-track single speed recorder with a quoted frequency response of 50-12,000 cps ± 3dB at 3½ ips. The signal-to-noise ratio is rated at 45 dB.

The maximum spool size of 5½ inches makes available a playing time of 45 minutes per track using standard-play tape.

Inputs are provided for microphone (2 mV/1 M ohm); and radio (250 mV/1 M



ohm). Two outputs are also provided at 500 mV/1 M ohm; and 3 ohms for an extension loudspeaker. The built-in loudspeaker is a 7 x 4-inch elliptical handling the 2½ watts output.

Among the features are facilities for superimposition, and stowage for microphone and recording leads.

Power supply is 200-250 volts, 50 cycles, AC (export voltages available) and power consumption is rated at 50 watts.

The Sabre II measures 15 x 13½ x 7 inches and weighs 18½ lb.

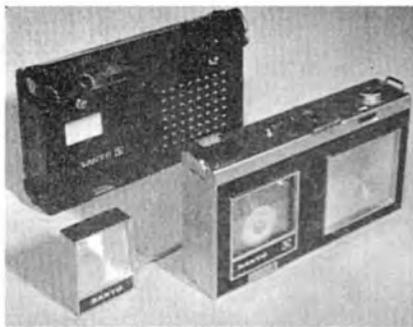
Included in the price of 23 guineas is a crystal stick microphone, 600 ft. tape, and recording lead.

WyndSOR Recording Co. Ltd., 2, Bellevue Road, Friern Barnet, London, N.11.

## **SANYO INCREASE THEIR 'MIDGET' RANGE**

**A** NEW transistor pocket recorder with magazine-loaded tapes has been introduced to the Sanyo portable dictating system by Russell Richards Ltd.

The new unit, illustrated with its leather carrying case is the Sanyo Micro-pack



designed for the travelling executive. It provides a total playing time of 34 minutes and only one selector knob is used for recording, playback and rewind. The Micro-pack retails at 19½ guineas complete with case and microphone. An optional earphone is available for personal listening.

The Micro-pack is powered by four 1½ volt penlight batteries; measures 6½ x 3½ x 1½ inches, and weighs approximately 2 lb.

Also illustrated is the Sanyo Pocket-corder, MC-2A which is designed for use with the Sanyo Portable "S" tape recorder reviewed in last month's issue. The Pocket-



corder has a total playing time of thirty minutes using the standard two-track system. A microphone and earpiece are included in the price of 12 guineas, and it has a foot-operated control as an accessory. It weighs only 2 lb.

Russell Richards Ltd., 1, Dyers Buildings, Holborn, London, E.C.1.

## TWO NEW MODELS BY ELIZABETHAN

TWO- and four-track versions of a new two-speed tape recorder are announced by Elizabethan.

The new model, illustrated below, is the LZ24 which incorporates speeds of 7½ and 3½ ips. The quoted frequency response is 50-12,000 cps at 7½ ips, and 50-8,000 at 3½



ips. Wow and flutter is given as better than 0.2 per cent at the top speed, and signal-to-noise ratio as better than 40 dB.

Among the features are facilities for superimposition (two-track version only), press-button reset tape position indicator, neon recording level indicator, a 10 x 4½ inch heavy magnet elliptical loudspeaker, separate bass and treble controls, inputs for microphone and radio, and outputs for external loudspeaker and pre-amplifier/monitor.

The LZ24 will accommodate up to seven-inch spools, providing a playing time of 64 minutes per track using standard-play tape at the slower speed. Rewind for 1,200 ft. is accomplished within two minutes.

Other features include automatic tape end stop, and long-term speed stability better than .05 per cent.

The LZ24 operates from 200-250 volts 50 cycles AC only, and the power consumption is rated as 60 watts.

It measures 17 x 16 x 7¼ inches, and weighs 21 lb.

The price for the four-track version, LZ24, is 34 guineas. The LZ22 is as yet unpriced.

Elizabethan (Tape Recorders) Ltd., Bridge Close, Old Church Road, Romford, Essex.

## HEAD CLEANING TOOL BY GLOBAL

A RECORDER head cleaning tool is the latest tape accessory introduced by Global Products.

The new item, illustrated below, is designed to enable the tape transport mechanism to be cleaned with ease. Heads, capstan and guides can be reached for cleaning without difficulty.

The Global recorder head cleaning tool is four inches long, 4/12 inches wide at tool



ends, and has a plastic pastel colour grip. Felt and fibre cleaning heads are incorporated, and the metal parts have a silver finish. It retails at five shillings.

Global Products, 13, Stanley Street, Rothwell, Northamptonshire.

## TRIPLE-PLAY TAPE IN MASTERTAPE RANGE

M.S.S. RECORDING CO. LTD. announce the introduction of triple-play tape to their Mastertape range of recording tape.

The new triple-play will be available in five spool sizes, and will sell at the lowest retail price for triple-play tape.

A 600 ft. tape on a three-inch spool will cost 21s. 6d. Other sizes are four-inch spool (900 ft.), 27s.; five-inch (1,800 ft.), 51s.; 5½-inch (2,400 ft.), 66s., and seven-inch (3,600 ft.), 99s.

Fully tensilized polyester base material is used for this grade of "Mastertape."

M.S.S. Recording Company Limited, Poyle Trading Estate, Colnbrook, Slough, Buckinghamshire.

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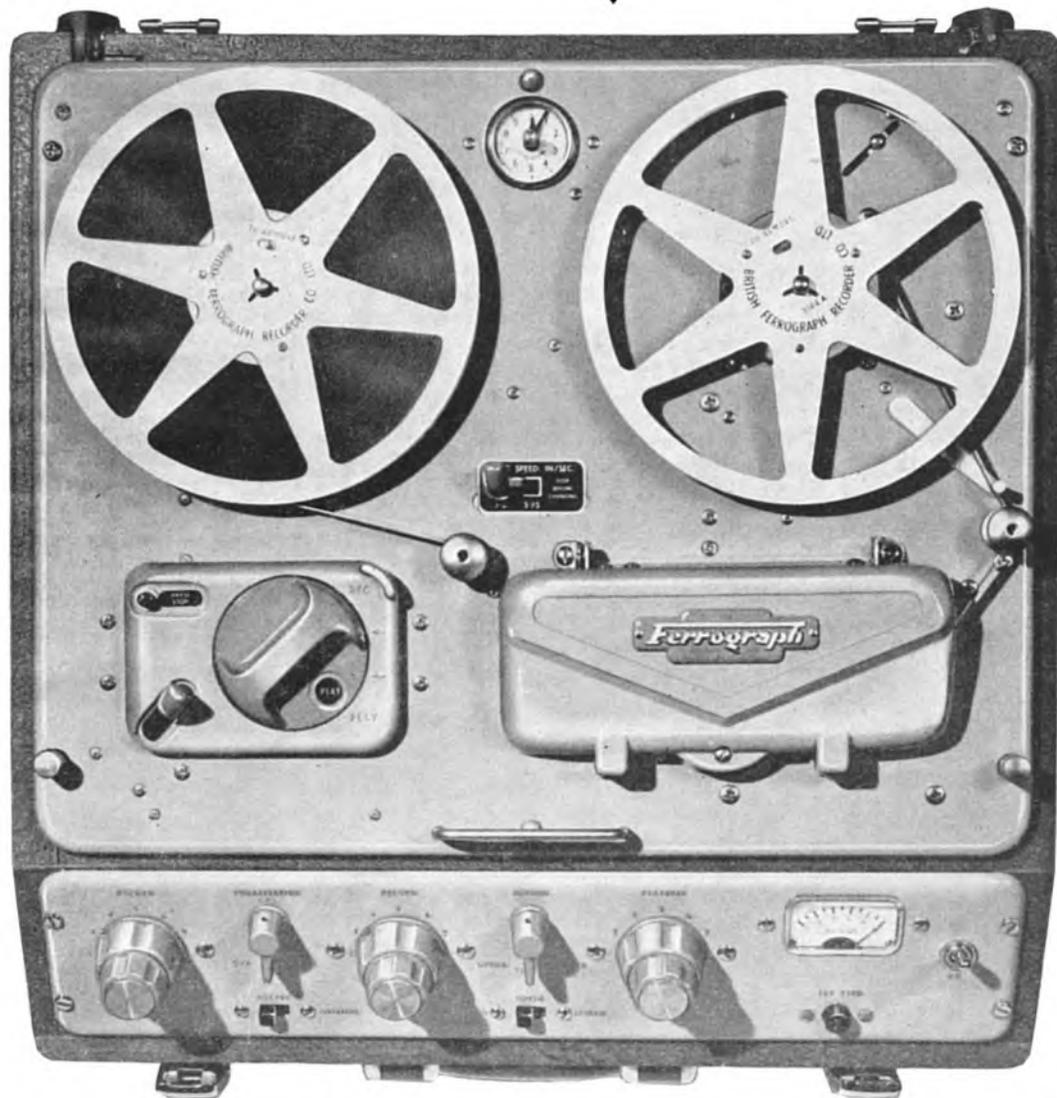
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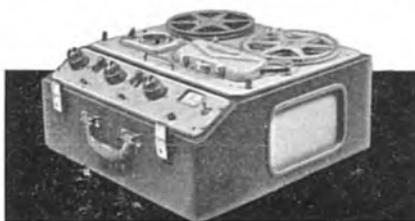
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## BATH

The Bath club members have started a Hospital Broadcasts service. The first broadcast was made on May 28, and was compiled by members in association with the local hospitals and the Toc H organisation.

Each Wednesday the hour-long programme is recorded on tape at the Bath club's HQ, and on the following day relayed by land line to the hospitals. At present transmissions are restricted to record request programmes, but plans are ready to extend the service to news and feature tapes.

Much of the club's time is devoted to the new service, but one other activity recently enjoyed by members was the contribution they made to the Bath Festival held in June.

Secretary: R. Empson, 17, Lucklands Road, Weston Park, Bath, Somerset.

## ILFORD

Members of the Ilford club quickly picked up the gauntlet thrown down by the Walthamstow members by way of a challenge to produce three tapes on any subject. The tapes were to be judged by Catford club members at an inter-club meeting scheduled for July 3.

Five of the Ilford members entered tapes in a preliminary selection meeting, and the members finally agreed to submit tapes by Rob Steel (Live recordings); Dave Bolton and Colin Weightman ("Ton-up kids"); and Mike Surrey ("Vote with mother").

At one of their April meetings, representatives of the club lectured on the functions and activities of a tape club to the Cromwell Forum Youth Club who are to form a tape group to assist their drama activities.

Fred Faulkner won the title "Club Quiz champion of 1964" when he won the final competition on May 8. A new Series begins in August with the quizzes presented in a different form. Instead of being pre-recorded by members, they will be on a similar pattern to radio's "Many a slip" programme. Readings on the subject of tape will be made and will contain deliberate mistakes. Points will be scored by members for stopping the speaker and correcting the error; but deducted for a "wrong call."

A programme of members' recordings planned for July 31 is to include pop, guitar and folk music recorded by Bob Steel, plus a variety of other musical tapes including the Ilford Promenade Orchestra, saxophone recordings, "mouth music by a mad member"; and the Serpent and other ancient musical instruments.

Members have been commissioned to produce a recording of the events and interviews with celebrities by the local branch of the RAF Association who are holding a fête on July 3. The tapes are to be presented to the RAF Association President, Sir Winston Churchill.

In a recent analysis of the programmes for 1963 members found that 40 per cent of club evenings were devoted to club projects. Other percentages are as follows: Members recordings (28); instructional programmes (19) and manufacturers' talks and demonstrations (19), compared with 9 per cent in the previous year. Quizzes took up the odd 4 per cent.

Secretary: Dave Bolton, 99, Seventh Avenue, Manor Park, London, E.12

## JOHANNESBURG

The members of the Tape Recording and Hi-Fi Society of South Africa have been invited to assist with a programme

of taping live performances during the Johannesburg Festival of 1964.

Special classes have been organised to train club members in the art of live tape recording, so that each member will have an equal chance of being active in this highlight of the city's year.

Secretary: Anita Stuart, Box 11326, Johannesburg, South Africa.

## NORTH LONDON

For the second time since the Enfield Microphone started 21 months ago, the club is questioning every listener on what is required for the fortnightly programme. This time, the questionnaire will be sent to seventy local blind persons, instead of only a dozen in 1962.

The theme of their May 13 meeting was interviewing. After a talk by the secretary on interviewing with a battery portable, members had a practical session interviewing each other.

The Tape News Service for the local Blind has increased its strength. It now comprising eight members, two representatives from the club; the Apollo Blind Club, volunteers who collect and deliver machines; and from Enfield's Home Teachers for the Blind Association.

Sound archives for Enfield are now planned by the club members. With recordings of local interest, the club hopes to build up a library of tapes which will reflect the current and historical life of the borough.

A number of tapes are already suitable, and Derek Moor has been elected librarian to catalogue all the recordings. At a recent meeting, the Borough Music Librarian gave tips on keeping archives.

Among recent activities have been a demonstration by Planet Projects Ltd., a visit by the Friern Barnet club members; stereo demonstrations, practical editing sessions, and a location recording session at London's Waterloo Station.

Secretary: Richard Collinson, 30, Ridler Road, Forty Hill, Enfield, Middlesex.

## READING

A number of members of the Reading tape and cine society have been experimenting with creative recording and a recent meeting was devoted to hearing and discussing their tapes. Among recordings heard were Bill Worrell's "Railway Journey," Jack Lee's "Play on words," Paddy Ower's "Stereo Sound," and John Sargent's "Synthetic Sound." Each tape represented a different approach to the art of tape composition, and this served to demonstrate the scope open to those who do more than merely press the playback keys of their recorders.

The number of battery portables owned by members is on the increase. This was reflected in the use of location sound in films shown at the club recently.

Visiting lecturers have included Truvox Ltd, who provided an evening on recording and demonstrating their equipment; and Robert Bateman who had much useful advice to offer on recording commentaries for films.

A recent big night was the Grosvenor Cup Competition for the best tape of the year. This award eventually went to Beryl Halder for her tape entitled "Antiques."

The service offered by the club to the Littlemore Mental Hospital near Oxford continues. Messages from patients to their relatives as far afield as the USA and Australia are recorded and despatched to provide a valuable and much appreciated family link.

A visit was paid to the Wokingham Pictorialists Society with a programme of slides with taped commentary and effects. Among sequences shown were T. Petit's "The Archie Story," and J. Lee's "Paris."

Secretary: T. Fisher, 5, Mapledurham Drive, Purye, Reading, Surrey.

## REDHILL

A tape recording club has been formed by the employees of Mullards

Ltd. at the Redhill Research Laboratories. One of its earliest activities, following the inaugural meeting in March was a live recording session of a local music group. This was followed by two similar sessions, and the members then progressed to recording a 26-piece orchestra.

The most recent recording was made with the co-operation of the Horley Evening Institute Orchestra and Singers. The local newspaper published a photograph and gave the club a write-up. Also attending during the evening were the camera club members.

Demonstrations of stereo recording have been presented by Mullards, and this was followed by stereo experiments carried out by the members. The use of parabolic reflectors was also demonstrated during one meeting; and this was followed by a session trying out various loudspeaker systems.

Future programmes include the recording of three local teenage groups, a semi-professional string quartet, and visits from three drama groups.

Instructional evenings are proposed once a month for enthusiasts wishing to make their own equipment or know more about recording. A few members are interested in Esperanto and are keen to establish tape exchanges with others similarly inclined.

Meetings are held every Thursday at 7.30 p.m. at Mullards and membership is not restricted to employees.

Secretary: G. Stephenson, Mullard (Salford) Sports Club, Mullard Research Laboratories, Redhill, Surrey.

## THORNTON HEATH

The former *Family Favourites* announcer Miss Jean Metcalfe has offered her services as announcer for one of the Thornton Heath club's forthcoming hospital programmes. The offer came following an interview a member obtained with Miss Metcalfe at a recent local fête.

Their Croydon and Mayday Hospital programmes are doing well, with two separate production teams. Arrangements are also well in hand for the October tape recording exhibition to be organised by the club.

Their autumn programme is filling up, and the members are now looking forward to a demonstration by BASF Chemicals Ltd.; and a film to be presented by Mr. Philip Wardle, called "Keep your eye on the ball." Some of the sound effects for the film were provided by G. M. Webb, a Thornton tape club member.

A full programme of charity fête has been booked and the usual team including Ed and Mrs. Bashford, John Thompson, and G. M. Webb, complete with his Cortina car rigged up as a recording and amplifying unit, will be busy throughout the next few weeks.

Club members have undertaken the servicing of blind and disabled persons' playback machines from Listening Libraries Ltd.

The club is currently trying to organise an informal meeting of southern tape clubs in an attempt to form a Regional Association as discussed at the recent AGM of the Federation. Some 24 clubs have been contacted, and the secretary invites any club inadvertently missed out to contact him.

Secretary: H. J. Bradley, 8, Canning Road, Addiscombe, Surrey.

## WALTHAMSTOW

The fifth birthday of the Walthamstow tape club was celebrated in fine style on April 24, five years to the very day the club was first formed. A cake had been made in the shape of a tape recorder, and this was cut by the club's founder Mr. Tom Tomlinson.

During the same evening, the finals of the "Brain of the Club" was held and the winner presented with a soldering iron.

Another recent important event was the AGM. This began with a recap of the past year's activities, and a new

committee was elected. Tony Norton continues in the post of secretary.

Visits have included an evening at the North London club where members joined in a quiz; and at a later meeting the Walthamstow members played host to representatives of Grundig who provided equipment demonstrations, a slide show of the Grundig factories, and answered questions.

On May 9 members again organised the recording of the annual carnival for patients in local hospitals. The tapes, commentary and sounds from various parts of the processional route, were recorded, edited, and played back to the patients within thirty minutes of the procession passing the club's "studio." Included with the commentary were interviews with the Mayor and Carnival Queen.

Secretary: Tony Norton, 22, Lechmere Avenue, Chigwell, Essex.

## WORLD ROUND ROBIN CLUB

The W.R.R.C., formed in March, is a club devoted to round-robin type tapes being sent to enthusiasts here and overseas. Most of their tapes are on five-inch spools, but smaller tapes are being introduced for overseas contacts.

Interested readers are invited to contact the secretary for further information regarding membership. The newsletter makes no mention of a membership fee.

Secretary: J. Page, 45, Elgin Avenue, Belmont, Harrow, Middlesex.

## YORK

The York club reports that they now have their own club rooms at 7a, Clifford Street. This comprises a large studio and several smaller rooms, plus their own telephone. To use the headquarters to best advantage, members are now able to attend nightly, including weekends for practical recording sessions.

Funds raised at a garden party held at Whitsun are being used to inaugurate a regular hospital service by equipping each hospital with its own broadcasting system.

The members are now looking for volunteers, with or without recorders, to assist in the production and distribution of recorded material.

Dances and similar functions are planned to increase funds.

Secretary: G. Machen, "Ball Ha", 80, Highborn Road, Highborn Estate, Huntingdon Road, York, Yorkshire.

## TAPE EXCHANGES

**T**APE recorder owners who wish to contact others with similar interests, to exchange news and views by tape are invited to fill in and return the form on page 328 giving their name, age, address, special hobby or interest for this section.

Details given here also include speeds and spool size to be used, name of recorder, and special area to be contacted.

Brundenell, Peter (23). 36, Trevor Road, Southsea, Hampshire. Travel, cinema, pop music. 7 $\frac{1}{2}$ , 3 $\frac{1}{2}$ , 1 $\frac{1}{2}$  ips. 7-inch spool. Philips EL3542, four-track. Female contacts only in UK. Letters first please.

Brooks, Robin (22). 315, Longmoor Lane, Fazakerley, Liverpool 10, Lancashire. Classical music and pipe organs. 3 $\frac{1}{2}$  ins. 7-inch spool. Philips EL3541. USA, Canada.

(Continued on page 328)

# CLASSIFIED ADVERTISEMENTS

Rate.—Sixpence per word (minimum 5s.); Trade, ninepence per word (minimum 10s.); box numbers, one shilling extra. Payment with copy. Copy should be sent to Advertising Department, "TAPE Recording Magazine," 7, Tudor Street, London, E.C.4.

## TAPE EXCHANGES

(Continued from page 327)

**Burns, Robert** (26). 86, Aston Street, London, E.14. Theatre, films, reading, music. 3 1/2 ips. 5 1/2-inch spool. Elizabethan recorder. Male contacts in UK.

**Docherty, John** (23). 43, Cornbrook Park Road, Manchester 16, Lancashire. Photography, art, books, best music. 3 1/2 ips. 5 1/2-inch spool. Ferguson and Philips four-track recorders.

**Foster, Peter** (25). 45, Wilson Avenue, Brighton 7, Sussex. Photography, camping and music. 7 1/2, 3 1/2 ips. 9 1/2-inch spool. Philips F36 two-track, stereo.

**Gautrey, John** (36). 6, Cannon Street, Wisbech, Cambridge. Amateur dramatics, theatre, travel. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Philips EL3542, four-track. Male contacts only.

**Hall, Ronald** (35). 38, King Edwards Road, Middlesbrough, Yorkshire. Humour, classical music. 7 1/2, 3 1/2, 1 1/2 ips. 8 1/2-inch spool. Brenell Mk. 2, Fi-cord 202, Robuk RK3.

**Hineson, Malcolm** (20). R.A.F. Woolfox Lodge, Stretton, Oakham, Rutland. Classical and popular music. hi-fi. 3 1/2 ips. 7-inch spool. Philips EL3541/2.

**Hughes, Jean** (25). "Windy Ridge," Denbigh Circle, Kinnel Bay, Rhyl, North Wales. Reading, sport. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Sound Riveria, four-track, Elpic recorder, UK, USA and Germany.

**Hunt, Derek** (33). 64, Middleton Hall Road, King's Norton, Birmingham 30, Warwickshire. Photography, radio and records. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Truvox R94, four-track. Male contacts only. No letters please.

**Martyn, Gabriel** (25). 16, Portland Rise, London, N.4. Photography, guitar, old songs. 3 1/2 ips. 5 1/2-inch spool. Grundig TK14. Female contacts preferred.

**Nisbet Allan** (23). 16, Drumdryan Street, Edinburgh 11, Scotland. Humour, theatre and pop music. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Grundig TK35 and Senior portable.

**Palmer, John** (20). Flat 10, 24, Hopetown Street, London, E.1. Sound effects, humour and pop music. 7 1/2, 3 1/2 ips. 8 1/2-inch spool. Ferrograph SA/N, UK.

**Paterson, Clive** (20). 58, St. Augustine's Road, Kimberley, South Africa. Music and drawing. 3 1/2 ips. 7-inch spool. Philips EL3514, four-track. Female contacts preferred.

Tape recorder owners wishing to make contact with others of similar interests are invited to complete and return this form. (BLOCK LETTERS PLEASE)

Name ..... Age .....

Address .....

Special interests .....

Speeds to be used ..... Maximum spool size .....

Recorder owned .....

Special areas to be contacted .....

(Unless otherwise stated, I am prepared to accept tapes from any part of the world)

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**Pearson, Eric** (41). 61, Oxley Road, Sheepridge, Huddersfield, Yorkshire. Science fiction. 3 1/2, 1 1/2 ips. 7-inch spool. Carousel and Civic recorders.

**Rae, M. B.** (22). 91, Mildmay Road, London, N.1. Radio, records of Buddy Holly. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Fidelity TR7. USA, Canada, Australia, New Zealand.

**Russell, Margaret (Mrs.)** (32). 31, Oakbury Road, Fulham, London, S.W.6. Hi-Fi recording, reading, music. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Grundig TK60 and TK46, Telefunken M300 battery portable. Italy, Germany.

**Spencer, D. B.** (37). 28, Watery Lane, Minehead, Somerset. Model engineering, clocks. 3 1/2 ips. 5 1/2-inch spool. Grundig TK20. Grundig TK1.

**Thompson, Trevor** (20). 25, Selwyn Crescent, Welling, Kent. Photography, travel, pop and C&W music. 3 1/2 ips. 5 1/2-inch spool. Grundig TK23. USA, South Africa and Europe.

**Woodley, Roger** (24). 18, Mereland Road, Didcot, Berkshire. Electronic organs, jazz and sax. playing. 3 1/2 ips. 10-inch spool. Philips EL3541, four-track.

## TEENAGE EXCHANGES

**Cox, Graham** (17). 40, Ashmore Grove, Welling, Kent. Photography, cycling, railways. 3 1/2 ips. 5 1/2-inch spool. Waiter Metropolitan, UK, USA.

**Farmer, Susan** (17). 1, Cambridge Road, Kew, Surrey. R&B music, dancing and reading. 3 1/2 ips. 5 1/2-inch spool. Grundig TK14.

**Fisher, Keith** (14). 19, Repton Gardens, Romford, Essex. Amateur radio, humour, pop music. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Elizabethan LZ29, four-track.

**Goddard, Andrew** (19). 130, Sweetbrier Lane, Heavitree, Exeter, Devon. Photography, natural history, driving and music. 3 1/2, 1 1/2 ips. 5 1/2-inch spool. Stella portable, Sobell Festival, UK, USA.

**Kasser, Joe** (18). 67, Lyttelton Road, London, N.2. Radio, stamps, photography, travel, music. Philips AG8109. Israel, Forces members.

**McCallum, Iain** (18). Elderslie Hotel, Largs, Ayrshire. Photography, sailing, Thelionious Monk. 3 1/2 ips. 7-inch spool. Philips EL3541/H. Sweden, USA.

**Murray, Iain** (17). 2, Rammock Road, Perth, Scotland. Photography, hiking and pop music. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Elizabethan LZ29. Australia, USA.

**Squires, Jack** (19). Chapel Cottage, Plumstone Road, Acol, near Birmington, Kent. Motorcycling, pop music. 7 1/2, 3 1/2, 1 1/2 ips. 7-inch spool. Challenge 44G2. UK only.

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\*PD.99 4Tr. Stereo Deck 79 gns.

\*Vortexion WYA ... £93.13.0

\*Vortexion WVB ... £110.3.0

\*Vortexion CBL ... £160

Wyndson Trident ... 33 gns.

### BATTERY PORTABLES

\*Butoba MT5 ... 66 gns.

Philips Portable ... 25 gns.

Clarion Phonotrix ... 19 gns.

\*Fi-Cord 202 ... 66 gns.

Stella ... 26 gns.

Stuzzi Memo-Cord ... 25 gns.

Loewe Opta 414 Bt./Mns. 47 gns.

Uher 4000/s ... 93 gns.

Cossor ... 26 gns.

Sanyo ... 36 gns.

\*Microphone extra

Also Decks by Brenell and Wright and Weaire

### MAINS POWER PACKS

Philips, Cossor, Stella... £5.12.0

Grundig ... 8 gns.

Butoba ... 11 gns.

Fi-Cord ... £7.10.0

Uher 4000 ... £16.10.0

### TAPE TO DISC SERVICE

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... and NO EXTRA FOR CREDIT TERMS

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### MICROPHONES, MIXERS etc.

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Grampian Ribbon ... £11.10.0

Grampian DP/4 Dynamic £8.00

Lustraphone Ribbon ... £7.17.6

Lustraphone LFV/59 ... £8.18.6

Simon 'Cadenza' Ribbon £10.10.0

Reslo Ribbon ... £10.2.0

Reslo Pencil Ribbon ... £8.00

A.K.G.D.19c.Mic. ... £17.10.0

A.K.G. Stereo D.77 a Low Z £15.10.0

A.K.G. K.50 Headphones £7.10.0

Grundig Stereo Mixer 18 gns.

TSL 3 Channel Mixer £2.7.6

Microphones by ACOS, and TELEFUNKEN All Walgain Products. Brenell and Eagle mixers.

Philips Pre-Amp £6.10.0

### TAPES & ACCESSORIES

- Standard, Double Play, Long Play and Triple Play in all sizes by all leading makers.
- Defluxers by Walgain, Wearite.
- Pre-recorded Tapes by Columbia, H.M.V., Saga, Music on Tape, etc.
- Bib, Bond and E.M.I. splicers. Matching transformers, Plugs, sockets, etc.

## Hi-Fi Dept.

### AMPLIFIERS

Quad Scott Chapman  
Tripletone Aveyale Leak  
Rogers Armstrong B. & O.  
H.M.V. Pye Eagle

### TUNERS by

Quad Rogers B. & O. Chapman  
Leak Armstrong Pye H.M.V.  
Tripletone

### LOUDSPEAKERS

Quad Pye W.B. Wharfedale  
Goodmans MK.II Tannoy Leak  
Lowther Kef Rogers Mordaunt  
Elac Eagle Kelly Mini

### MOTORS, PICKUPS,

Garrard Tannoy  
Goldring-Lenco Connoisseur  
Shure Decca Stereo  
A.D.C. Decca'Deram'  
Philips Acos Ronette B. & O.  
E.M.I. SME Mk. II Ortofon  
Thorens Pickering Eagle BSR

All types of Diamond and Sapphire styli, stereo and mono. Microlifts, Garrard, Goldring, Acos Pressure Gauges; Disc Prener, Acos Dust Bag

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Between St. Leonard's Church and Streatham Station

STReatham 0466/0192

## TAPE DECKS—HI-FI EQUIPMENT—MICS—RADIOS—SPEAKER SYSTEMS



Today's outstanding home entertainment is HI-FI. YOU SAVE £££s BY CONSTRUCTING THESE FINE KITSETS YOURSELF.



TA-IS

**TAPE AMPLIFIER UNITS: Models TA-IM and TA-IS.** The mono version, TA-IM, can be modified to the stereo version, TA-IS, by the modification kit TA-IC. Special features include bias level control, recording level indicators, printed circuit boards.

TA-IC £6.15.0. TA-IM £19.18.0. TA-IS £25.10.0.

### A Tape Recorder requires a Tuner

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Available in two units. Tuning unit (FMT-4U) £2.15.0 incl. P.T.). I.F.-amplifier (FMA-4U) £13.3.0.) Printed circuit for I.F. Amplifier and Ratio detector own built-in power supply, 7 valves. Tuning range, 88-108 Mc/s.

Total Price £15.18.0 kit



FM TUNER

**HI-FI AM/FM TUNER. Model AFM-1**  
Also available in two units as above: Tuning heart (AFM-TI) £4.13.6 incl. P.T.) and I.F. amplifier (AFM-AI) £21.16.6.).

Total Price £26.10.0 kit



AM/FM TUNER

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A range of equipment cabinets is available including kits, ready assembled cabinets or assembled and fully finished cabinets. Why not send for full details free of any obligation? Prices from £6.19.6 to £29.8.0.

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Models D83-2 D83-4  
High quality stereo Tape Decks.  
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TRUVOX D83



MALVERN



S-33

### A wide Range of Stereo and Mono Amplifiers

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The "Cotswold" is an acoustically designed enclosure 26" x 23" x 14 1/2" with 3 speakers covering the full frequency range 30-20,000 c/s. The "Cotswold" MFS. A minimum floor space model size 36" high x 16 1/2" x 14" deep. Prices either model £23.4.0 kit.



COTSWOLD



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T.2

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is  
extra tough**



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