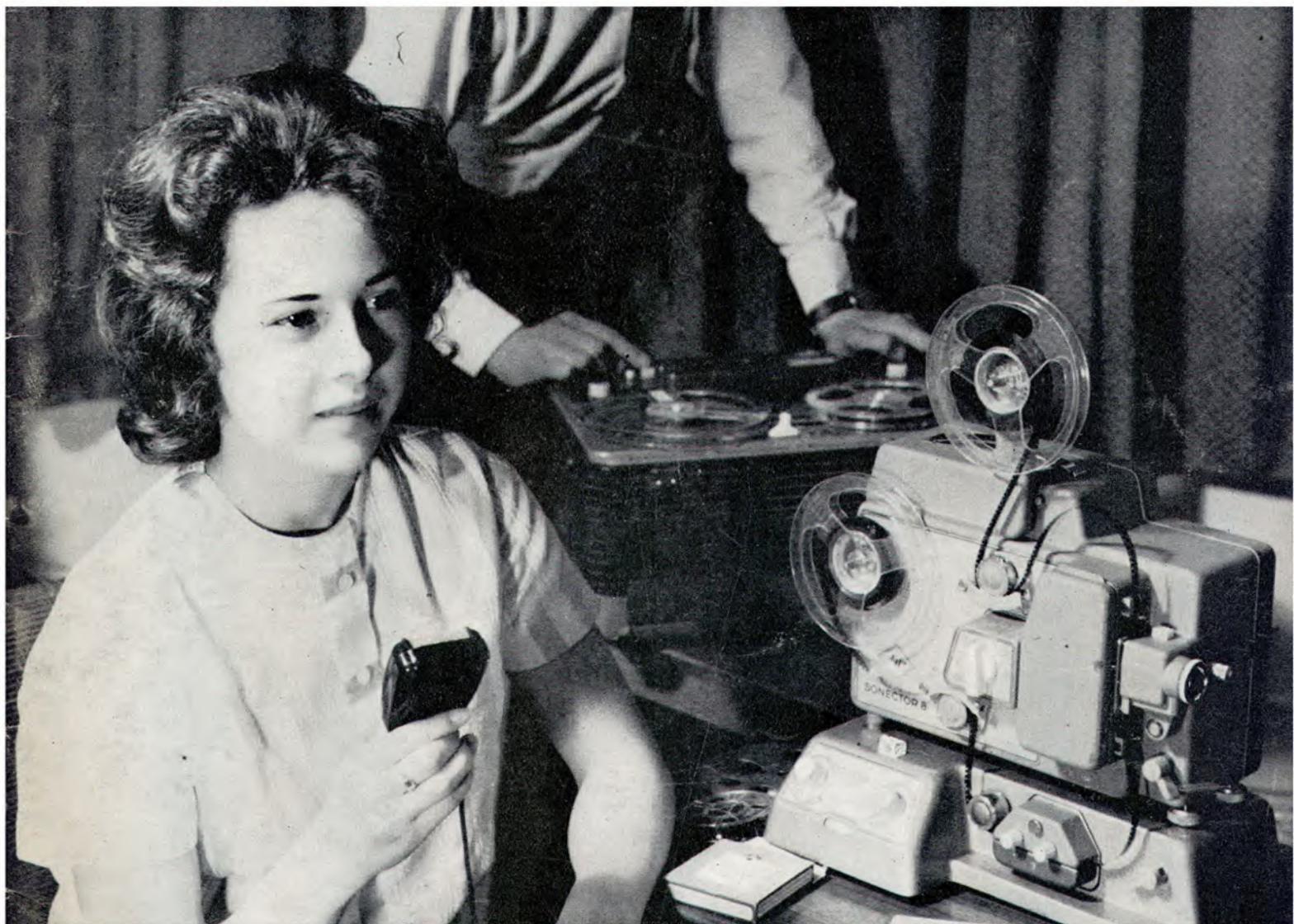


TAPE

RECORDING MAGAZINE

JUNE 1962

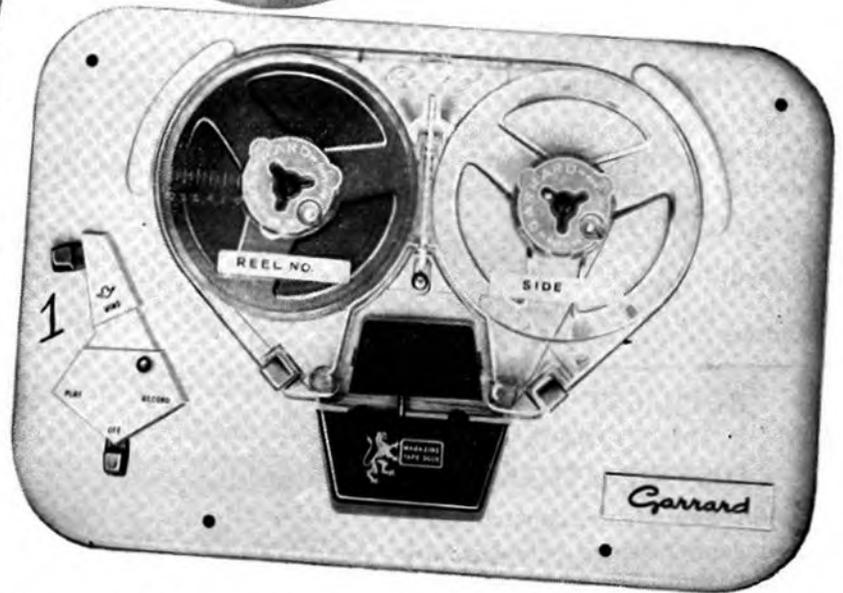
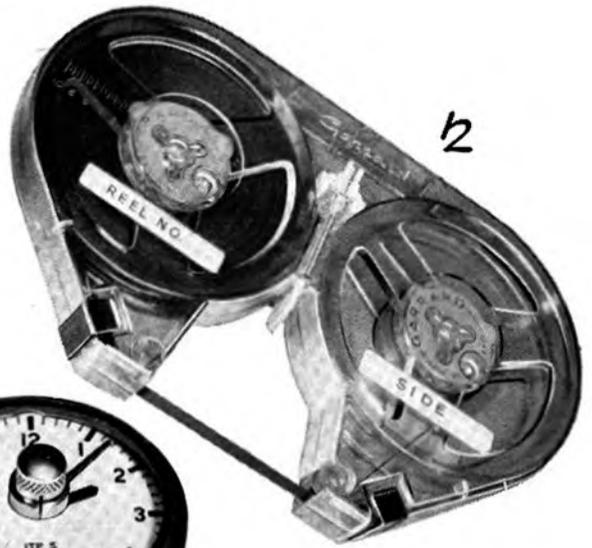
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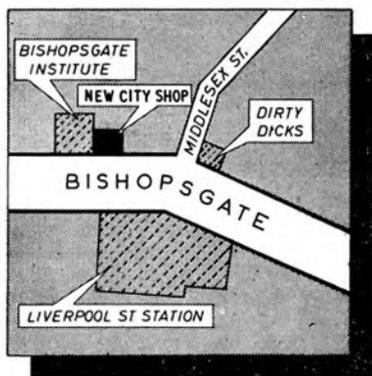


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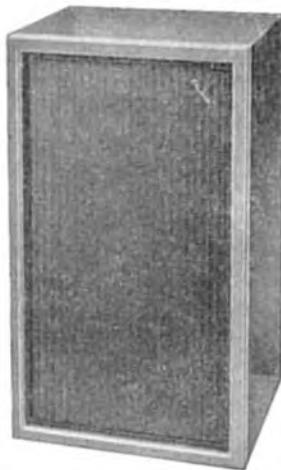
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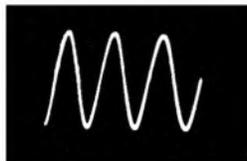
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Stella ST455 ...	12	8	0	2	15	1	59		
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Reps R10 ...	6	3	11	6	3	11	59		
Telefunken 95 ...	6	3	11	6	3	11	59		
4-TRACK									
Stuzzi ...	2	16	6	2	14	6	26		
Philips 'Star Maker' ...	2	16	9	2	16	9	27		
Argyll 4-T ...	3	4	0	3	4	0	29½		
Elizabethan FT1 ...	3	11	5	3	11	5	34		
Philips EL3541 ...	3	11	5	3	11	5	34		
Stella ST 454 ...	3	17	9	3	17	9	37		
Sound ...	4	15	0	4	14	6	45		
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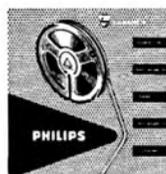
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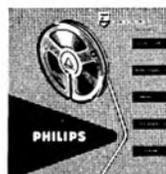
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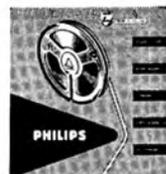
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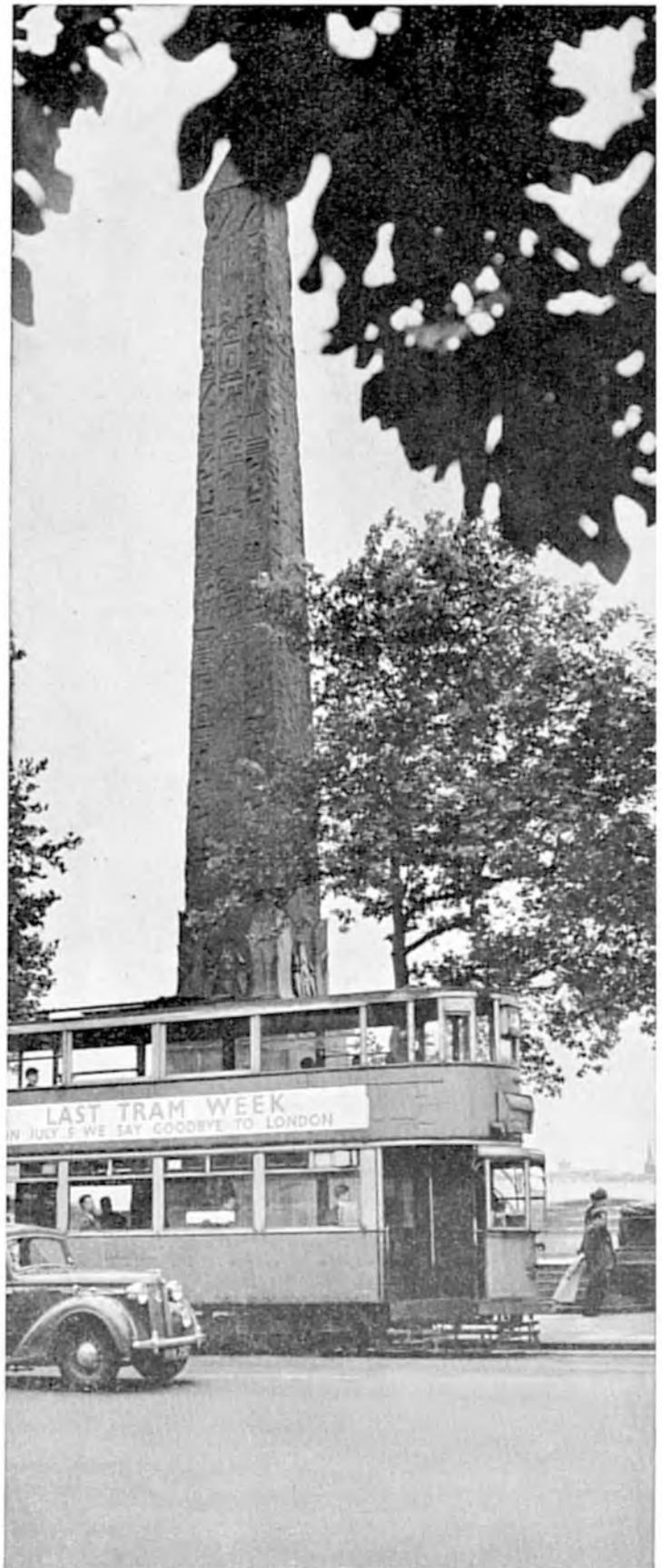
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TAPE

RECORDING
MAGAZINE

Vol. 6 No. 6 June, 1962

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COVER PHOTOGRAPH: Ann Harford, attractive sound and cine enthusiast of St. John's Wood, London, poses with the Agfa Sonector-phon 8, a projector combined with sound unit. The instrument is reviewed on page 22 of this issue.

"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.

"TAPE Recording Magazine" is available by a postal subscription of 20s. per annum including postage, or it can be obtained at newsagents, bookstalls and radio and music dealers. In the event of difficulty, write to the Publishers at 7 Tudor Street, London, E.C.4.

Back numbers, if still in print, are available at 2s. 6d. per copy for issues up to November 1959, and 2s. per copy for later numbers.

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EDITORIAL

ADVERTISING

Editor,
R. DOUGLAS BROWN

Advertisement Manager,
KENNETH P. WILSON

Assistant Editor, FRED CHANDLER

THE EDITORIAL VIEW

THE Audio Festival was a tremendous success. There were interesting new items of equipment for tape enthusiasts. None more so, I suppose, than the new "automatic" recorder flown over from Germany by Telefunken.

This machine ends all worries about ensuring correct recording level: it is to tape recording what the coupled exposure meter is to the camera. Once you press the recording button the reels begin to turn and level is adjusted automatically to take account of any volume of sound.

Further, the machine is kept permanently plugged into the mains, so that there is no "on" switch, nor period of "warming-up." It is also normally kept connected to a radio receiver, but plugging in a microphone over-rides the radio input and gives priority for microphone recording.

A lot of market research is apparently going into these new tape developments. A lot of people are doing a lot of hard thinking about why more people are not buying more tape equipment more quickly.

The two essential lessons learned to date are (a) that a tape recorder must look and must be in operation as simple as possible, with a minimum of controls, and (b) that it should occupy as little standing space as possible, so that it can become part of the permanent furniture of a room without intruding unduly.

Cassettes, and now the Telefunken device, are aimed at simplification. The vertical design involved in the latest Philips machine—and seen at the Audio Festival, in a rather different form, in the new WyndSOR recorder, are aimed at solving the second problem.

This is all good, sound pioneer work and it should pay real dividends in extending tape recording to a vast new audience.

TALKING with a group of independent audio experts at the Festival I found a general agreement that it would be a much happier situation if the search for design innovations to produce economy in tape usage could be avoided by a reduction in the price of magnetic tape.

It is a point that has been made in our correspondence columns from time to time and we have published the official reaction from a big manufacturer, which did not encourage hope that prices are likely to fall.

There will, however, be great interest in the news that E.M.I. and Philips have now jointly formed a new company to manufacture tape and that they will merge their technical resources on this front.

A new factory is planned at Hayes, but tapes will still be marketed under both brand names. One report in the trade Press has suggested that "the

large output will make the two companies much more competitive, especially in the North American market."

I WAS delighted to meet an old friend from Belgium, now editing the newest of Europe's tape recording magazines—M. Bert Wilme.

He tells me of great strides forward in developing a strong tape recording club movement in Belgium. Until now there have been problems arising from the use of both French and Flemish languages in the country. Now both halves of the country are united in a tape recording organisation. For the first time we can look forward to meeting Flemish enthusiasts at the FICS conference in Strasbourg in the autumn.

And in most of the bigger Belgium towns and cities clubs are now being formed and rapidly expanded.

This is encouraging. On the other side, there has been a disappointment arising from the plan to hold a Sound Hunters' "International study week" at Interlaken in the summer. The response showed that the organisers had given insufficient opportunity for this event to be publicised and it has now been decided to postpone it until 1963. We shall publish the revised details in due course.

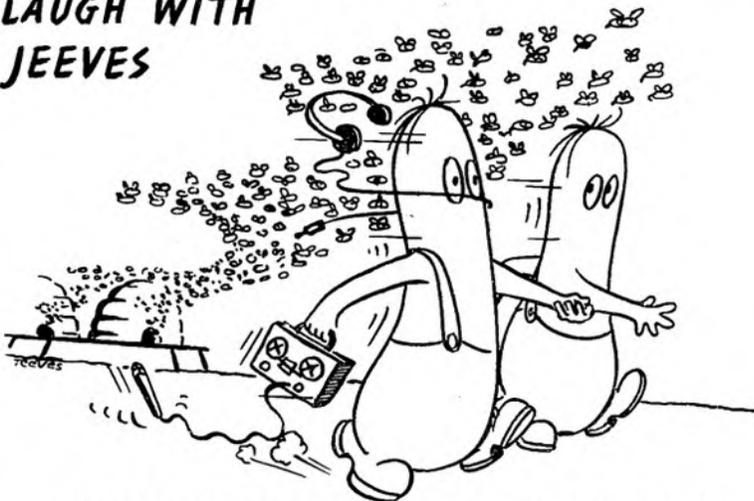
A NEW effort to start a comprehensive service for blind audio enthusiasts is being made by a very well-known personality in the audio world. He has in mind to arrange for blind enthusiasts a free service on tape of readings from technical articles in this and other British and American journals and from books on audio.

Readings would be made on five-inch reels of two-track tape at 3½ ips and the only cost to the recipient would be the return postage.

We, as publishers, are ready to cooperate fully in any such scheme by permitting reproduction of articles in this way. Any blind subscriber who would like to take advantage of such a service, if it is established, should send us a postcard indicating the fact and confirming that he has facilities for playing tapes recorded in the way suggested.

THE EDITOR

LAUGH WITH JEEVES



"I said that it wasn't mains hum you were picking up."

SPECIAL ASSIGNMENT

By Denys G. Killick

NO more exciting or rewarding subject for the amateur recordist is the recording of the sounds of nature. Here are no problems of copyright, no lack of artistes or effects; only the problem of how best to go out and get the recording.

George Kershaw of Bolton, Lancashire, has been most frustrated and disappointed with the result of his attempts to secure really first-class recordings of birds, and asks me to describe how I would go about it. I'm not surprised that he should have found himself running into difficulties. I can well remember my own first attempts at the recording of wild birds. With a recorder slung over my shoulder I wandered through the woods at daybreak waving my microphone aimlessly from tree to tree. The birds were certainly there, and their song was undoubtedly all around me. When the tape was played back, however, the result can only be described as "disappointing."

Recording bird-song is a specialised business, but before going on to discuss it in detail I would also like to mention a letter from Mr. Jack Cotterill of Poole, Hants. Also interested in recording nature, he, rather unusually, is primarily concerned with weather effects; wind, rain and thunder storms. When recording from nature it's easy to forget that there's so much more to record apart from bird-song. Indeed, why not try recording the weather?

Most dramatic weather recordings are almost certain to include the sound of the wind. This in itself presents us with one of the most difficult problems. What is the sound of the wind?

The sound of the wind is in reality the sound made as it blows through or across fixed objects. The air pumped through an organ makes no sound until it's forced into the tuned pipes, and in the same way what we call the sound of the wind whistling in our ears is actually the vibration set up as the current of air rushes past the aural orifice. In precisely the same manner we hear a moaning sound, very much lower in pitch.



RECORDING NATURE

Readers suggest the recording assignment and if they wish, the equipment to be used. Killick does the job and reports on the problems encountered and the way they were solved. Let him have your suggestion for his next assignment

when the wind plays across the top of an open chimney at home, or the singing of the wind through telegraph wires or through the rigging of a ship. It's not the wind making the sound, it's the vibration of the wires and the ropes.

It's clear then that in order to record wind sounds we must first of all have the current of air itself and secondly, but just as important, something for it to play through or across. Given these conditions it only remains to ensure that the microphone is itself protected from the wind yet close enough to the sound source to give a reasonably good modulation on the tape without too much background noise and hiss.

There are wind shields available for some types of microphones, but under extreme conditions they are not likely to be very effective. They usually consist of very fine wire mesh shaped into a dome to fit over the microphone head. The same thing can easily be made up at home by adapting an ordinary camera lens hood. These are made in various sizes, and assuming it is intended to use a "stick" moving coil microphone—the best for this kind of work—one has only to take it round to the local photographic store and buy a lens hood to fit the business end. They're quite cheap. A few thicknesses of silk or nylon stocking are then fastened with a rubber band over the wide opening of the hood and the wind shield is complete.

A better, but more difficult solution is to rig up a shield to totally enclose the microphone. This could take the form of a box with two open ends across which are fixed sheets of fine gauge wire mesh or perforated zinc. It may be

found necessary to modify the shape and construction for acoustic reasons, and some means must be provided for fixing it firmly to the ground. Beware of rattles—on playback these will sound as loud as drum beats throughout the recording.

Better still, of course, get the microphone right out of the wind by making use of open doorways or temporary shelters. Let the wind do its worst, or best. But at all costs keep it away from the microphone.

Thunder is a very obvious weather condition to record, and this is certainly easier than wind. By the very nature of the sound there's usually plenty of it. However, thunder does sound very different when heard in different places. The echoing of the mighty rolls of sound as they are bounced back and forth between hillsides is a far more evocative effect than the sound heard in flat country.

As with the wind it's necessary to properly understand the nature of the sound source in order to get the best recordings. With the storm directly overhead there's very little time lag between the flash of lightning and the sound of thunder. We all know that lightning is nothing more than an electric spark and that the creation of a spark causes sound to be emitted. With a small spark from a battery this is scarcely audible, but with lightning there is a very definite, searing, rending sound at the instant the lightning appears, and this is followed later by the thunder.

This is an extremely difficult effect to record, probably almost impossible under city conditions unless you're prepared to sit up until the small hours to take advantage of the lack of traffic and general background noise. On the other hand the attempt could be quite successfully made from the bedroom window. Next time you're woken up in the middle of the night by a thunder storm why not

(Continued on page 12)

TO see our place you'd think it would be an ideal set-up for an amateur recordist. We are well separated from our neighbours and virgin bush faces us across the road.

Our "studio" is a self-contained little three-roomed cottage apart from the main house. It is fitted up with curtains on the walls and heavy carpeting on the floor. Windows back and front may be opened wide for a through breeze or sealed off if required to give reasonable effective proofing against outside sounds.

The recording room is partitioned off by a three-inch wall with access door and a plate-glass window. Aural communication is by means of a talk-back system. Here, the enthusiasts can shut themselves away without fear of interruption and they're all set to let themselves go on any job of creative recording—drama, documentaries and features being our main interest.

We have comfortable chairs, tables and a typewriter—a workshop and a small lathe—test gear and a well-stocked "live effects" cupboard (looking some-

Have you made your tape to enter in the British Amateur Tape Recording Contest yet? If you are deterred by problems, read this account of the difficulties that some overseas competitors have to overcome.

what like a kiddies' toy cupboard and is often used as such when visiting youngsters get tired of the more conventional toys). Our equipment includes the main recorder, an Emicorder 2301, modified for studio use to incorporate meter monitoring, pause and editing facilities, playback equalisation and power outlet for the four-channel mixer on the control desk which also contains two turntables.

In addition, we have an old re-built Nicholls recorder and a modified Nicholls deck for dubbing tapes and using taped effects. A selection of microphones; ribbon, moving-coil and crystal, according to requirements, and a Fi-Cord for interviews and effects in the field completes the set-up.

This all sounds pretty good, doesn't it, but this article is not intended to make the mouths of other enthusiasts water. Its object is to show that there are other

things to contend with living on the outskirts of a semi-tropical city.

Let us imagine that we have decided to enter a dramatic work in some international competition, this happens whenever an opportunity presents itself!

Scripts are typed; the effects are ready—live, on tape or disc, and the cast (some having travelled over an hour's car journey) is assembled.

It is a typically Australian night. Although the Southern Cross twinkles in the rapidly-deepening blue sky, a dark line of cloud along the horizon is showing obvious signs of pregnancy and is creeping towards us with flickering tropical lightning behind throwing it into ominous silhouette.

So far there has been no rumble of thunder. How far can we get before it breaks? We have already rehearsed and done the spade work. Tonight is

KILLICK'S SPECIAL ASSIGNMENT

(Continued from page 11)

take advantage of the situation by recording it?

The beat of the rain is another very descriptive sound, but do remember the sound source is the impact of the rain on something. And whatever you do make quite sure that the thing it's beating on is not your recording equipment. The most careful precautions are necessary to ensure that machines, microphones and cables are kept scrupulously dry. I need hardly add that mains equipment should never be used in the wet. . . .

Of the wild life of our country birds are the most thrilling creatures to record. Fortunately, most of our really brilliant song-birds are also some of our commonest species. Very few of us would find difficulty in locating a blackbird or a thrush, and for excellence of song there's no need to look any further.

However, it's one thing to see the birds and quite another to record them. Those disappointing recordings referred to earlier were unsatisfactory because although birds may have a very shrill voice it's also, comparatively speaking, a very small voice. For obvious reasons there's bound to be some distance between the microphone and the sound and so the temptation is to increase the recording level on the machine until an adequate response is seen on the indica-

tor. The operator is sure to have a nasty feeling at the back of his mind that he's probably introducing a great deal of hiss and local background noise, and on playback this will be found to be so.

There are two ways out of this dilemma, and the first the ornithological approach. If, by experience and previous observation it is known where a particular bird is likely to perch and sing, it is possible to arrange the microphone in a suitable position beforehand using long extension cables to keep yourself well out of sight. It then only remains to wait.

For this method an intimate knowledge of the creature's habits are essential, together with an infinite amount of patience. I would like to suggest here that this is a case for co-operation with the expert. Try contacting an enthusiastic local ornithologist and offer to work with him. He'll probably be only too pleased to make use of your recording facilities and in return his invaluable knowledge will save you many hours of wasted time.

The other way is to use a parabolic reflector. With this piece of equipment it's possible to be at some distance from the bird and yet by gathering up all the sound within the diameter of the reflector the level will be sufficiently high to give a good recording without an undue in-

crease of the recording level. The principle of reflectors is well known, the sound being reflected back from the surface of the parabola to a central focal point where the microphone is held in place by a clip. A glance at the illustration will make the arrangement obvious. It is necessary to sight the reflector accurately as it is, of course, highly directional. The one I use is made by Grampian Sound Reproducers Ltd., and the results achieved can only be described as startling.

Although reflectors have been developed primarily for this kind of recording it's worth bearing in mind that they could equally well be used for almost any distant sound source. So far as I know they have only been manufactured and made available to the general public within about the last twelve months, so here is a comparatively unexplored territory that's wide open for the amateur to explore.

By the way, if you're determined to go ahead and record bird-song without the help of an experienced ornithologist, then I would certainly recommend investing in *The Observers' Book of British Birds*, a most useful little pocket book invaluable in identifying different species.

I have only touched on the fringe of the field of nature recording here; it's so vast that there's room for all and to spare. In no other sphere are there such opportunities for obtaining rare and valuable recordings, but even the commonplace can have such beauty as to delight the ear of any listener.

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Tape recording for the enthusiast!

—By C. Llewelyn Appleby—

Director of Phoenix Productions, an amateur tape drama group in Brisbane, Queensland, Australia

the "take"! It's got to be tonight because we have to meet the airmail deadline if it is to arrive before closing date.

We are always months behind the rest of the interested world as only sketchy announcements are gleaned from magazines six weeks old by the time we get them. Then we have to write for entry forms which are usually sent to us by surface mail and that means another five weeks lost before we can get down to business.

So, tonight's the night!

Although it is evening, the temperature is 85 with high humidity. We take the shutters down in an endeavour to get some cool air otherwise our scripts will be soaked with sweat which drips off our noses. The men are in shorts. Some have removed their thin shirts. The ladies are only just decent—we can't use the fan in the studio—only during rehearsal. The engineers are luckier although they, too, have bare torsos.

Let's try a quick run-through to get warmed up! (As if that's necessary). We get through without serious trouble. Then a few words of criticism or approval from the producer and we are ready. Right! Stand by, everybody! Music! Cue for dialogue to commence! It's on!

The drama gets intense. This is the big scene. Jean is at the telephone. She sobs as she hears the dreaded news and then . . . a high-pitched buzzing sound comes from the monitor speaker. The producer looks up mystified for a moment until he recognises the sound made temporarily unfamiliar by the amplification. Two mosquitoes are playing tag round the mike before selecting a victim from amongst the cast. Cut! Get the insect spray and start again. O.K.? Right! Music, cue and away we go again.

The action proceeds smoothly. The producer's stop-watch ticks away. Nine minutes gone and six minutes to go. Keep your fingers crossed! Jean and Marion have got through their difficult emotional quarrel without a fluff . . . but . . . that's not in the script! Rifle fire? What the hell? Cut!

This time it is a "Christmas Beetle" throwing himself backwards and forwards between the bulb and the plastic light fitting. The impact of his hard body makes a noise like gun shots in the mike. Again we wait until the suicide has been completely effected and the body removed.

Before we can try again there is the rumble of the approaching storm. This

becomes louder and more frequent. The lightning is almost continuous. With luck it should clear in half an hour, and we adjourn to the recording room for liquid refreshment and speculation as the rain starts and lashes the iron roof with such intensity that we can hardly hear ourselves speak. We just sit and wait. Half an hour was a good guess. Only a distant rumble reminds us of what has gone.

The temperature, although slightly lower, is still too high to permit closing the windows.

Following the rain we are now faced with a double-headed menace. Where *DO* these hundreds of frogs suddenly appear from? Croak! Croak! Croak! Grunt! Grunt! Grunt! We are surrounded! Then the cicadas start their act. Thousands of 'em in the gum trees across the road—all rubbing their legs together to make that high-intensity whine which comes in steady waves like a giant snoring. No insect sprays will stop *THEM*.

We look at each other in dismay. They may keep this up all night. On the other hand they may stop as suddenly as they started. Time is getting on. It is nearly ten o'clock.

At 10.12 there is silence. Is it a false alarm or are they just having a breather?

If they'll only hold off for 15 minutes and we make no fluffs, we're there! We decide to take a chance. We've no alternative. As the action proceeds everyone is on tenterhooks—not conducive to the best display of histrionics—but the tape winds on and, finally, the studio microphone is faded and as the last musical crescendo is brought up to full volume we hear the ever-increasing roar of a Vickers Viscount from Sydney coming in to land at Brisbane Airport. It passes over the "studio" at less than a thousand feet.

We don't care now. It's in the can!

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1. The performer or performers must be genuine amateurs who have never appeared professionally.
2. Performances may be of two types of material:
 - (a) original scripts, lyrics, or scores which are the work of the entrant(s);
 - (b) amateur performances of music or other material, which may be copyright, provided that it has already been lawfully issued on gramophone records in this country. But no entry may contain any material *directly recorded* from radio or TV transmission or commercial recordings.
3. Entries must not exceed five minutes' duration. Rules 6, 8, 10, 11, 12 of the main contest also apply. Entry forms for the main contest are available from 7, Tudor Street, London, E.C.4.

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Names of performer(s)

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Speed and duration

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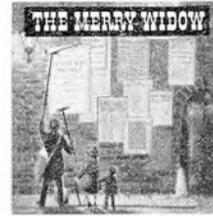
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53. These two suites, containing some of Bizet's most thrilling music, are given magnificent performances by the Sinfonia of London under Muir Mathieson. Also on disc: mono/stereo



19. Look Over Your Shoulder, My Lean Baby, White Christmas, Don't Worry About Me, Melody of Love. 12 top numbers sung by the fabulous Sinatra. Also on disc: mono only



56. All the magic of old Vienna! starring Jacqueline Delman, John Larsen, Linden Singers and Sinfonia of London conducted by John Hollingsworth. Also on disc: mono/stereo



33. Beethoven 5th, plus Egmont, Josef Krips and LSO in a titanic interpretation which matches the tremendous power of this celebrated music. Also on disc: mono/stereo



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 on disc: mono/stereo



39. Great ballet conductor John Hollingsworth and the Sinfonia of London in a sparklingly fresh interpretation of Tchaikovsky's famous Ballet. Also on disc: mono/stereo



20. Answer Me, Nature Boy, Ruby and the Pearl, these plus 8 more favourites sung especially for you by the unique Nat King Cole. Also on disc: mono only



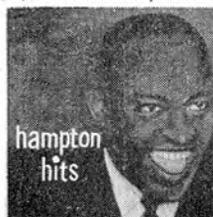
40. Superb singing by Bruna Rizzoli and Giuseppe Savio with the chorus of the Teatro Nuovo di Milano and orchestra conducted by Napoleone Annovazzi. Also on disc: mono only



29. Me and My Shadow, Among My Souvenirs, Mean to Me, How About Me... the fabulous Judy Garland sings 11 of her greatest songs. Also on disc: mono only



25. Ian Wallace, Joyce Blair and chorus. Some Enchanted Evening, I'm In Love With a Wonderful Guy, and all the unforgettable songs from this great musical. Also on disc: mono/stereo



34. Stardust, How High the Moon, Nearness of You, 'Round Midnight, King David—eight numbers by the vibraphone genius, Lionel Hampton. Also on disc: mono/stereo



48. Deep in My Heart, Drinking Song, Serenade—all the old favourites fresher than ever with Marion Grimaldi, Linden Singers and Orchestra. Also on disc: mono/stereo



37. Revolutionary Study, Polonaises A and A flat, Fantaisie-Impromptu—12 favourites in all played by the pianist of Dirk Bogard's 'Song Without End'. Also on disc: mono only



22. 12th St. Rag, Isle of Capri, Smile, Blue Moon, Bunny Hop Mambo, Satin Doll. 12 top numbers played in characteristic style by the Duke and his band. Also on disc: mono only



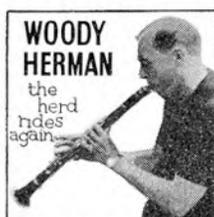
2. Grieg Piano Concerto. Alexander Jenner in an electrifying performance with the Bavarian State Radio Orchestra conducted by Odd Gruner-Hegge. Also on disc: mono only



35. Ol' Man River, Bill, Make Believe, many more well-loved numbers from this famous musical memorably sung and played by full star cast. Also on disc: mono/stereo



44. Leopold Ludwig and LSO combine brilliantly in an exciting 'double': two of the world's greatest symphonies receive vivid new interpretations. Also on disc: mono/stereo



45. Crazy Rhythm, Bijou, I Cover the Waterfront, Northwest Passage, Blowin' Up a Storm, etc. The master clarinetist plays 12 numbers in great style. Also on disc: mono/stereo



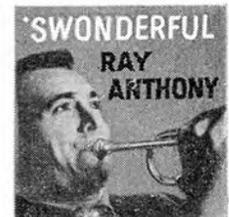
38. Hervey Alan, Ian Wallace, Marion Grimaldi and chorus sing the immortal favourites: Cobbler's Song, Robbers' Chorus, Chu Chin Chow, etc. Also on disc: mono/stereo



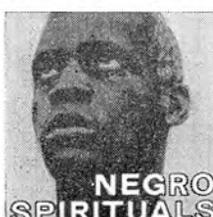
14. Tchaikovsky Symphony No. 5. Sir Malcolm Sargent and LSO combine to give this famous symphony a dramatic and colourful rendering. Also on disc: mono/stereo



43. Andy Cole, Barbara Leigh, Mike Sammes singers: High Society, Three Coins, Harry Lime, Gigi, The High and the Mighty. 11 top film hits. Also on disc: mono/stereo



41. Night and Day, King Porter Stomp, Pennies from Heaven, Christopher Columbus, Don't Be That Way, with his top American bandleader/trumpeter. Also on disc: mono only



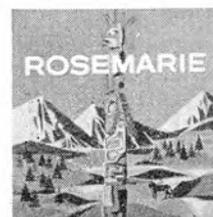
42. Jericho, Swing Low, Shadrak... 12 of the best loved Negro Spirituals movingly sung by George Browne, Isabelle Lucas and Linden Singers. Also on disc: mono/stereo



36. Beale Street Blues, After You've Gone, The Sheik of Araby, My Kind of Love, 12 tremendous hits by one of the world's greatest jazz trombonists. Also on disc: mono only



49. Beethoven's Fidelio Overture, Brahms' St. Anthony Vars, Mendelssohn's Hebrides, Wagner's Siegfried Idyll. All under Britain's greatest young conductor. Also on disc: mono/stereo



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TAPE RECORDING IN CHURCH

ALTHOUGH tape recorders are mostly used in church work to provide shortened services for the sick, full recordings of special services and organ recitals are often appreciated by those taking part. For these use the largest reel of tape possible as 7½ ips should be regarded as the minimum for really good music recordings. This applies particularly to organ music, which is the subject of this article.

Whilst services are best recorded during the actual service in order to capture the "atmosphere" of congregational worship, recitals are often better put on tape during a special session in the empty church. This has many advantages. You have more freedom in the placing of microphones, and there will be no interruption from coughing, etc. If the first recording is not satisfactory you can ask for a repeat; this would not be possible at a public recital. Finally, a building which is acoustically "dead" when full often becomes quite "live" when empty, and in certain circumstances this atmosphere can be emphasised by a little faking, as will be described later.

Music recordings not only require clarity of detail but also purity of tone and good balance, and these are often hard to achieve. I once spent nearly an hour over the recording of an organ piece which only lasted four minutes! So be prepared to spend considerable time and trouble if you want first-class results, and do not expect to "dash off" a perfect recording at the first attempt. Explain to those taking part that you want to do your best for them technically and may have to ask for repeats, but don't try their patience too far! A recorder with facilities for monitoring direct off the tape will save a great deal of time here.

EQUIPMENT

For high-class musical recordings buy the best equipment you can afford. Although recordings which will please *somebody* can be obtained with quite moderately priced domestic machines, the serious enthusiast will feel the need for at least semi-professional apparatus. With this, supported by a good mixer and several ribbon microphones on long leads, almost anything may be tackled with confidence.

My own outfit consists of a Ferrograph 4AN, a Vortexion WVB, several Film Industries ribbon microphones (on balanced line), a Vitavox moving coil microphone, and a home-made electronic mixer based on the circuit given in this magazine in the January and February 1960 issues. The mixer has also been arranged for balanced line so that long leads can be used without risk of hum

Organ music

pick-up. I can now record organ recitals which sound quite professional, complete with introductory announcements.

PREPARATIONS

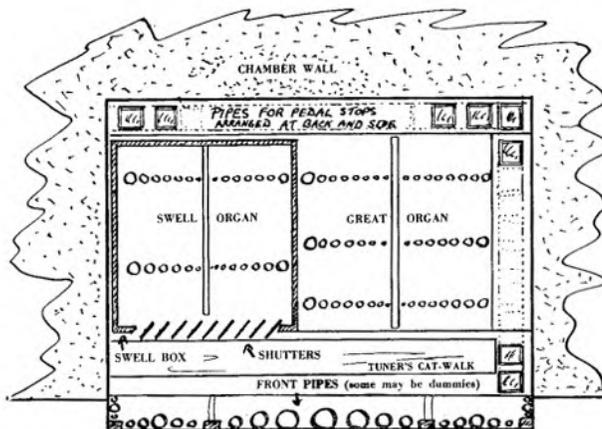
When a recording session has been arranged be sure to get there first and have all your equipment set up and tested; this inspires more confidence than if you are found hunting for faulty connections when the performers arrive! Make full use of floor stands if you have any, and keep in mind the possibility of suspended microphones. If you think it

a large amplifier and possibly best treated as such from the recording point of view.)

Creaking sounds, which might serve as sound effects for a thriller, are usually due to the swell shutters, the reservoir, or even the organ stool! Old organs often have so much wind escaping that they hiss like steam engines; here again, the remedy is to use louder stops.

Apart from noises, the very size of the instrument can cause trouble for the recording engineer owing to the wide dynamic range. As organs vary in lay-

Fig. 1. Plan of common organ layout with pipes separated from the main body.



looks more impressive add a red warning light! Actually this is not a bad idea as people are inclined to forget the microphone and talk or cough when they shouldn't.

Your equipment should include half-a-dozen "SILENCE" notices, and one should be hung beside every door—and in front of the singers if there are any. It is annoying to have a good recording spoiled near the end by "noises off."

Outside noises can be minimised by shutting windows, making sure that they are securely latched or wedged; a supply of rubber wedges should always be carried for this purpose. Beware of loudly ticking clocks, bells, and unexpected sounds which may come from an automatic pump in the basement or from the heating system.

The organ itself, particularly if old and in need of an overhaul, is a fruitful source of noise owing to the hundreds of pneumatic "motors" or electromagnets used. A really noisy action can be heard above the sound of soft stops, and large pipes often cause vibration in loose panels; a louder stop is the only remedy for noisy action, but vibrations can be cured with a wedge. (I am of course referring only to pipe organs and not the electronic variety which is only

out according to the size and shape of chamber available, no two are alike, but all are based on the same principles; a rough idea of this basic pattern can help in placing microphones to best advantage.

ORGAN CONSTRUCTION

Taking the commonest type of church organ, the two-manual, as our example, we find two keyboards for the hands, and a pedal keyboard played with the feet. Each keyboard is really a separate organ with its own stops; the latter vary in power, quality and number. When a stop is "drawn" a row of pipes is connected to the keyboard, but the pipes are not arranged chromatically inside the organ. To spread the weight, pipes, a semitone apart, are placed at opposite sides, working in to the centre as the pipes get smaller; size varies from about an inch to eight or sixteen feet in length. Do not have the microphone so close that this jumping from side to side is picked up.

The lower of the two keyboards has rather loud, firm-sounding stops; those of the upper row of keys are softer and more varied (but may have a loud reed tone) and all are enclosed in a large

wooden box with shutters which can be opened to produce a crescendo—hence the name of this department—swell organ. The pedal keyboard has stops which vary from a soft booming sound to, in large organs, a real “snort” such as the 16ft. Trombone.

Fig. 1 shows how a small organ might be put together. Very often rows of pipes have to be separated from the main body and packed in wherever space permits; if these belong to a loud stop and are near the front of the organ it will explain why you find trouble in getting a good balance.

Have a chat with the organist about the lay-out of his instrument before you start recording. Another trouble sometimes met with, and here only the organ tuner can help, is the pipe which “spits” before sounding its note, or which stands out louder than those on either side. Using a different stop for the recording is the only remedy.

Apart from this, I sometimes find that better results are obtained by experimenting with stops. For example, if the bass sounds weak on the recording I use a heavier pedal stop even though this does not sound balanced in the church. Another point regarding stops; it is easier for the recording engineer if the organist obtains contrast by change of *quality* rather than by change of quantity (volume).

FINAL ARRANGEMENTS

Now, microphone positions. There are so many alternatives in a church that there can be no hard and fast rule, beyond saying that the microphone should not be so close as to pick up action noise, nor so far away as to lose clarity. One has to stand a certain distance from an organ to obtain the proper effect as the nearest pipes blanket the rest; this position will provide a starting point for your experiments.

For great rolling chords the microphone can be rather further back than for quiet pieces, or fugues where clearness of parts is wanted. This preliminary test for position can be speeded up by using all your microphones and the mixer, so that several positions can be tried at each move.

With the lay-out shown in Fig. 2, where the organ is behind and above the pulpit (on same level as the gallery) good results have been obtained by placing the microphone on the gallery rail about 30ft. from the organ; even the back gallery gives good recordings but needs a little more gain. Position will depend on the organ arrangement and the position of loud stops in the organ chamber.

With a ribbon microphone the live side must directly face the pipes; but if the choir are also taking part the microphone (or a second one) must be directed at them. In this case the microphone could be centrally suspended between the side galleries so as to be above the choir and 10 to 15ft. in front; if too high the organ will prove rather intrusive, and volume must be reduced. Incidentally, for such temporary microphone suspension I found a deep sea fishing line very handy and quite strong enough to hold a ½lb. microphone. (I *did* have an extra safety line, but it was not needed!) Another idea which might be tried if

L. REID advises on the most suitable equipment and an effective lay-out for recording organ music

you have trouble in balancing choir and organ is to separate the two and give each a microphone; don't be afraid to experiment.

If the lay-out is that of Fig. 3, the sound of the organ is split if you are too near; part comes out over the choir stalls but the main volume goes down the church. With a large organ in this position the organist really does not know what he sounds like! Here again two microphones may be needed, although possibly one at “X”—on pulpit rail—might give adequate coverage.

I mentioned earlier a trick for increasing the reverberation period. This is only possible where a chamber with bare walls adjoins the church; a large porch or tower leading to the gallery is ideal. Open the doors leading to this and place a second microphone just inside to pick up the echo a fraction of a second after the first microphone; the only snag is that you are liable to pick up more traffic noises in the porch.

The easiest music to record is that which remains more or less at the same level all through, such as a Bach Choral Prelude. Things like toccatas, with quick runs, are more troublesome as it is hard to prevent them from sounding blurred; staccato playing and brighter tone colours help here. Perhaps the most difficult pieces are those where the level varies from a very soft stop to full organ; if the recorder is set to avoid distortion on the loud parts the soft passages are under modulated, and vice versa. This is where knowledge of the music helps as the gain

control can be *discreetly* varied to even things out—but don't overdo it or there will be no contrasts at all.

When I have nobody to help me, and I want to record my own playing of a piece of this type, I get over the difficulty in this way. If the piece starts with full organ, has a quiet middle part, and ends with plenty of power, set gain for full organ level, and record the loud part. Stop the recorder, and set for the quiet passage; replay the last few bars of the opening, hold tape on pause control while recorder is switched from “Playback” to “Record,” release pause control and record the next bit. The loud part at the end is managed in a similar way. This dodge could also be used if you were recording someone else and wanted to re-record one section.

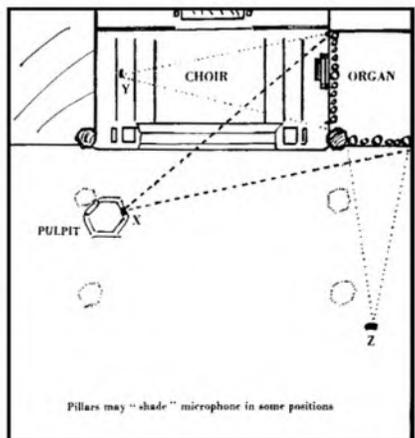


Fig. 3. Organ placed at the side.

Levels are inclined to be rather tricky for some reason when recording organ music. I find that when recording the type of piece which is played on three soft solo stops, one on each keyboard, I do not get a full meter reading although the piece is being properly recorded. So now I usually rely more on the monitoring headphones for this type of piece than on the meter.

You may wonder if wow and flutter are troublesome, as these show up most on sustained tones such as the organ produces. Flutter will definitely show through, but any wow present is usually masked by the beats present in the organ; unfortunately organs do not stay in tune owing to the variations in temperature present in churches. By the way, for satisfactory playback of organ music you really need a large external speaker system where the deep organ tones are freely produced and it almost sounds as though the instrument itself was present.

A few final hints. If you cannot read music and receive advance warning of sudden changes of volume, perhaps you can arrange a system of signals with the organist. Failing this, watch for large groups of stop knobs, or tabs, coming on or off; find out which knob controls the loudest stop being used and keep an eye on this. A professional touch will be given to your tape if you have a separate microphone which can be faded up to take announcements while the organist prepares for his next piece.

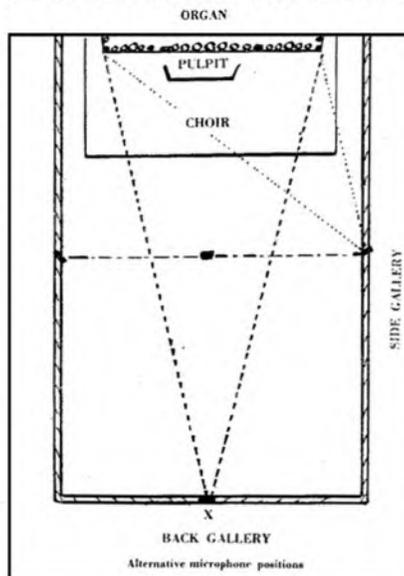


Fig. 2. With the organ behind and above the pulpit.

TAPE SOUND AND FILM PICTURE — IT'S EASY!

FOR some time now the Amateur Cinematographer has had the choice of two mediums for adding sound to his films—Standard $\frac{1}{4}$ inch tape or Magnetic Stripe. Both methods have become firmly established, and a set of standards have been laid down which permit the relatively simple matter of interchanging films between individuals, clubs, and for competition purposes.

A tape speed of $3\frac{1}{2}$ ips is pretty well universal, both here in Great Britain and overseas. Start marks are clearly made on both tape and film to coincide with the playback head on the recorder and the aperture in the projector gate, and so long as the projector runs at a constant 16 frames per second synchronisation should be achieved anywhere in the world.

With 8mm magnetic stripe, usually a narrow strip of iron oxide dispersion applied after the film has been developed and edited, there is a standard interval of 56 frames between the picture in the projector gate and the piece of film passing through the sound replay head. This standard also permits striped films to be shown on any projector. 16mm films have a sound to picture interval of 28 frames, exactly half the number, although the length of film remains the same, due to the bigger picture area per frame.

TWO SCHOOLS OF THOUGHT

As one might expect there are champions for each medium, those who insist on using magnetic stripe and will not consider anything else, and those who cling devotedly to their favourite tape recorder, be it a Grundig, Telefunken, or Ferrograph. There are also a few really keen types who record everything on a Gramdeck. So let us take a closer look at the merits of each system, together with some of the methods and equipment currently in use to achieve synchronisation between sound and picture.

QUARTER-INCH TAPE

The usual complaint from the owner of a tape recorder is "Why should I buy another recording amplifier to add sound to my films, or even another tape recorder?" Why indeed? There are a number of reasons. Some of the tape recorders currently available are really no good at all for compiling a film sound track, in much the same way and for the same reasons that they are useless to compile a feature tape. A film sound track can be considered as a feature tape with an accurate time scale, which must be adhered to for 100 per cent synchronisation.

Your tape recorder should ideally possess a loudspeaker monitor with a separate volume control, built-in mixing facilities for two or more inputs, and a satisfactory method of superimposing.

Every summer thousands of enthusiasts explore, for the first time, the exciting possibilities when tape is linked with cine-photography to produce a new dimension in recording. The techniques and equipment used are uncomplicated. The cost is not prohibitive. For those who are thinking of embarking on this enlarged activity this summer we present this straightforward introductory guide by

JOHN ALDRED

Several four-track recorders also offer the facility of recording two separate tracks, listening to the first one as you record the second, then playing them both back together. This is an ideal arrangement when compiling sound from numerous sources with only one pair of hands.

I have already mentioned that a tape speed of $3\frac{1}{2}$ ips is usually employed, although $7\frac{1}{2}$ ips is preferred in some cases. It all depends on the method adopted to obtain synchronisation. Although most of the synchronisation problems have now been ironed out, you must still purchase a projector with sound in mind. Some models are virtually impossible to synchronise successfully. Fortunately there are several projectors already equipped with tape synchronising rollers, around which a loop of tape is passed to automatically control the projector speed. These include the Eumig Phonomatic, Noris Synchroner, Heurtier "8," and the Zeiss Movilux 8a.

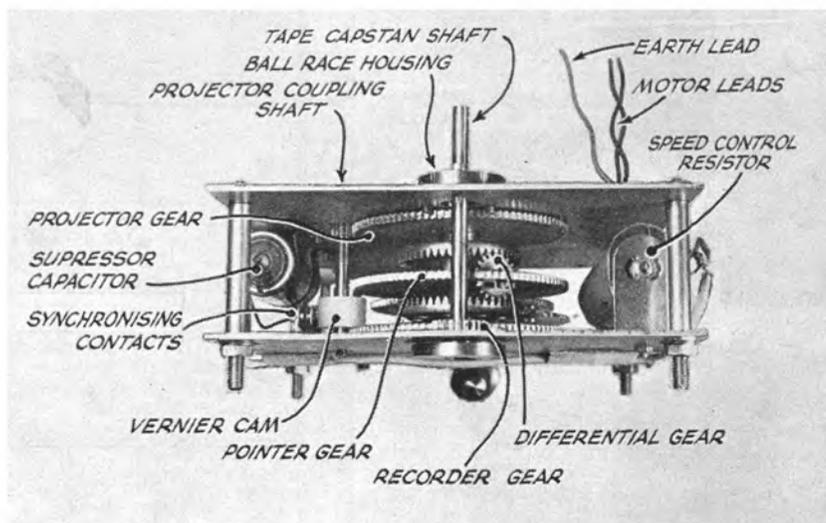
Unfortunately there are still large numbers of 8mm, 9.5mm, and 16mm projectors with no tape synchronising arrangements at all provided by the manufacturers. But by using a separate synchronising unit, such as the recently introduced "Automatic Sychrodek," excellent results are guaranteed with a large variety of projectors.

The Sychrodek consists basically of a set of differential gears, rather like the

rear axle of a car. One end is driven by a flexible shaft from the projector, and the other end by a loop of tape passing round a capstan. The actual differential is used to move a pointer over a circular scale which is divided into film frames. When both recorder and projector are running at their correct speeds the pointer indicates zero and remains stationary.

The beauty of the Sychrodek unit is that it offers very little load to either recorder or projector. All that is required is sufficient power to turn the two shafts on the extremely free running gear train. Connection to the projector is fairly simple, providing a suitable fixing can be made to a sprocket shaft or inching knob. Special adaptors are available for this, tailor-made for over a dozen different projectors.

Once the adaptor has been fitted, it only remains for the leads feeding the projector motor to be diverted into the Sychrodek, where an extra resistor is housed for the automatic speed control. When starting up, both recorder and projector are switched on together. The speed of the projector should then be adjusted manually so that it is slightly in excess of 16 frames per second, which will tend to swing the pointer over to the right. A cam fixed to the gear on the pointer shaft then opens a pair of contacts which introduces a series resistor into the motor circuit, causing the projector to slow down. When the



The Automatic Sychrodek. Our photograph shows the inside gearing of the new automatic unit, which has governor contacts and a speed control resistor

TAPE SOUND AND FILM PICTURE — IT'S EASY!

pointer reaches zero, the contacts close and the resistor is cut out.

To prevent any serious "hunting" in speed, due to the resistor being switched in and out at regular intervals, another cam on the projector end of the gear train is brought into use, at or near the synchronising speed. This serves as a form of vernier control and permits a very smooth projector speed to be maintained. An 0.1 mfd capacitor is fitted across the contacts for "click" suppression.

PERFORATED TAPE

When using plain quarter-inch tape it is not always possible to guarantee 100 per cent synchronism, due to tape slip or tape stretch. But it is possible to modify most projectors with built-in sound couplers, and the Synchrondek, to accept perforated tape. This special tape is fed through the tape recorder in the normal way, but uses perforations to engage sprocket teeth on the synchronising units, thus preventing any minor errors. Due to the mylar base employed, and the perforating process, this special tape is rather expensive at 1½d. per foot.

SHOOTING WITH SOUND

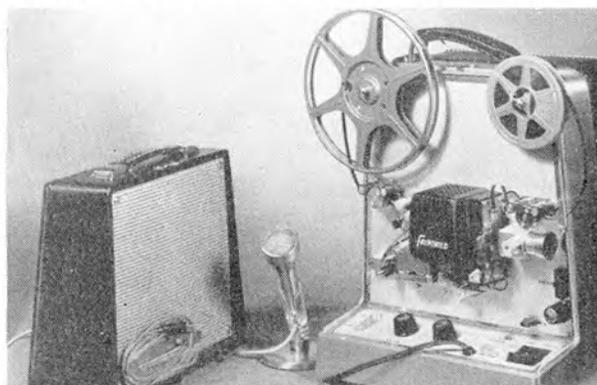
So far we have assumed that sound will be added after a silent film has been photographed and edited, as a sort of finishing process before we allow it to be shown to our friends. But using perforated tape, an automatic Synchrondek, any tape recorder, and a variable speed camera, direct sound can be recorded at the time of shooting!

A flexible cable must be attached to the camera instead of the projector, and the camera speed adjusted whilst the recorder is running until the pointer becomes stationary. The camera is wound up again, loaded with film, and synchronised sound can be recorded so long as the pointer remains at zero, which is usually the extent of a camera spring wind. Tape and picture editing can be carried out, and various shots joined together in complete synchronism.

MAGNETIC STRIPE

The idea of having both sound and picture on one piece of film seems the obvious solution, although there are certain technicalities which rather limit the quality of the results. Nevertheless magnetic stripe is rapidly gaining favour, although it is basically a projection system in the hands of the amateur. The number of projectors which will record sound on stripe has considerably increased over the past twelve months, and include the Agfa, Cirse, Fairchild, Kodak and Microsound.

All stripe equipment has to be manu-



Left: The world's first 8mm single system camera, photographing and recording on one piece of pre-stripped film. A transistor recording amplifier is built into the camera body, and headphone monitoring is provided. The Fairchild Cinephonic 8 camera takes 50 ft. reels of double 8 film, and costs £185. **On the right** is the camera's matching unit, the Cinephonic 8 projector. This allows additional sound to be added to the track which has already been made in the camera. The price is £185

factured to exacting standards in order to give a satisfactory sound reproduction. Film base is .006 inches thick, more after the stripe has been added, and so requires a heavier filter action than quarter-inch tape to iron out speed irregularities and maintain intimate contact with the record/reproduce head.

The film is actually transported through the sound head by its sprocket holes (except on the Cirse), so a heavy flywheel is necessary to damp out any so called "sprocket hole flutter."

TYPES OF STRIPE

Magnetic stripe can be applied to all the standard film gauges, although there is a scarcity of magnetic equipment in the 9.5mm gauge at present. There are two entirely different kinds of stripe, plain and laminated. The plain stripe is a narrow strip of iron oxide, which is applied in liquid form through an applicator wheel or small aperture. The coated film is then heated to speed the drying and hardening of the stripe.

Laminated stripe is actually a band of double-play tape, backed with a special thermoplastic adhesive, which is actually stuck on the edge of the film after passing over a pre-heating element.

LIST OF PROJECTORS WHICH CAN BE USED WITH THE "AUTOMATIC SYNCHRODEK"

MAKE	TYPE	TAPE SPEED
G. B. Bell & Howell.	613 H	3½ or 7½
	613 M	3½ or 7½
	606 H	3½ only
	625 (Variable Speed)	3½ or 7½
	635	3½ or 7½
BOLEX.....	Lumina Mk.I	3½ or 7½
	M8R	3½ only
KODAK	18-5	3½ or 7½
	8/500	3½ only
EUMIG	P.26	3½ only
	500	3½ only
SPECTO ...	Dual models	3½ only
	Greyline	3½ only
	Royal	3½ only

MOVILUX (Zeiss) ...	8a	3½ only
	8b	3½ or 7½

NIZO	Cinematov	3½ only

With this system the film itself is not subjected to heat, and any joins are not so liable to come apart. Laminated stripe usually has a flatter surface than plain stripe, resulting in better contact being made with the record head and an increased signal-to-noise ratio.

MAGNETIC ATTACHMENTS

A magnetic recording projector is an expensive item, and numerous magnetic attachments are available for use with a silent projector. As previously mentioned, there is a standard interval between the picture frame in the projector and its corresponding sound. This interval is 56 frames with 8mm film.

All projectors equipped for recording stripe adhere to this standard, but magnetic attachments do not. So interchange of films is made impossible unless similar attachments are used with the same sync. interval.

It is not always necessary to duplicate recording amplifiers when using magnetic stripe. The Grundig TK40 recorder contains a special socket for plugging in a stripe recording head. It is specially equalised at the high frequency end for the comparatively slow linear speed of 8mm film at 16 frames per second, which is 2.4 inches. Other manufacturers will no doubt follow this idea closely, and we may see similar sockets fitted as a matter of course in the near future.

SOUND RECORDING CAMERAS

For the more advanced amateur, and also the professional, 8mm and 16mm cameras may be obtained for use with film stock which has been pre-stripped. Thus a complete single film system can be used both when shooting and when projecting. The quality of sound can be very impressive, especially in the 16mm gauge.

This much is obvious from the large quantity of filmed interviews seen on both television channels during news

(Continued on page 20)

TAPE AND CINE

(Continued from page 19)

transmissions. For television purposes it is only necessary to obtain a synchronised photographic negative, the positive being obtained by a simple phase reversal amplifier before transmission. With this system, a filmed item complete with sound can be ready for transmission within half an hour of being received. (A new Kodak process has reduced this waiting period to seconds). The processing solutions do not harm the magnetic stripe in any way, and the striping process does not harm the unexposed photographic emulsion. So the system is extremely compatible.

Even if you intend to concentrate on magnetic stripe for your own movies, there is always a need for a tape recorder as well. Magnetic recording projectors are noisy beasts, and it is not always possible to have a live microphone in the same room. Therefore it is wise to adopt a policy of pre-recording any commentary or sound effects *before* making the final composite recording alongside your finished film.

One should hear every contribution to the sound track under the same projection conditions that will apply when you are showing your completed film; this being the only way to achieve a satisfactory balance between individual sounds, as well as a correct overall sound volume. To perform this task whilst wearing headphones is not easy, and a loudspeaker should be employed wherever possible.

Recording the commentary?

—watch these points!

By

STANLEY JEPSON

MANY cine projectionists "er" and "ah" their pedestrian way through an extempore spoken commentary, trying at the same time to answer questions from thoughtless friends. These are the enthusiasts who are put off the idea of tape recording a commentary for their films by the mistaken notion that it is something too tricky, needing automatic synchronisation apparatus, etc. Articles on involved methods of recording and sync systems are probably responsible.

This need not necessarily be true, and in this article I hope to alleviate some of the fears of the disillusioned enthusiasts.

Jump right in and you will find a new

joy in your hobby... a second and third perspective in selecting music for background, and in writing apt commentaries. By the simple formula of pre-recording a commentary you will be free of that nervous strain in trying to fit sentences of unpredetermined length to cine scenes; need never again experience the embarrassment of being unable to finish a sentence because the next scene appears.

One of the important points for a beginner to remember when adding a commentary or music to film, is to wait until the film is finalised in the editing stage. Additions to film and tape are possible but difficult once this stage has been reached.

Write out the commentary, after checking on the time limits of scenes, and read it through to see that it fits properly. Then cut it down. This is another important point, the commentary should not fit tightly. Allow about one-third (more

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625, 635, Lumina I.

Movilux.—8A, 8B.

Nizo.—Cinematour.

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if you like) for pauses here and there when there is nothing much to say. The musical background can be faded up here.

Remember that a loosely fitting commentary is easier to tape. Avoid saying anything about a very short shot because you'll probably end up out of sync for that one! Avoid phrases like "as you see here" or "in this shot." Your audience will be looking and listening anyway, and if you show a cow instead of a lady because of lost sync the result will be too funny.

WHAT TO SAY

The more often you see the film the better. On each successive viewing, ideas will occur to you about what to say and, more important, what *not* to say. Avoid saying the obvious which can be seen on the screen. Give extra information and with practice you will develop the facility for turning apt phrases and bright comment. Avoid being ponderous—brightness is all. But don't be plain silly. Some worthwhile information can be gleaned by watching the television documentaries.

Try to set your projector to a fixed

speed of 16 frames a second before making the timing record. Some projectors, like the handy Specto, have a fixed speed electric governor which can be attached. Or you can stick a small 50-cycle strobe on the 8-point revolving sprocket wheel. When this is lit by a 50-cycle light flicker—a neon bulb if you prefer—you can judge as it steadies, that it is 16 frames.

As a further check, project and time 100 ft. of film. This should run for 4 minutes 10 seconds in 16 mm and double this time for 8 mm. Make a pencil mark on the variable speed lever so that you know where 16 frames speed is after the machine has warmed up. The light is not essential for this preliminary canter.

Alongside the script leave space for four narrow columns. These are for notes concerning showing the shot; the time of this in seconds, the running time from zero; and for music. Some people are content to tape the commentary and play the music by gramophone or from a second recorder, always a good investment. This means you can adjust sync if necessary by using the pause control at the end of a sentence if the commentary is ahead; or if it is too slow, steady the projector to match.

If you wish to put the music on tape, which is to be recommended as there is then less to do and the whole thing is complete, there are several ways of doing this. Persuade your wife, or a friend, to play the music softly while you talk into the microphone, turning up the volume control when you come to a break in the commentary. If this assistant has a copy of the script'so much the better. Alternatively, your helper could just tilt the uni-directional microphone, a ribbon possibly, sideways when the volume of the music is to go down. If no assistance is available for the music, you could be content with one LP record for the whole

film, and then you could manage the volume control yourself.

PROJECTOR NOISE

One of the essentials is to get rid of the projector noise. Get as far away as possible from this unit. The projected picture can be reduced in size which will make it brighter and you will not be left in the dark.

I like to have the projector in another room, recording the commentary alone, then marrying this with the music and effects either by a mixer or by superimposition.

Whichever method you employ remember that *background* music must not be in the *foreground*. How many films have been ruined in this way! And silence here and there can be effectively employed at times.

One advantage of recording the voice only and then adding this to the music later is that you proceed in simple stages and there is no nervous strain. You must keep one eye on the screen and the other on the script. You are concerned only with the voice, which should be slow and distinct with no trace of tension. This always shows too readily in any voice. If you fluff a word or drop an "h" you can re-record that part of the tape later. Here the advantages of plenty of pauses is noted.

If your projector is very silent, and some 8 mm ones are just whisperers, you can probably be in the same room as the microphone which is placed some feet away. Any *slight* projector noise picked up will be finally covered by the music.

Now all you need is a start mark on both tape and film, so that you can start both together. Arrow tabs, or a white frame for the film will do nicely. I have a common switch which also starts an electric clock.

There are many advanced methods for automatic synchronisation and most dealers will be able to demonstrate these. There is also available a strobe, rotated on a pulley by the tape, which locks the light of the projector to the tape speed and is much used.

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THE name of Agfa is always associated with photographic equipment of high quality, and the Agfa Sonector "8" is no exception. It is basically a silent projector, but with provision for adding a separate unit to record and reproduce magnetic stripe, called Sonector-Phon. Although the projector itself is larger than some of its contemporaries, the result is that the "works" are well laid out and every part is easily accessible.

It is built around a solid die-casting, upon which is mounted the projector mechanism and bearings. It has an induction motor drive, and a transformer fed 8 v 50 w lamp, rendering it suitable for AC operation only. It is suitable for voltages from 110 to 260 v. The motor drives the mechanism by means of a rubber belt, and a stepped pulley gives a choice of 16 or 24 frames per second. The machine is fairly quiet running, and will operate forwards or in reverse. Rewinding is also motorised, through a 4 to 1 step up gearing.

The maximum spool size accommodated on the Sonector is 400 ft., lasting for 32 minutes at 16 frames per second. The film is carefully handled on its passage through the projector, and the gate is relieved over the picture area. Thus the film is in contact with the projector mainly at the edges. Additional sprung film guides are fitted above and below the gate, holding the film in a "V" shaped groove. The film path is very quick to load as everything is well spaced out.

Threading of the projector requires about thirty inches of leader—more when the Sonector-Phon is in use. The film is first attached to the take-up spool, and then over the take-up sprocket. Passing through the gate it is secured in the "V" slots, under the feed sprocket, and the sprocket guards closed. The gate itself, which hinges forward for threading, snaps back with a reassuring click and is held firmly in position with a sprung ball catch.

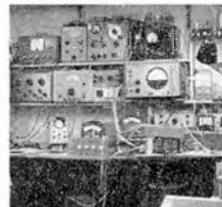
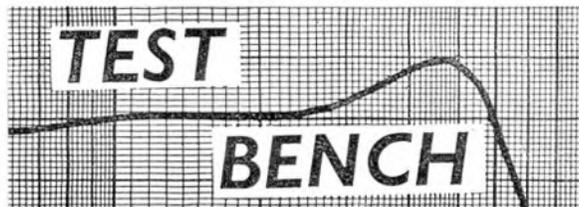
CONTROLS

A single rotary switch with six positions controls all the projector movements, and is illustrated pictorially on the side of the casing. It provides for Forwards (Motor only); Forwards (Motor and Lamp); Off; Reverse (Motor only); Reverse (Motor and Lamp); and Reverse Rewind.

The rewind gearing is automatically brought into use without having to press any other levers or buttons. A framing control is situated below the lens mount which centralises the picture frame on the screen. The only other control is that of adjusting the tilt of the projector by means of the two front feet. These are individually adjustable and are tipped with rubber.

LENS

The standard lens fitted to the Sonector "8" is the Agfa f.4 20 mm Movenar, but the model received contained the Agfa Variomar. This lens has an aperture of f.1.6 and is variable between



AGFA SONECTOR "8" and SONECTOR-PHON UNIT

15 and 25 mm. It fitted securely in its focusing mount and contained two rings, the rear one for focusing and the front one for adjustment of focal length.

Movement of the front ring also disturbed the focus, requiring it to be reset.

SINCE this review was carried out, the following modifications have been made to the Sonector 8.

The new model has a 12 volt 100 watt lamp, and an interval pilot light is fitted under the control switch. A new attaché case is also available incorporating a six-inch loudspeaker unit with tone control for playback.

The definition from edge to edge (usually a sore point with lenses of this type) was surprisingly good at all focal lengths. The front surface of the lens is very near the front of the lens barrel, and care must be taken to prevent it from becoming damaged. A small lens cap would be the obvious answer.

ILLUMINATION

Using the Agfa Variomar lens, the illumination given with a picture four feet in width was 8 foot candles, and 11 foot candles with a 3 ft. picture. Measurements were taken with a supply voltage of 236 v and the projector set at 240 v. Such illumination is adequate even for a matt white screen, and a 4 ft. picture is seldom achieved or desired in the home. The quoted figures fell away slightly at the picture edges, which seems to be usual with the 8 v 50 w lamp.

SONECTOR-PHON

The Sonector-Phon is a magnetic stripe attachment which is placed underneath the Sonector 8, the projector then resting with its feet in four indentations. This arrangement lines up with the two film paths with sufficient accuracy for successful operation, as the magnetic recording heads are fitted in a proper sound gate with pressure pad, runners, and a guided edge.

The Sonector-Phon is built on a die-casting, finished to tone with the projector. Large milled flanges on the two front feet allow another inch of tilt to be added to the amount contained in the

projector. The mains supply for the amplifier is obtained by inserting a non-reversible multi-pin plug into a special socket at the back of the projector—a hangerover from the special wiring arrangements required by the old Synchronovox.

The film path is extremely simple and easy to load, all loops being of generous radius and therefore kind to joins. The sound gate is opened by a control at the front, fitted with a matching knob to the projector framing control. The film leaves the bottom of the projector gate and follows a loop size as painted on the casting into the sound gate. The gate is closed and the film passes round a flangeless guide roller and on to the projector take-up sprocket.

Several things happen as the sound gate is closed. The film is accurately guided by pressure from underneath and at the side, the erase and record heads are sprung in position to rest on top of the stripe, and a rubber pressure roller holds the film positively against the small sound roller on the flywheel shaft. This flywheel protrudes above the top of the Sonector-Phon casing, and is actually 3½ inches in diameter. It is also dynamically balanced. The flywheel shaft turns quite smoothly in ball-bearings, and a gentle touch on the flywheel sent it rotating for nearly 30 seconds.

Although this arrangement works admirably in providing a smooth film motion past the record head, it creates a major snag when switching off the projector. One must remember to open the sound gate at the same time to release the rubber pressure roller. Otherwise the flywheel will continue to pull the film through and cause the bottom loop to quickly vanish. Then the film remaining in the picture gate, which may still be held by the claw, will be strained and possibly damaged. This point is made clear in the instruction book, but can easily be forgotten until one becomes familiar with operating the Sonector-Phon.

AMPLIFIER AND CONTROLS

A small amplifier is fitted at the rear end of the casting and contains two double valves, an ECC83 and an ECL82.

By

JOHN ALDRED

This gives three triode stages of amplification during recording and playback, and a bias oscillator during recording. There is no output stage incorporated within the Sonector-Phon, so when playing back the signal must be further amplified.

Any amplifier or AC operated radio receiver can be used, or alternatively the special Agfa carrying case which contains an output stage and a 7 x 5 inch elliptical speaker. This is connected to a multi-pin socket at the back of the Sonector-Phon.

All amplifier controls are grouped together at the rear end. Two push buttons make all the necessary amplifier connections for *record* (red) and *play* (green). A safety catch is fitted on the *record* button. Two volume controls permit sound from two sources to be mixed together, such as a microphone and record player or tape recorder. Both inputs must be high impedance, and connections are made at the back of the casing. A continental three-pin plug is required for the microphone, and a larger two-pin plug for the record player.

There is also a monitoring socket which is alive all the time during recording and playing back. This is the socket which is also used for feeding into another amplifier or radio. The Agfa output stage and speaker must always be disconnected before recording from a microphone, as it remains on when the Sonector-Phon is switched to *record*. The usual type of volume indicator is fitted just below the volume controls.

An extremely useful feature on current models is the pair of small white knobs attached to the sound gate cover. This is obviously a recent addition, too recent to find in the otherwise helpful instruction book. The function of these knobs is to lift the erase head (No. 1) or the record head (No. 2) completely clear of the magnetic stripe.

Lifting the erase head is a most economical method of providing a superimpose facility, one which can be brought into use at any time without annoying clicks being recorded. Dropping the record head on the stripe when required enables superimposition to be made only at selected places in a film sound track, leaving the remainder of the recording already made completely untouched. Once again this method does not introduce any clicks, and greatly increases the recording possibilities of the unit.

If required the projector can be run in reverse with film threaded through the Sonector-Phon, always remembering to open the sound gate first.

PERFORMANCE

The manufacturer's quoted frequency response is 80-7,000 cycles \pm 3dB, and is easily achieved this figure when using a test film of Zonastripe. When played back through a high fidelity amplifier system the results sounded surprisingly good.

The Sonector-Phon response has been "peaked" between 2,000 and 5,000 cycles

to compensate for the loss of extreme top frequencies, which gives good intelligibility. The bass end is quite smooth down to the expected 80 cycles. The reproduction was fairly steady, even when a piano recording passed through. The large amount of flywheel damping enables joints to pass through almost unnoticed, which is quite a point in favour of this type of sound gate system.

When using the Agfa output stage and loudspeaker, a bass life circuit is employed to compensate for the small elliptical speaker and baffle area. This tends to overemphasise the bass by raising the response below 250 cycles and extending it down to 50 cycles. The overall effect is one of bass and top without any middle, and there is no form of tone control to correct this. We preferred the quality obtained by using an ordinary radio set.

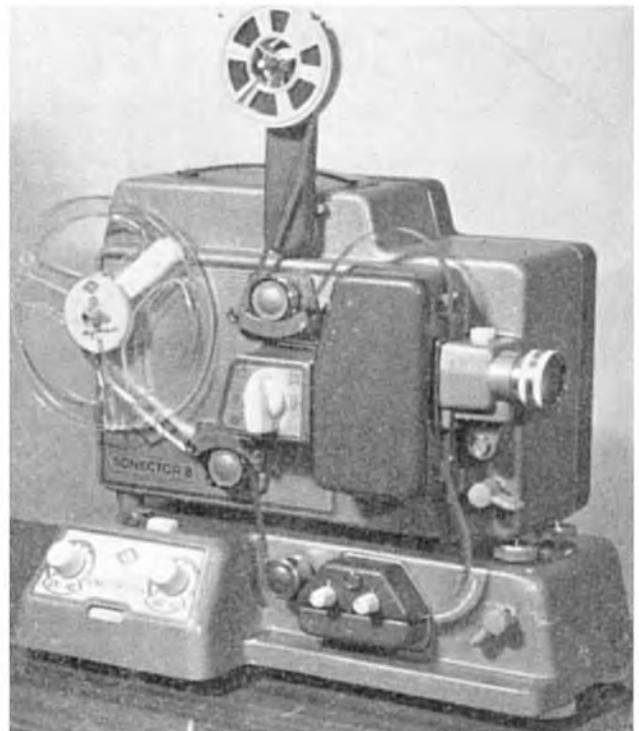
COMMENTS

The Sonector 8 is equal to any 8 mm projector on the market for picture quality and steadiness, and is relatively quiet. It is also one of the most expensive projectors. The fact that the Sonector-Phon is a separate unit and only an attachment should not deter prospective buyers. The standard picture/sound interval of 56 frames has been maintained, and library films can therefore be projected with confidence and in synchronism.

The absence of any form of tone control when playing back means that particular care must be given to have the quality right from each sound source when recording.

Our main concern when standing both units together was the slight unsteadiness of the projector, caused by the two front feet being rather close together. Considering the size and width of the projector a three-point contact would have helped here instead of the four feet as fitted. But this is a minor point which does not distract from the efficiency of the outfit.

The main point for criticism is the opening of the sound gate before switching off the projector. Admittedly this would only happen during recording when stopping in the middle of a film, but we should have thought some means could have been found to open the gate automatically. Normally, of course, one



would allow the film to run out before switching off, and so library films are seldom likely to become damaged. Maybe this feature will be eliminated by some future modification.

A final warning about connection to radio receivers. The Sonector-Phon output has one side earthed to its chassis, and only AC radio sets should be used and not AC/DC Universal types.

MANUFACTURER'S SPECIFICATION

SONECTOR 8 PROJECTOR

Power required: 100 watts.
Projector Lens: Movenar f.4 20 mm or 15 mm; Variomar f.1.6 15 to 25 mm.
Projector Speeds: 16 or 24 fps, forwards and reverse.
Maximum Spool Size: 400 ft.
Weight: 14 lb.
Dimensions: 11½ x 8½ x 6 inches.
Price (with Movenar lens): £75 14s.; and with Variomar lens: £81 5s. 6d.

SONECTOR-PHON

Valve Line-up: ECC83, ECL82.
Amplifier Inputs: Microphone (2 mV at 1 megohm); Record Player (80 mV at 1 megohm).
Amplifier Outputs: 8 volts at 30,000 ohms.
Special Output Stage: 2½ watts (using ECL82).
Recorded Frequency Response: approx. 80 - 7,000 cps at 24 fps; and approx. 80 - 4,500 cps at 16 fps.
Weight: 6 lb.
Dimensions: 13½ x 7½ x 4½ inches.
Price: £71 7s.
Output Stage and Loudspeaker: £19 3s. 3d. (includes carrying case for complete outfit).

Manufacturers: Agfa Limited, 27, Regent Street, London, W.1.

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Beat and Off-Beat

A selection of
the new issues



by Don Wedge

"HAMP'S BIG BAND" features Lionel Hampton and his Orchestra and forms an **Audio Fidelity** tape (AFST1913). It is also great. This is a swinging big band sparked by the wiry Hampton with his flowing vibes. It is magnificently recorded.

Taking the latter aspect first, Audio Fidelity is the brain child of Sidney Frey, a slightly eccentric American recording genius. When last seen he sported a grey crewcut and gave the appearance of being either an ex-baseball star or the sort of professor who writes satirical poems. Or both.

He has roamed the world in search of unusual sounds to record, setting himself the task of doing it better than anyone else. Music to accompany arabian belly-dancers, top pops of the Incas and trains of a dying age have all received his attention.

For a time he had the only American record firm to operate in Britain completely independently of any British major. This applied to discs only. The tapes we are concerned with are actually duplicated in the U.S. and sold here by Teletape.

Frey sought some of America's top jazz talent for special recording projects. Most of them were obtained at the end of a contract with one of the majors and recorded before they signed a new one. His accent has been on quality rather than quantity.

Hamp's Big Band is a good example of the quality available. In this case one can hardly quarrel with the quantity—more than 45 minutes playing time.

Nine of the twelve numbers were penned by Hampton alone or with collaborators. They represent some of his most famous numbers—*Flying Home* and *Hamp's Boogie Woogie* for instance.

This is big band music at its best. Played with great zest and imagination—even such well-worn items as *Airmail Special*, which gets a very fast treatment with Hamp leading the way on vibes.

Times of the pieces vary considerably. *Elaine and Duffy*, built around a flute solo, runs for less than 2½ minutes. *Hey Baba Re Bop* which contains a short introductory vocal (if by Hampton, he sounds remarkably young) goes on for more than 6½ minutes.

If I had to choose one track, this would be it, if only because it does so much with what is basically so little.

After the shoddy packaging that is usually my lot to receive, it was a com-

plete joy to fondle the magnificent Audio-Fidelity golden boxing.

The front is pretty, and gives the message. The tape is housed in a sliding tray. The back has some information about the record itself—titles and composers, personnel being particularly useful. Times of each track are given on the reel.

Really this is the least service one could expect. It needed an imported tape to find it! Yet its information is incomplete. Two drummers are listed, Hampton also plays drums. How many, and who, play on the percussion feature, *Hamp's Mambo*? I wish I knew. Nevertheless, I recommend this wholeheartedly.

Rome With Love (AFST1822) is a charmer. It features accordionist Jo Basile with what is described on the box as "his orchestra," but really it is a quite small, intimate group. Romans always had a talent for exaggeration.

Nearly all the tunes are very well known. Among them are *Luna Rose*, *Non Dimenticar*, *Anima e Core* and—as a signing-off piece—the inevitable *Arrivederci Roma*.

The performance, though, is a shade too smooth to be my ideal reminder of Italian nights. Some of the harshness and bite of a latin accordionist is missing.

★

In the *Bistro No. 4* (86-8763) is one of **Music-on-Tape's** series of French accordion-dominated music. The material is all unknown to me. The sound is pleasant, but no more.

Also from MOT is *More, More, More Romancing* (TR523), another short collection of songs waxed by the old Rank Records firm and not reissued when EMI took over the Top Rank label two years ago.

Featured singers are Jo Shelton, Anne's not too little sister, and rock exponent Vince Eager. Jo starts it in great style with the title song and gives excellent performances to *Tread Softly* and *Your Arms Around Me*.

The affinity to her sister is unmistakable. Though Jo does not have the same voice control (and ought not to have tried *Stars in my Eyes*) she is a worthy singer in her own right.

The case for more information is in evidence here. Who did the wonderful arrangement for *Tread Softly*?

Vince Eager was born in the wrong musical age. Physically he is in the Tony Martin mould—stretched. He seems out of place with four tame beat ballads. He can do much better.

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A. E. BEEBY'S "TAPE TALK"

—Readers reply

WE have noted Alan Edward Beeby's remarks ("Tape Talk," in a recent issue) in connection with readers' comments concerning our "glass-crash" effects contained in the HMV "Sound Effects" disc-series.

We had not realised that there was a demand for "window-smashes," and are, therefore, investigating the possibility of making such a recording available.

You will appreciate that we cannot give a firm answer at the present time, but you may be sure that if we find such a tape exists we will certainly issue it without delay.

R. N. WHITE.

General Marketing Manager: E.M.I.

WE congratulate your contributor Alan Edward Beeby (*March issue*) on his intuition in detecting a possible sympathetic connection between the BBC Programme, "In Touch," and our own project for a regular news bulletin on tape for circulation to blind groups.

We disclaim all credit, however. Original notions usually sprout simultaneously in places and minds far removed from one another. It is simply a question of who is able to get going first.

In any event, we still feel that our conception of a taped news feature programme to be presented to blind people at their club meetings, in a suitable atmosphere—and in rather less "official welfare" style than would seem to inspire "In Touch"—is capable of development as an independent, commercial proposition.

It may be significant, however, that in spite of Mr. Beeby's earlier challenge to the Royal National Institute for the Blind, neither they nor any other body existing to promote blind people's welfare have shown more than a polite interest in the possibilities of *Blind Bulletin*. Indeed, it has been made painfully clear to us that the RNIB consider such a project much too difficult and costly for any such organisation, let alone ours, to bring to fruition.

Yet we are still receiving enquiries on behalf of blind people who would comprise a ready audience for *Blind Bulletin* if we could find a sponsor willing to aid us in launching what, in our considered judgment, is no impractical proposition.

Although our local news bulletin, *What Goes On Here*, has been in suspension for nine months, while we have been otherwise occupied with the encouragement of tape recording community activities, at the instigation of the London County Council, we intend to resume our efforts towards the development of *Blind Bulletin*.

If any commercial or voluntary undertaking is interested in furthering this project we would be glad to hear from them.

WALTER GILLINGS.

Ilford, Essex.

LETTERS TO THE EDITOR

The perfect recorder?

IT seems that the general trend in tape recorders in the last three or four years has been that of continually improving and rectifying models that are already on the market.

If only other manufacturers would design a brand new type of recorder with a specification taken from all the leading brands. For instance:—

Accommodation for 8½-inch spools with lid closed; automatic time control; automatic reversal at end of track; auto stop at tape end; variable speed control; three motors; variable fast wind and rewind, up to 1,200 ft. in 45 seconds; capable of one-hand operation; clock-type tape position indicator, accurate to within one per cent on fast wind; standard jack plug fittings, with two separate inputs for microphone, plus inputs for radio and diode; facilities for independent mixing of three channels, radio and two microphones; monitor sockets; high and low impedance outputs; separate record and replay amplifiers with ten watts output, and a loudspeaker system capable of handling this output; high quality superimposition; meter recording lever indicator; foolproof lock against accidental erasure; positive pause control; separate record, playback and erase heads, with accommodation for extra heads; four-track recording operation; frequency response of 50-7,500 cps at 1½ ips; and provision for dictation with remote control.

Many enthusiasts would think that a specification as above would cost the earth, and they are probably right. Maybe some kind manufacturer would care to give an estimate for such a machine.

H. C. HUETT.

Ilford, Essex.

TV ON TAPE?

I HAVE a TSL crystal tuner and some really good results were obtained from the BBC broadcasts when using the unit in a basement in the Notting Hill, W.11, area.

However, if I use the tuner in my own home I find that either through amplifier or recorder, the material is accompanied by a high-pitched whistle. At first I thought that it was the very high-pitched television whistle which I always hear, but in this case, other people heard it also.

We are barely a half mile from the BBC TV centre at Westway, and wondered if the aerial (an ordinary single-core wire) is picking up some sort of signal, being so near.

I would certainly be interested to find out if any other reader has experienced a similar sort of trouble with a crystal (or transistor) tuner.

JOHN HONE,

London, W.12.

Berlin troops to form tape club

AS a rank amateur may I be permitted to congratulate you on your excellent magazine. Even I can understand the articles. Your magazine reaches me regularly here in Berlin, through the Y.M.C.A. Bookshop, and it is passed on to three of my colleagues. They are also interested, and you can expect more sales in this part of the world.

We are thinking of forming a "Berlin British Forces Tape Club", but at the moment are holding fire until we have gained a little more experience. At present we are owners of Grundig

machines, including the TK20 and TK25. I have recently purchased a Grundig TK1 "Luxus", an excellent little machine that is operated by four 1.5 torch batteries and two 1.5 baby cells. I have also a mains attachment for it. I wonder if this machine is on the UK market yet, the adverts only detail the TK1.

Although only new to the hobby, I have already started tape exchanges with my family back home, and this is acknowledged as great fun by my two children who are thus able to send messages to their grandparents. I have also asked my pen-pals in the USA if they have a tape recorder, so that we may progress, after eight years, from the old-fashioned method of letter-writing.

I am particularly interested in establishing contact with overseas enthusiasts, especially in the USA and Canada. All tapes are welcome and will be promptly answered.

Wishing you all the best for the continued success of *TAPE Recording Magazine*.

CORPORAL T. G. CLARK

23491263, H.Q. Coy.,
2nd Green Jackets,
The Kings Royal Rifle Corps,
Wavell Barracks,
B.F.P.O. 45.

Tape club wanted

HAVING been a regular reader of your excellent magazine for around 18 months, I have noticed that in your tape club directory that only one tape club exists in my own area.

I would be most interested to hear from readers in this area who are interested in forming a tape club.

It is nice to read a tape magazine that deals with tape and not all kinds of subjects so that tape is gradually forgotten.

Carry on the good work, but could we have more reviews on tape recorders and associated equipment.

G. E. WEST,

Middleton, Manchester.

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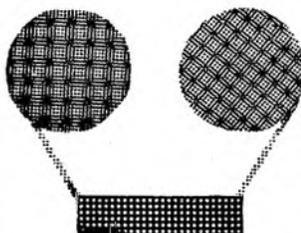
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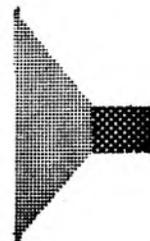
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NEW PRODUCTS



STUZZI INCREASE RANGE

PRELIMINARY specifications of a new recorder with the Stuzzi label is announced. The model, shown for the first time at the Audio Festival, is expected to be within the £50 range.



Among the features are separate bass and treble controls, magic eye recording level indicator, facilities for superimposition, monitoring, and straight-through amplification, and a 9 x 5 inch loudspeaker unit. Provision for the reproduction of four-track stereo with an add-on amplifier is also included.

Two input sockets are incorporated, for microphone, radio and pick-up, plus outputs for extension loudspeaker, amplifier, and stereo outputs.

A built-in transistorised frequency corrected unit makes it possible to listen to one track while recording on the other using headphones, and also to re-record from one track to the other and mix with additional sounds through a built-in two channel mixer.

The valve line-up is an EF86, ECC83, two EL84, EZ81, two OC71 or equivalents, EM84, and OA81 or equivalents.

It measures 15½ x 14 x 7 inches, and weighs 20 lb. Ample storage space is provided for four spools of tape and other accessories.

Recording Devices Limited, 44,
Southern Row, Kensington, London,
W.10.

Two speeds are provided, 7½ and 3½ ips, with frequency responses quoted as 50-50,000 and 80-8,000±3 dB respectively, on this four-track recorder designated the Stuzzi 401. It incorporates the Papst external rotor motor, and the wow and flutter figures are given as .15 per cent at the top speed, and .25 per cent at 3½ ips.

Seven inch spools may be accommodated, providing a playing time of 64 minutes per track at the slower speed using standard tape.

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STELLA 4-TRACK

AN extension of the Stellaphone range of recorders is announced with the introduction of the ST456, a four-track, single (3½ ips) speed tape recorder selling at 28 guineas.

Accommodating 5½-inch spools, the new model provides a playing time of 45 minutes per track using standard-play tape. Rewind for 900 feet of tape being accomplished within 3½ minutes.

The quoted frequency response is 80-13,000 cps for this machine which is designed to meet the market for tape recorders without the extra facilities required by the specialist.

Simplicity of operation is assured by the limitation of controls to three in addition to the "on/off" and volume control.

A magic eye recording level indicator is included among the features and it also has a four-inch diameter loudspeaker with an output of one watt. It incorporates a transistor amplifier on a printed wiring panel, and the mains consumption is approx. 25 watts.

It measures 12 x 10½ x 6 inches, and weighs 11 lb. contained in a two-tone beige and ivory polystyrene cabinet.

Stella Radio & Television Company Limited, Astra House, 121-123, Shaftesbury Avenue, London, W.C.2.

New tape announced

A NEW range of magnetic recording tape is announced by Neville Brown & Co., the sole British distributors for the Italian Ferrania products, who have introduced tape to be sold on 3, 3½, 5, 5½ and 7-inch spools. It will be available in six different types.

The prices for these types, plus the lengths of tape accommodated on each spool is given, smallest spool first, as follows:—

Standard-play R42 (cellulose acetate base): 5s. 6d. (164 ft.), 8s. 6d. (282 ft.), 18s. (590 ft.), 24s. 6d. (853 ft.) and 30s. (1,181 ft.).

Long-play LD3 (cellulose acetate base): 7s. 6d. (246 ft.), 12s. 6d. (393 ft.), 25s. (853 ft.), 32s. (1,181 ft.) and 50s. (1,739 ft.).

Long-play MLD3 (polyester base): 8s. 6d. (246 ft.), 12s. (393 ft.), 28s. (853 ft.), 35s. (1,181 ft.) and 50s. (1,739 ft.).

Double-play MDD4 (polyester base): 12s. (328 ft.), 22s. (590 ft.), 45s. (1,181 ft.), 57s. 6d. (1,706 ft.) and 80s. (2,362 ft.).

High Output (cellulose acetate): 7s. 6d. (164 ft.), 12s. 6d. (282 ft.), 25s. (590 ft.), 32s. (853 ft.) and 50s. (1,181 ft.).

PR4 (cellulose acetate), for professional use, is also available on 10½-inch reels (2,395 ft.) at 90s.

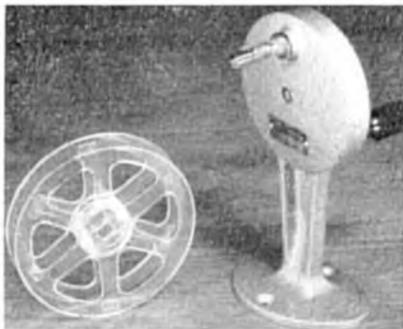
Neville Brown & Co. Limited, 93-97, New Cavendish Street, London, W.1.

TAPE WINDER

THE slow speed of tape rewind on many models is a constant source of annoyance to recorder owners. A gadget that will alleviate this problem is manufactured in Copenhagen, and distributed in this country by Great Northern Telegraph Works.

Although primarily designed for winding spools of paper tape it can easily be modified by the makers to accept standard magnetic tape or similar reels, at no extra cost.

Two versions are available, manual or powered wind. Our photograph (below) shows the manual winder, Model 2084,



price £5 10s. 0d. The powered model costs £47 10s. 0d. Both charges include delivery.

The motorised tape winder has start and stop buttons mounted on the top, and the motor can be provided suitable for various operating voltages. One of the studs over which the tap passes acts as a taut tape device, stopping the machine if there is any tension applied to the tape.

Great Northern Telegraph Works, 5, St. Helen's Place, London, E.C.3.

CABINETS FOR HI-FI EQUIPMENT

A FRESH and original approach to the design of cabinets for hi-fi equipment is shown in the units recently introduced by G.K. Developments in their Spacemaker range.

The standard unit consists of two cabinets—one for equipment, the other for a loudspeaker enclosure. The equipment cabinet is 35½ x 11 x 16 inches deep, and is finished with sliding top



A Spacemaker hi-fi cabinet

panels in sapele woodgrain, facia and sides in black, gold and silver melamine.

The speaker enclosure is constructed throughout of ¼-inch non-resonant material, and is of bass reflex design. Fitted with an internal filter, it is suitable for speakers up to 10 inches (12-inch version available). The top is veneered in sapele mahogany; facia and sides in white, gold and silver melamine; and the speaker grill is in matching Tygon with gold bead surround.

The price of the Spacemaker unit illustrated is 27 guineas, complete with frame. Alternative versions are obtainable, including wood grain facias.

G.K. Developments (Sound Division), 18, Albany Road, London, N.4.

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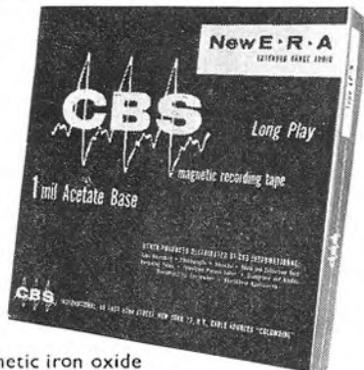
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DOUBLE PLAY	$\frac{1}{2}$ Mil	1200' 34 -	1800' 45/-	2450' 56 -
STANDARD MYLAR		600' 21 -	900' 28/-	1200' 35 -
LONG PLAY MYLAR		900' 25 -	1200' 32/-	1800' 47 -
DOUBLE PLAY MYLAR (Tensilised)		1200' 42 -	1800' 55 -	2400' 68 -

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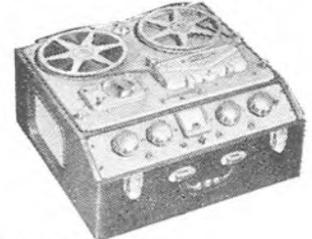
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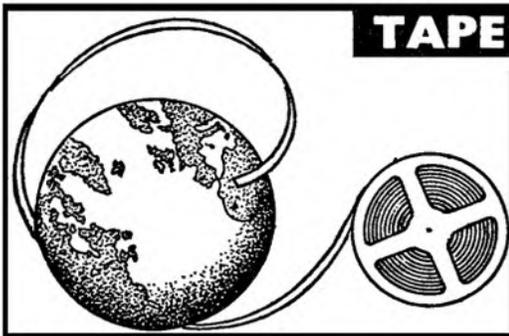
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TAPE EXCHANGES

Tape goes round the world! There is no comparable means—except costly travel—to form friendships with men and women in other countries and continents. Every month, in this feature, we list enthusiasts who are seeking tape contacts.

Ainsworth, William (64). 93, Hereford Road, London, W.2. Occult, psychic and devotional studies. 7½, 3½, 1½ ips. 7-inch spools. Robuk RK3. No letters needed.

Appleton, Tony (21). 4, Daryngton Drive, Greenford, Middlesex. Photography, travel, motor-cycling, books. 3½ ips. 7-inch spools. Philips EL3541. Prefers U.K. and Germany.

Backhouse, George (58). 103, Keswick Road, Blackpool, Lancashire. 16mm cine, photography, amateur greenhouse, do-it-yourself. 7½, 3½, 1½ ips. 7-inch spools. Grundig TK35.

Baker, Peter (34). 53, Barley Close, Kennington, Oxford. General interests. 7½, 3½ ips. 7-inch spools. Collaro Studio deck and home built amplifier. Australia, U.S.A. and New Zealand.

Ball, John (21). 19, Windsor Road, Chorley, Lancashire. Languages, travel, Trad. Jazz. 3½ ips. 5½-inch spools. Grundig TK14. Holland and France (Dutch and French spoken).

Bamber, H. L. (49). 19, South Brink, Wisbeach, Cambridgeshire. Reading, most music, souvenirs of Confederate State of America. 3½ ips. 5½-inch spools. Elizabethan Popular De-luxe. Southern States of U.S.A.

Barnes, Cyril (31). 170, Walpole Road, London, N.17. Light and "pop" music. 7½ 3½ ips. 7-inch spools. Truvox R7. Especially America.

Bird, David (33). 9, Camp Terrace, North Shields, Northumberland. Photography, outdoor recording, "pop" music. 7½, 3½, 1½ ips. 7-inch spools. Philips AG8108 and EL3585, Tandberg Series 6. English-speaking female contacts required.

Bredce, Douglas B. (20). 65, Gregson Avenue, Bridgwater, Glosport, Hampshire. Motor-racing, medicine, art. 3½ ips. 5½-inch spools. Sound, two-track. U.S.A. and Canada.

Bristow, Reginald (38). 1, Craster Road, Brixton Hill, London, S.W.2. "Pop" and organ music. 7½, 3½ ips. 7-inch spools. Reflectograph A. England and Germany.

Brown, Charles A. (33). c/o 58, Park Crescent, Harrow Weald, Middlesex. Outdoor recordings, swing and big-band music, driving. 7½, 3½, 1½ ips. 7-inch spools. Brenell Three-star, Collaro Studio deck, Stella battery portable. U.S.A., Brazil, Spain, France, Canada. Letters not needed.

Carter, Derrick E. (35). 20, Bamford Court, Southgate, London, N.14. Photography, all music, piano, general interests. 7½, 3½ ips. 8½-inch spools. Ferrograph 422, Butoba MT5 battery portable. Overseas.

Casson, D. (20). 15, Cameron Drive, Northampton, Northamptonshire. 8mm cine. 3½ ips. 5½-inch spools. Grundig TK20, Philips EL3585.

Creasey, H. R. (37). 20, Finedon Road, Burton Latimer, Northamptonshire. 35mm photography, motor-cycling, scootering. 1½ ips. 3-inch spools, Elpico, Geloso.

Curtis, F. L. (20). 1933279, A.T.C. Workshops, R.A.F. Nicosia, B.F.P.O. 53, Cyprus. Ham Radio (ZC4FC), flying saucers, Trad. Jazz. 15, 7½, 3½ ips. 7-inch spools. Elizabethan Essex, two-track.

Davies, Margaret, Miss (40). 309, Ansty Road, Coventry, Warwickshire. Photography, music writing. 3½ ips. 5½-inch spools. Sobell Festival.

Dengate, Ron. 77, Marne Parade, Tankerton, Kent. 8mm cine, all music, dancing. 7½, 3½, 1½ ips. 7-inch spools. Robuk RK3, BSR Monardeck. No letters needed.

Dutton, Doreen (35). 36, Cemetery Road, Knutton, Newcastle, Staffordshire. Show music. 3½ ips. 5½-inch spools. Elizabethan, four-track. Letters not needed.

Eaton, R. A. (50). 75, Linden Road, Manchester 19. Motoring, soccer, journalism. 7½, 3½, 1½ ips. 5-inch spools. Wyndor Victor, two-track. U.K. and U.S.A.

Eyre, Peter (32). 48, Devonport Road, Derby, Derbyshire. Reading, science fiction, plastic model-making. 7½, 3½ ips. 7-inch spools. Elizabethan Princess.

Hampshire, Mavis B., Miss (25). 13a, Higher Lane, Whitefield, near Manchester, Lancashire. Psychology, psychiatry, people, most music. 3½, 1½ ips. 5½-inch spools. Telefunken 75, two-track. U.S.A., Southern England.

Helfrich, Peter J. (31). 419, West Fourth Street, Bethlehem, Pennsylvania, U.S.A. Tape-to-disc dubbing, philosophy, religion. 15, 7½ ips. 10-inch spools. Amperes, Germany, Japan, England, France.

Holland, John (42). 18, Fitzjohns Road, Lewes, Sussex. Electronics and pipe organs. 3½ ips. 7-inch spools. Stellaphone, four-track. U.S.A., Canada, France.

Hollitt, A. G. (45). 112, Astairs Avenue, Eastbourne, Sussex. Light orchestral music, general interests. 3½ ips. 7-inch spools, Robuk RK3.

Hunt, Derek (31). 68, Hay Green Lane, Bournville, Birmingham 30. 7½, 3½, 1½. 7-inch spools. Elizabethan Princess.

Hunt, John Joseph (24). 17a, Acol Road, Hampstead, London, N.W.6. Trad. Jazz, architecture, cycling, sport. 7½, 3½, 1½ ips. 7-inch spools. Philips AG8108, two-track.

Hurst, Anthony (32). 4, Peak Hill Avenue, Sydenham, London, S.E.26. World events, scooters, religion. 7½, 3½, 1½ ips. 7-inch spools. Elizabethan FT3.

Kenneron, Tony Graham (25). 84, Nursery Road, Sunbury-on-Thames, Middlesex. Ice-skating, cycling. 7½, 3½, 1½ ips. 7-inch spools, Sound Studio.

Lensbury, Basil (41). 6, Granville Road, Hillingdon, Middlesex. 8mm cine, photography, travel, motoring, piano and organ music. 7½, 3½ ips. 7-inch spools. Vogue, two-track. U.K., Europe, Canada, U.S.A.

Lee, John Cyril (20). 22, Broxtowe Street, Sherwood, Nottingham. Photography, interviewing. 3½ ips. 3-inch spools, Grundig TK1. Overseas only.

Macken, Tom (25). Dominic Street, Mullingar, County Westmeath, Eire. Amateur dramatics, sound effects, music. 3½ ips. 7-inch spools. Korting MT128, stereo. Overseas only.

Martin, Eric (30). Course 36, J.S.L.S. Tangmere, near Chichester, Sussex. Amateur dramatics, Russian language. 3½ ips. 7-inch spools. Philips recorder.

Mills, Raymond. 205, Lansbury Drive, Hayes, Middlesex. Hi-fi, motoring, most music. 15, 7½ 3½ ips. 7-inch spools. Collaro Tape Transcriber. U.S.A., Commonwealth, U.K. Letters not needed.

Moss, K. R. (36). April Cottage, Broad Street, Harleston, Norfolk. Photography, hi-fi, modern jazz. 7½, 3½, 1½ ips. 7-inch spools. Brenell 3-star, four-track.

Patrick, Brian G. (29). 23, Hillborough Road, Luton, Bedfordshire. Sound effects, humour, people. 7½, 3½, 1½ ips. 7-inch spools. Editor hi-fi de-luxe, Stella battery portable.

Perry, Eddie (29). 88, King Edward's Road, Hackney, London, E.9. Bull-fighting, Spanish dancing, flamenco guitar. 7½, 3½ ips. 7-inch spools. R.G.D. Mk. 103, two-track. Letters not needed.

Philpot, Paddy (27). 100, Graystones, Limerick, Eire. Photography, gardening, music. 7½, 3½, 1½ ips. 7-inch spools. Philips EL3542, four-track.

Price, Edward (36). 123, Vicarage Road, Blackrock, near Chorley, Lancashire, Radio, "pop" music, dancing, football. 3½, 1½ ips. 5½-inch spools. Grundig TK25.

Reeves, Malcolm (20). 13, Oxford Place, North Road, Plymouth, Devon. Salvation Army. 7½, 3½ ips. 5-inch spools. Telefunken KL65.

TEENAGE EXCHANGES

Allen, Dennis (15). 3, Council Houses, Borers Road, Copthorne, Crawley, Sussex. Chess, motor-cycling. 3½ ips. 5½-inch spools. Westminster, two-track. U.K. only. Letters first please.

Bussing, Harvey (17). 208, Manor Road, Droylson, Manchester, Lancashire. Swimming, cycling, motoring, all music. 3½, 1½ ips. 5½-inch spools. Telefunken 75K-15. U.K., Europe, North America, female contacts preferred.

Byrne, Paul (15). "Woodlawn," Lansdowne Road, Dublin, Eire. Improving French language. 3½ ips. 7-inch spools. Acec recorder. France.

Cooks, Allen (15). 71, St. John's Road, Swinton, Mexborough, Yorkshire. Radio, sport, "pop" music. 3½, 1½ ips. 3½-inch spools. Elizabethan Bandbox.

Dutton, David John (18). 39, Hillmore Street, Pleasley, Mansfield, Nottinghamshire. Cycling, jazz and film music. 3½ ips. 5½-inch spools. Elizabethan de-luxe.

Gunn, Philip (19). 46, Rathbone Street, London, W.1. 16mm cine, theatre, radio, "pop" music. 3½ ips. 5½-inch spools. Grundig TK14.

Jackson, Peter (18). 32, Bedford Drive, Sutton Coldfield, Warwickshire. 35mm photography, amateur radio, general interests. 3½ ips. 5½-inch spools. Elizabethan FT1, four-track.

Knight, Michael (17). 220, Ringland Circle, Newport, Monmouthshire. Sound effects, music. 7½, 3½, 1½ ips. 7-inch spools. Robuk RK3, Walter 101, Gramdeck. Female contacts preferred.

Loader, Carole Ann (16). "Lansdown," 150, Bromsgrove Road, Redditch, Worcestershire. Photography, correspondence, records. 3½ ips. 5½-inch spools. Grundig TK14. U.S.A. (California), Far East.

Lupton, Brian (15). 20, Denton Avenue, Leeds 8, Yorkshire. French and German languages, Shakespeare, poetry, classical music. 3½ ips. 5½-inch spools. Elpico Geloso TR400. England, France, Germany.

Trott, Philip (16). 9, Beechfield Avenue, Newport, Monmouthshire. Train spotting, model railways, "pop" music. 3½ ips. 5½-inch spools. Kolster-Brandt RT20. Overseas.

FAMILY EXCHANGES

Caborne, Maurice (28) and **Margaret** (27). 174, Woodend Road, Frampton, Cotterell, near Bristol, Gloucestershire. Professional cinema, music, family. 3½ ips. 5-inch spools. Philips EL3527/64. America or Canada.

Spencer, Mr. and Mrs. (32). 15, Pelbrook Road, Landport Estate, Lewes, Sussex. Modern music, gardening. 3½ ips. 7-inch spools. Philips EL3541. America, Spain, U.K.

SCHOOL EXCHANGES

Norwood Green (J.M.) (Miss J. Spicer). 20, Greenford Avenue, Southall, Middlesex. 300 pupils "exploring this fascinating field."

Raons County (Secondary) (Mr. Owen). Raons Road, Amersham, Buckinghamshire. 15, 7½, 3½, 1½ ips. 7-inch spools.

Shoreditch School (Mixed Secondary) (John Hows). Falkirk Street, London, N.1. 1,500 pupils. Wide range of "recordable" interests, and activities. English and French languages.

Tindale Street (J.M. High School) (R. P. Aston). 63, Sansome Road, Shirley, Solihull, Warwickshire.

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

Name Age

Address

(BLOCK LETTERS PLEASE)

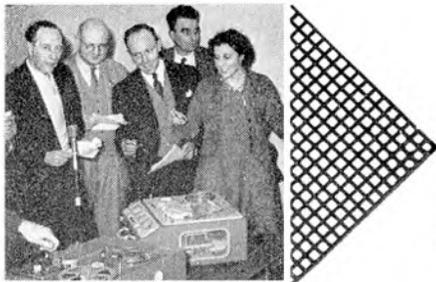
Other interests

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)



News from the Clubs

BOSTON

The formation of a tape club is proposed for the members of the Bournemouth club. Meetings are now being held at the Pembroke Hotel, Pool Hill, on alternate Tuesdays. The next is on May 29.

BOURNEMOUTH

A change of meeting place is announced for the members of the Bournemouth club. Meetings are now being held at the Pembroke Hotel, Pool Hill, on alternate Tuesdays. The next is on May 29.

At their recent AGM the secretary and chairman were re-elected. The former post is held by Mrs. J. Lawson of 8 Dolphin Avenue, Northbourne, Bournemouth.

BRISTOL

The latest edition of *Bristape* the journal of the Bristol tape club contains an interesting comparison of the international tape exchange organisations based on the experiences of members.

This lively bi-monthly issue also contains an interesting column by a Mr. A. K. Cleverley who seems to be concerned regarding reviews of products in tape recording magazines.

To prove his point two recorders are reviewed in this issue, and while raving over one model he dispenses with the second model in less than 200 words as being a complete waste of money. Full marks anyway to the club for providing this form of service for the members. I believe this is the first attempt along these lines.

The newsletter also follows in our footsteps by stressing the need for choosing a dealer who can back his sales with after-sales service.

BROMLEY

Demonstrations of home-built equipment featured at one of the latest meetings of the Bromley club. The programme also included illustrations of Musique Concrete, and the playing of five-minute tapes made by members.

Visiting for the evening were members of the neighbouring Dartford society.

A programme for the next three months was drawn up, and this is to include a documentary tape on their surroundings. This it is hoped will be of interest to schools and associations in the district.

COTSWOLD

An illustrated programme on *How to produce your own tape programme* was presented by Peter Duddridge at the March 22 meeting of the Cotswold society. His lecture was based upon the monthly Hospital Roundabout which the club prepares for local hospitals. He described how the material for this was edited and compiled, concluding his talk with a demonstration of editing and splicing.

After the interval Ernest Morris gave an account of a search for sound undertaken by the club members for a programme connected with this year's Cheltenham Literary Festival. Among the sounds required for the *Victorian Scrapbook* was a tape-loop of a quiet Victorian train, heard from inside the carriage, and designed to repeat for up to seven minutes. This required a stop-watch and gradual paring away of the loop until the wheel-sounds proceed in strict rhythm. It took hours to prepare.

Another sound required was that of a donkey braying. It eventually led to a photograph being taken by the Press of Peter Duddridge sitting on a fence begging a group of donkeys to bray.

To conclude the evening Ray Tingley gave a short demonstration of the "Tricolour" loudspeaker which he had just made. Neatly veneered and finished with grill, reflector and plastic trim, it was powered by a 30s. unit by Goodmans. The whole cost £3, and using a first-class speaker can be built for about £10.

A session at the Wildfowl Trust in Slimbridge was another of their recent projects. Teams of competitors from schools as far apart as Peterborough, Winchester and Reading converged on the area for a contest on bird recognition. Peter Duddridge,

a natural history recordist, was asked by the Controller of the Trust to examine the knowledge, and for the purpose made up a tape of excerpts of sound which the competitors were asked to identify. He was assisted by Peter Turner.

Meanwhile June Turner had been around with her battery recorder obtaining a number of interviews with competitors and spectators including the contest winners. She also turned the table on an I.T.A. representative who was filming the contest, and interviewed him for the hospitals service.

On April 2 the club welcomed Mr. Spark and Mr. Poulton of Garrard Engineering & Manufacturing Co. Ltd., who were making a return visit.

Mr. Poulton gave a lecture on the history and development of stereo recording. A disc recital including the earliest stereo issues and the latest technique recently presented by Decca was included in his talk. The equipment used included a Garrard turntable and pick-up, a Jason amplifier and a pair of Celestion Collaudia speakers.

Mr. Spark then took over and demonstrated stereo and mono tapes using the Garrard magazine deck. The complete lack of audible wow and flutter impressed the members. The last part of his demonstration showed a new technique for operating the changer on a slide-projector which Mr. Spark is developing commercially.

DERBY

The Derby hospital tape service require the services of technically-minded enthusiasts willing to help with church service recordings. This service has been running for two years, and the equipment used includes an Ampex 970 stereo recorder, a Tandberg Series 6 Tape deck, and Cadenza ribbon microphones.

Interested persons are invited to write direct to T. Allen, 45 Cadgwith Drive, Danley Abbey, Derby.

ELLESMERE PORT

A change of secretary is announced for the Ellesmere Port club. The post is now filled by S. J. Powell of 11 Cressington Gardens, Ellesmere Port, Cheshire.

MIDDLETON

A club formed in Middleton earlier this year has managed to extend its membership to 15. Equipment ranges from a Ferrograph 4A/N, includes the Philips stereo, Brenell Mk. 5, and Grundig TK20, and two of the Philips battery portables.

One of the earliest activities of the club was the recording of organ music live in a local church. One of the Philips portables was used and extremely good results are claimed.

For the files, the secretary of the club is G. E. West of 187 Oldham Road, Middleton, Lancashire.

NEWPORT

News of the proposed formation of a club in Newport, Monmouthshire, is received from M. Knight of 220 Ringland Circle, Newport. Interested enthusiasts are invited to contact this gentleman direct.

SOUTH BIRMINGHAM

Members of the Redditch, Kidderminster, Warwick, and Birmingham tape clubs were present at a recent meeting of the South Birmingham club for a demonstration of tape recorders.

Messrs. Haining and Cowlsey of Simon Equipment Ltd. were present to exhibit and describe their Simon SP5 and Cadenza crystal microphone.

The customary raffle for a five-inch spool of tape was held and won by G. Broadley of the Kidderminster society.

At one of the earlier meetings, members were invited to bring along a five-minute actuality tape. These were to be used as a basis for the club's entry in the British Amateur Tape Recording Contest.

Top choice from those offered went to Tony Allwood who had taken his battery portable into the High Street of a Birmingham suburb to ask women shoppers which soap powder they used. No fewer than six different brands were named, and each claimed that theirs washed whiter. That tape would cause a furor on television.

The relinquishing of a public house as their meeting place seems to be having an effect, the club is now building up a junior section.

A change of secretary is announced, the post now being filled by J. Trevor Gilbert of Woodcote, Box Trees Road, Dorridge, Solihull.

SOUTH DEVON

Ken Jackman of the Torbay Gramophone Society braved the tape recording enthusiasts of the South Devon club at their latest meeting when he presented a selection of unusual discs. He called his programme *Recorded Curios*, starting with some very early examples of recorded sound and progressing through records of all kinds to his finale—music to illustrate a Japanese sword dance!

For their meeting on March 14 the members had a complete change from recorded sound and held a five-way general knowledge quiz. A team competed with teams from the S.W. Electricity Board Social Club, the Torbay and Newton Abbot Vespia club, the Manor House, and the America Lodge in a knockout competition. The Electricity Board were the eventual winners beating the America Lodge by one point.

There was a record attendance of members, visitors and supporters, and the experiment proved extremely successful.

SWANSEA

The most unusual tape of the Year was the subject of a contest organised by the members of the Swansea club. First prize went to Edgar Lewis for his tape *A Journey into the Sub-conscious*, an experiment in verse composition. Second prize went to an experiment in sound entitled *A Journey into the Future* produced by Lyn Evans, and the tape *Journey round the World*, a sound trip by land, sea and air, produced by Bob Wright collected the third prize.

Silver cups donated by George E. Shaw, vice-president of the society, were presented to the prize-winners by Bert Leach, first chairman of the club.

Such was the success of this annual event, that members have now decided to hold quarterly competitions. The first of these, to be judged later this month is to be titled *Country Life*.

WALTHAMSTOW

The third AGM of the Walthamstow society was held on March 30. In his report to the members, secretary Ken Perks spoke about the consistent attendance at their fortnightly meetings even at the height of the summer, when usually 16-18 members were present. This increased considerably since last November when attendance averaged 21, and still further in recent months when the figure was around the 24 mark.

Looking back on their activities he drew attention to the mixed bag of programmes. The Connaught Hospital request programmes continues to give satisfaction and has established a streamlined pattern; last May they recorded the annual Carnival procession and will do so again this year. Such is their fame in the area that arrangements are being made to ensure that bands and musical floats in the procession will play whilst passing their microphones.

Other exercises have included outdoor recording; tape exchanges with a Berlin enthusiast; co-operation with a local acquirist society; visits to local places of interest; and their first Christmas party. Do-it-yourself sessions, technical experiments, play productions, brains trusts, quizzes, discussions and competitions are more of the items included in their meetings during the past 12 months.

Their latest activity is as a result of a request received from the Preston & District Hospital Welfare Society. This organisation runs a regular broadcast service in the area which is heard by over 1,000 patients in six hospitals connected by landline. The Walthamstow enthusiasts have been invited to provide a half-hour programme for inclusion in the Preston series.

Plans are afoot for the expansion of club activity into the open air during the summer season. As a start stereo recordings will soon commence on selected local sites to illustrate the "Doppler" effect as an example to other society members of the type of sound phenomena to be experienced in everyday life.

The first presentation of the new play by the drama section, *Treble Chance*, was heard at a recent meeting. Written, acted, directed and produced by members, the story concerns three charac-

ters who, having had a small pools win, take a continental holiday which has some highly compromising moments.

At further meetings a series of pre-recorded tapes each explaining the various aspects of tape recording will be heard. These have been made available by chairman Bernard Wells.

WARWICK AND LEAMINGTON

At their second meeting in February the members of the Warwick club were entertained to a tape/slide show presented by secretary Eileen Jones. This comprised the first part of a holiday last year in Czechoslovakia with much of the commentary being supplied by an English-speaking guide from Prague who accompanied the holiday party.

At this meeting, Miss Jones transported the members to Karlsbad. The next part of tape will take them to Prague and the tragic village of Lidice.

Members of the Northampton, Coventry and South Birmingham club visited the Warwick members at the beginning of March, for a slide show of photographs taken last autumn when members of the three clubs present went over to Northampton.

Later in the evening Fred Villet presented recordings of the bells of St. Mary's in Warwick chiming carols prior to a midnight service. The tape was recorded last Christmas Eve. Extracts from a recent club contest edited by Graham Harris were also played, and finally Trevor Gilbert presented some of his stereo recordings made on the club's home-built stereophonic machine.

WEST HERTS

A contest entitled *Crazy Tapes* was the main item at a recent meeting of the West Herts club. The eventual winner was Arthur Mould who described a journey into a tape recorder via the microphone. Finding himself imprisoned inside the machine he sought help from the various components, each one passing him on to the next stage of the recording process. One particularly uncomfortable moment was when he found himself trapped against the capstan wheel.

Part of the journey was by underground train to the recording head where he was advised to "mind the gap." After receiving the prize of splicing tape he described the production of his tape which was made sitting in his car inside the garage—the quietest place he could find.

One of their regular soundhunts was organised for the February 21 meeting. Unfortunately the result this time was not so good with one of the three teams returning with a mechanical fault in the battery portable, and another returned having crased a large section of the recording. The final and winning (?) team produced the only recording of a story in sound, with no words spoken, of an attack on a young girl in a churchyard. Peter Holloway, Jack and Dennis Hill were the producers and they used a Minivox. A handbell provided the police gong, and scuffles on the canal towpath provided the scene for the footsteps in the churchyard and the attack and screams (recorded far away from the residential area).

While waiting for the last team to arrive home, the first hearing of the club's entry in the BATRC was stated.

Their AGM was held on March 7 and the officials were all re-elected. It was decided to abandon the post organising the hospital service as this had not functioned for some time.

Following the business meeting, members devoted a short time to making recordings requested by the Safety Committee of the Borough Council. The members were asked to provide tapes outlining the dangers of water in the home and on holiday. It is intended that the tapes be played in the dressing rooms at the local swimming baths.

One of the tapes, produced by Michael Coates, dealing with the dangers of being swept out to sea on air beds, was heard by John Borwick when he visited them on March 21. He gave his opinions on the tape and made a number of useful suggestions.

Mr. Borwick also spoke about various microphones and their characteristics, telling how he had used them as a BBC studio manager, and illustrated his talk with excerpts from the Emiguide he has produced.

Also present at the meeting was Mr. Parker of E.M.I. Tapes Ltd. He had with him some of the E.M.I. products including the Emiguide and a spool of video tape. Using this Mr. Borwick spoke about the recording of television pictures on tape.

Throughout the evening an E.M.I. TR51 was used for the demonstrations. This commanded great attention during the free-for-all which followed.

ABERDARE: Alternate Wednesdays at Cwman Institute, Cwmanan, (May 16.)

ABERDEEN: 1st Tuesday in every month at 8, Deer Road, Woodside.

AYLESBURY: Monthly at Hazell's Club, Britannia Street, (June 7.)

BARNSELEY: Every Tuesday at YMCA, Eldon Street.

BATH: Every Wednesday at 24, Green Park.

BATH (2): Alternate Wednesdays at 41, Herbert Road, Oldfield Park, (May 16.)

BEDFORD: Final Tuesday in month at 131, London Road.

BELFAST: Every Thursday at 44, Dublin Road, Belfast 2.

BIRMINGHAM: Every Monday at the Chapel Tavern, Ludgate Hill.

BIRMINGHAM (SOUTH): Alternate Mondays at The People's Hall, Oak Tree Lane, Selly Oak, Birmingham 29, (May 21.)

BLACKBURN: 1st and 3rd Tuesdays at Blackburn YMCA.

BLACKPOOL: Alternate Wednesdays at the Albert Hotel, Lytham Road, (May 23.)

BOURNEMOUTH: Alternate Tuesdays at the Pembroke Hotel, Poole Hill, (May 29.)

BRIDGWATER: Every Tuesday at Evis' Radio Shop, West Street.

BRIGHTON: Every Wednesday at The Brunswick Arms, 38, Ditchling Road.

BRISTOL: Alternate Wednesdays at 6, Royal York Crescent, Clifton, Bristol 8, (May 16.)

BROMLEY: 2nd and 4th Thursdays at St. Mary's Church Hall, College Road.

CAMBRIDGE: Every Wednesday at the Mitre Hotel, Bridge Street.

CARDIFF: Mondays, Tuesdays and Wednesdays at 51, Charles Street.

CHESTERFIELD: Every 3rd Monday at the Yellow Lion Inn, Saltergate, (June 4.)

CLACTON: Every Monday at Ebor Lodge Hotel.

COTSWOLD: Fortnightly, alternating Monday and Thursday at Bayshill Hall, Royal Well Lane, Cheltenham, (May 17.)

COVENTRY: Alternate Wednesdays at Holy-Park Hotel, (May 23.)

COVENTRY (audio and cine): Alternate Tuesdays at the Liberal Club, Union Street, (May 22.)

CRAWLEY: 1st and 3rd Mondays at Southgate Community Hut.

DARTFORD: Every Thursday at 41, Winsor Drive.

DERBY: Alternate Wednesdays at Osmaston Park Hotel, (May 23.)

DONCASTER: Alternate Thursdays at Lancaster House, Westlath Gate, (May 24.)

DOVER: Alternate Mondays at the Priory Hotel, Dover, (May 28.)

DUBLIN: 1st Monday at "Hardy House," 6, Capel Street.

DUNDEE: Alternate Mondays at The Salvation Army Hostel, 31, Ward Road, (May 21.)

EASTBOURNE: Alternate Saturdays at Hartington Hall, Bolton Road, (May 26.)

EAST HERTS: Alternate Mondays at 3, Chadwell, Ware, (May 28.)

EDINBURGH: 1st and 3rd Fridays at 22, Forth Street, Glasgow, (May 24.)

GLASGOW: Fortnightly, alternating Tuesday and Thursday at the Highlands Institute, Berkeley Street, Glasgow, (May 24.)

GRIMSBY: First Monday at 21, Langton Drive, Nunthorpe, Grimsby.

CLUB MEETING DIARY

HARROGATE: Every Wednesday at 4, Belford Road.

HASTINGS: Every Tuesday at the Citizens' Advice Bureau, Cambridge Gardens.

HINCKLEY: Alternate Wednesdays at The Wharf Inn, Coventry Road, (May 16.)

HOVE: Every Thursday at 44, Hogarth Road, Hove.

HUDDERSFIELD: 1st and 3rd Wednesday and last Monday at the Public Library, Ramsden Street.

HULL: Alternate Tuesdays at 281, Hessle Road, (May 22.)

ILFORD: Alternate Tuesdays at the Gants Hill Library, (June 12.)

IPSWICH: Alternate Thursdays at the Art Gallery, High Street, (May 24.)

JARROW: Alternate Mondays at Jarrow Central School, (May 21.)

JERSEY: 1st and 3rd Mondays at "Santa Barbaba" Maufant, St. Saviour.

KEIGHLEY: Alternate Wednesdays at the Spencer Street School Rooms, (May 16.)

KETERING: 2nd and 4th Wednesdays at the Rising Sun, Silver Street.

KIDDERMINSTER: Alternate Wednesdays at the NFU Meeting Room, (May 23.)

LEDS: Alternate Fridays at 21, Wade Lane, Leeds 1, (May 25.)

LEICESTER: Alternate Thursdays at the Leicester Museum, (May 17.)

LUTON: 2nd and 4th Tuesdays at Flowers Recreation Club, Park West, Luton.

MAIDSTONE: Every Wednesday at the Ex-Services Club, Ashford Road.

MANCHESTER: Every Saturday, 6 p.m., at 20, Naylor Street, Hulme, Manchester 15.

MEDWAY: Every Monday at 23, Edward's Close, Wigmore, Gillingham.

MIDDLESBROUGH: Every Wednesday and Friday at 130, Newport Road.

MIDDLETON: Every Thursday at Tonge School, Oldham Road.

MILLOM: Every Wednesday at Millom Centre.

NORTHAMPTON: Every Tuesday at the Peacock Room, Grand Hotel.

NOTTINGHAM: Alternate Thursdays at the Co-operative Educational Centre, Heathcote Street, (May 17.)

NORWICH: 4th Tuesday at "Lady Chamberlin Hall," 38a, St. Giles' Street.

PETERBOROUGH: Alternate Thursdays at The Youth Centre.

PONTYPOOL: Every Monday at the Hospitality Inn, Crumlin Road.

PLYMOUTH: Alternate Wednesdays at Virginia House, Plymouth, (May 16.)

READING: Every Monday at Abbey Gateway.

REDDITCH: 4th Thursday at The White Hart Hotel, Headless Cross.

RHYL: Alternate Tuesdays at Studio A, Bedford Street, (May 22.)

ROTHERHAM: Alternate Thursdays at St. John's Church Hall Masbro' (May 17.)

RUGBY: Alternate Thursdays at the Red Lion, Sheep Street, (May 17.)

SHEERNESS: Alternate Fridays at Arthur Gisby's, 136, High Street, (May 25.)

SOUTHALL: Every Monday at Southall Community Centre.

SOUTHAMPTON: Alternate Mondays at Prospect House, 8, Manchester Street, (May 21.)

SOUTH DEVON: Alternate Wednesdays at the YMCA, Castle Circus, Torquay, (May 23.)

STAFFORD: Alternate Tuesdays at The Grapes, Bridge Street, (May 29.)

STEVENAGE: 1st and 3rd Tuesdays at the Tenants' Meeting Room, Marymead.

STOCKPORT: 1st and 3rd Fridays at Stockport Boys' Club, Hemphaw Lane.

SWANSEA: Every Thursday at the YMCA Buildings, St. Helen's Road.

URMSTON: Alternate Thursdays at Davyhulme Scout Hut, Barton Road, (May 24.)

WALSALL: Every Wednesday at the New Inn, John Street.

WARWICK & LEAMINGTON: 1st and 3rd Wednesdays in Room 18 of the Royal Leamington Spa Town Hall.

WEST HERTS: Fortnightly alternating at the Cookery Nook, High Street, Watford, (May 30.)

Heath Park Hotel, Hemel Hempstead, (May 16.)

WEST MIDDLESEX: 2nd and 4th Thursdays at Dormers Wells Primary School, Dormers Wells Lane, Southall.

WEST WALES: 1st and 3rd Fridays at The Meeting House, New Street, Aberystwyth.

WEYMOUTH: Alternate Wednesdays at The Waverley Hotel, Abbotsbury Road, (May 16.)

WHITSTABLE: Alternate Mondays at The Granary, 1, Borstal Hill, (May 21.)

WINCHESTER: Every Friday at 45a, St. Swithen's Street.

WINDSOR: Every Thursday at The Guildhall.

YEOVIL: Alternate Thursdays at the Mermaid Hotel, Princess Street, (May 17.)

YORK: Every Thursday at 62, Micklegate.

LONDON

ACTON: Alternate Fridays at the King's Head, Acton High Street, (May 25.)

BETHNAL GREEN: Every Friday at Shoreditch Tabernacla, Hackney Road, E.2.

BRIXTON: Every Tuesday at The White Horse, 94, Brixton Hill, S.W.2.

CATFORD: Every Thursday at the Black Horse, Rushey Green, Catford, S.E.6.

FRIERN BARNET: 2nd Friday at 7, Harnsworth Way, N.20, and 4th Thursday at 146, Friern Barnet Lane, N.20.

LEYTONSTONE: Alternate Wednesdays at Harrow Green Library, London, E.11. (May 16.)

LONDON: 2nd Thursday at the Marquis of Granby, Chandos Place, Charing Cross, W.C.2.

NORTH LONDON: Every Wednesday at Bush Hill Park School, Main Avenue, Enfield.

SOUTH-WEST LONDON: Every Wednesday at Mayfield School, West Hill, S.W.15.

STOKE NEWINGTON: Every Wednesday at 53, Londesborough Road, N.16.

TUFNELL PARK: Details of meetings from G. Wilgrove, 38, Highgate Road, N.W.5.

WALTHAMSTOW: Alternate Fridays at 22, Orford Road, E.17, (May 25.)

WOOLWICH: Alternate Mondays at the North Kent Tavern, Spray Street, Woolwich, (May 21.)

Unless otherwise stated, meetings start between 7 and 8 p.m.

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MARK 5
DECK: 28 GNS



MARK 5: 64 GNS



MARK 5
TYPE M:
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