

TAPE

RECORDING
AND HI-FI MAGAZINE

the winning tape...



The Emitape silver challenge cup for the "Tape of the Year" has been won by Mr. B. W. Harley of Handsworth, Birmingham with his recording "A Dialogue for Cats" — made on Emitape — (with which he also won the Documentary section). The Emitape cup is presented for the "Tape of the Year" in the British Amateur Tape Recording Contest organised by this magazine. Four out of five section winners used Emitape.

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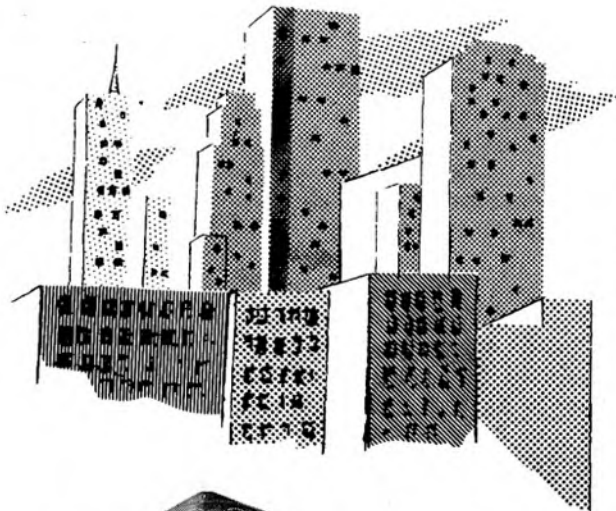
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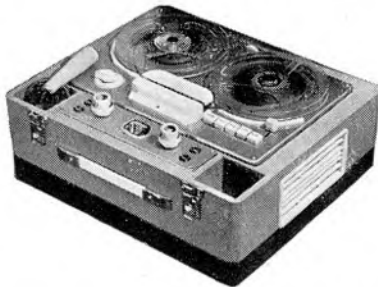
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NOVEMBER, 1958



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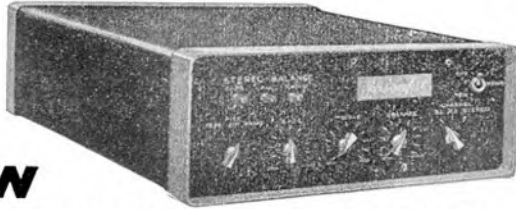
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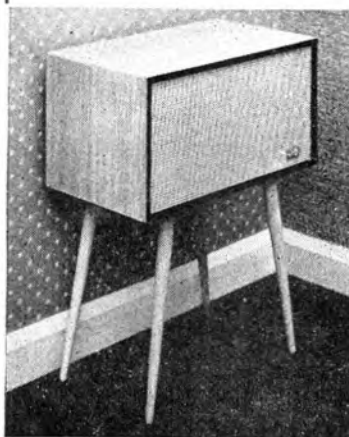
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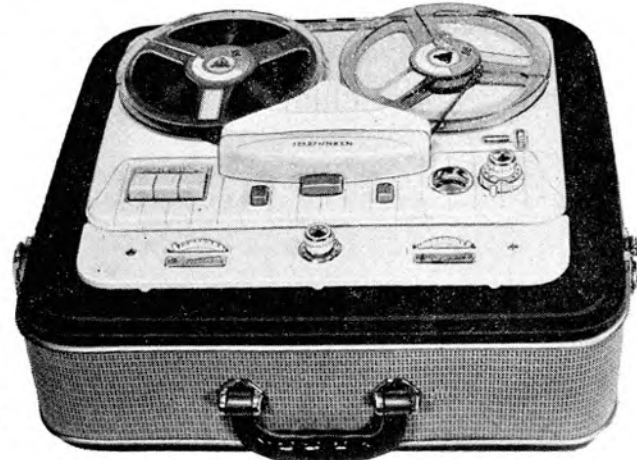
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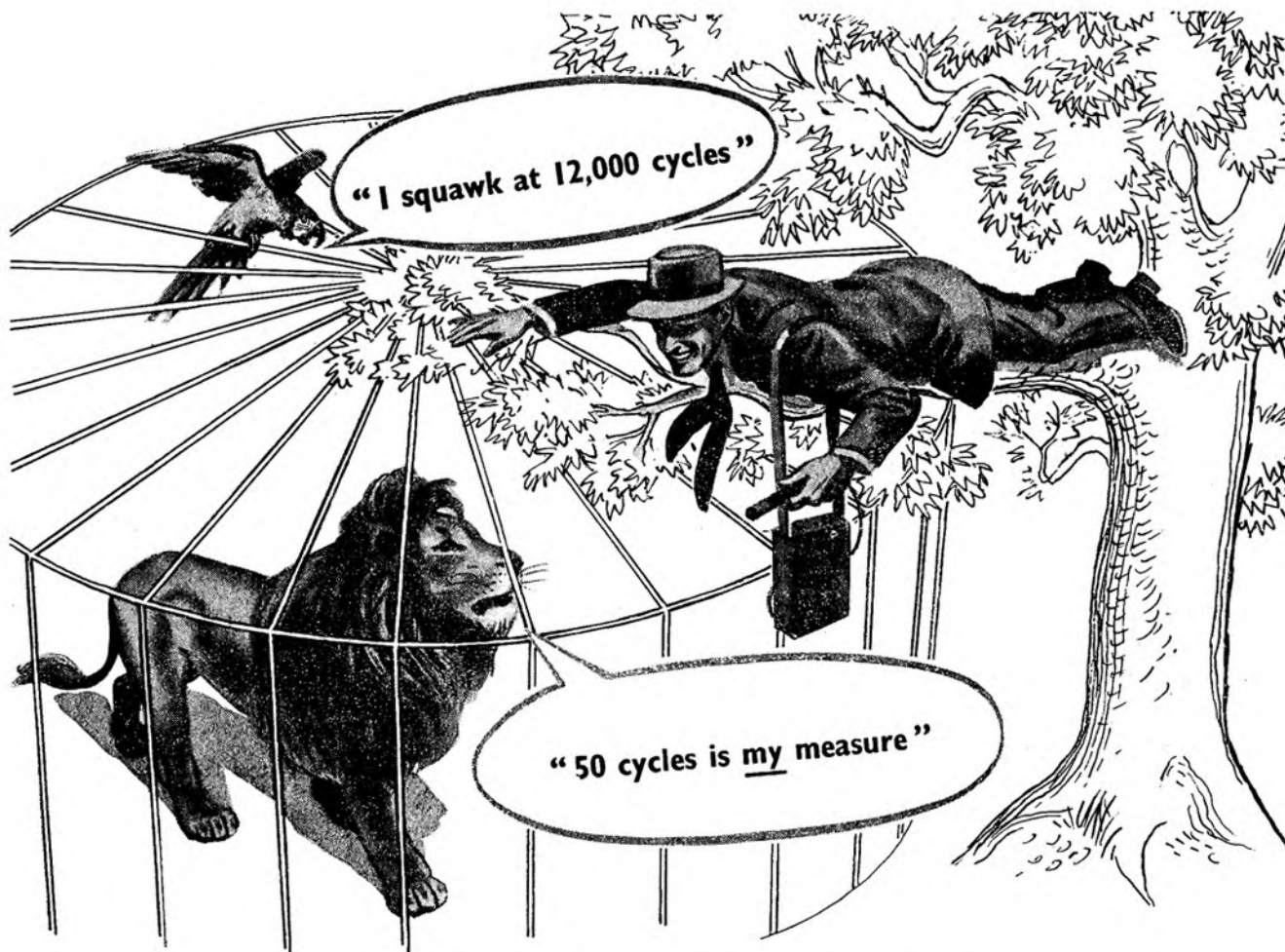
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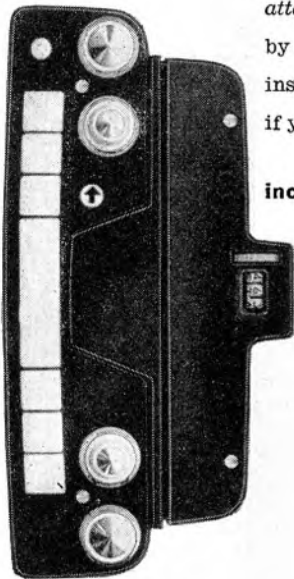
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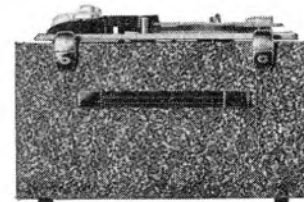
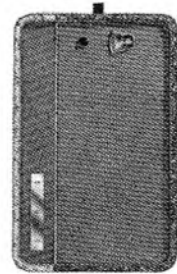
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Before introducing our 1959 range of Tape Recorders we would like to put forward this company's policy.

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CONTENTS

**HOW TO RECORD LIVE
MUSIC**

First of a new series by Michael
Woodhouse

Pages 18 & 19

HOMO TAPIENS

By Douglas Gardner

Page 21

**MAKING A SOUND
PORTRAIT OF YOUR TOWN**

Second article by G. Holmes
Tolley

Pages 22 & 23

TAPE NEWS DIGEST

Page 25

TAPE RECORDS REVIEWED

By Edward Greenfield

Pages 28 & 29

**HANDLING THE HUMAN
FACTOR**

By John Berridge

Page 31

**NEWS FROM
MANUFACTURERS**

Pages 33, 35 & 37

**AN INTRODUCTION TO
LOUDSPEAKERS**

By Charles Langton

Pages 38, 39 & 45

THE WYNDSOR "VISCOUNT"

Pages 41 & 46

**KNOW YOUR RECORDER:
No. 10—THE UHER 195**

Pages 43 & 45

CLUB NEWS

Pages 47, 48 & 49

THE EDITORS' VIEW

Tape recording weeks can ring the bell

ONLY A YEAR AGO WE reported in this magazine the formation of the Edinburgh and the Middlesbrough tape recording clubs—the first local organisations of their kind in Britain. Today there are tape clubs all over the country and they are springing up vigorously right and left every month.

This is a remarkable story of the development of an idea. Tape recording clubs obviously answer a positive need, and they are obviously going to play an increasingly important part in tape recording as time goes on.

The Federation of British Tape Recording Clubs, which came into being recently, and logically, to serve this movement has now produced a scheme for encouraging the emergence of new clubs in places that are obviously ripe for them. It is going to organise a series of Tape Recording Weeks, starting with a pilot event in Leicester from November 24 to 29.

Tape Recording and Hi-Fi Magazine warmly welcomes this scheme, for in addition to the direct practical object of starting new clubs and giving them a good send-off it will help to educate the generally misguided public on the subject of the possibilities inherent in tape recording.

The popular conception of the pastime is still an extremely limited one. The man in the street does not see much more in a tape recorder than a machine that will, if certain buttons are pushed, record his voice and play it back to him. Tape Recording Weeks can jog this worthy gentleman and his worthy wife into realising that it can do a thousand exciting things.

In one week it should be possible to demonstrate, with all the impact of a concentrated effort, the value of the tape recorder as a means of recording local events and history, assisting in education, playing a part in dramatic and musical life, communicating with people all over the world, and making possible many other useful and enjoyable activities.

It is something that the Press can get its teeth into, and which can be reasonably expected to enlist the support of local authorities—who have much to gain from an encouragement of tape recording in their communities.

Good luck to the first Tape Recording Week and to all those who will be joining in the fun of helping to make it a success.

BASIC RULES WHEN YOU RECORD LIVE MUSIC

THE recording of music performances is a fascinating subject which offers a quite different kind of interest from, say, the production of a play on tape. A radio play seeks to create illusion—and this is achieved by the synthesis of various elements, including speech, effects and music. The original recording of the dialogue is a starting point only, a nucleus round which the complete production is built. In recording music, however, the aim is to obtain a faithful and realistic copy of a performance which is itself complete and satisfying. Departures from this ideal are necessary only because of certain limitations inherent in the medium and in order that the resulting tape shall be fully intelligible to the listener.

Clearly, the achievement of this aim depends very largely on the placing of the microphone(s). This, in turn, is dependent on a number of factors which it would be quite impossible to enumerate for each and every set-up. However, by choosing a representative selection of different types, and considering them in some detail, a number of guiding principles are seen to emerge, which can be applied to almost any recording situation the amateur is likely to encounter.

First of all, a word about some technical aspects. Because of its wide range, both of pitch and of volume, the faithful recording of music is much more demanding

than that of speech. The better the equipment available, therefore, the more satisfying the final result will be. This is not to say that equipment of a type likely to be in the possession of the average amateur cannot be used, but the result may suffer by comparison with commercial productions. This is often a source of disappointment in one's first recording ventures; the quality of the music is not as good as one expects from familiarity with broadcasts and microgroove discs.

Undoubtedly, the best microphone for recording music is the ribbon type, since it has a wide and almost level response over the whole audio range. In addition, its directional properties confer great advantages when problems of balance arise. The recording is best made at 7½ ips, although this is more expensive on tape. There will usually be some editing to be done—and since this is much more critical than editing speech, the higher speed is a great advantage. Also, of course, the quality is much better, despite the recent improvements in tape response at the slower speeds.

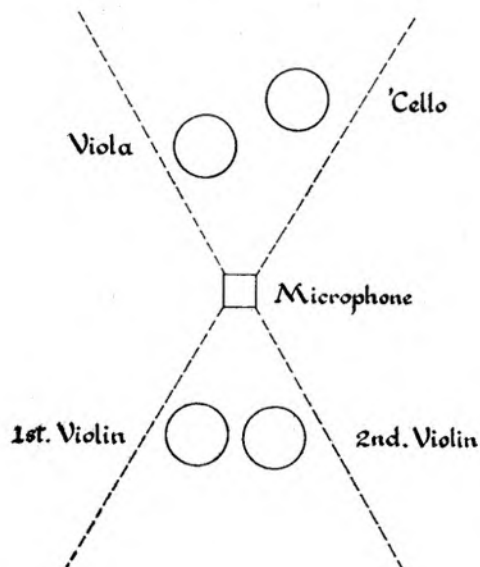
A Golden Rule is: always record "live" on unspliced tape, but never on unplayed tape. I find it a good idea to run a new tape once through the machine before use, and if possible to do some trial recording as a check. In my experience, tape almost always stretches a little the first time it is used, and if this operation is carried out before the recording session proper, there is little danger of difficulties arising from variations in pitch.

A summary of the equipment necessary may be useful at this stage; I find it is always a good idea to list and check all I require before setting forth on an assignment. (It is a sad fact that the recording engineer almost always has to "go out" to the function in question, unless, of course, the family mansion provides a music room of larger-than-usual dimensions.)

You will need the recorder itself, of course, the microphone(s), cables, and a stand or sling; enough tape to cover the event and to spare; a pair of headphones for monitoring. A long mains lead is often required—it is surprising that public buildings, church halls and similar places seem to have a paucity of power points; and those that exist are often inaccessible, or remote from the site you have chosen for the machine. For the same reason, a comprehensive and varied selection of adaptors often avoids hasty last-minute mains "hook-ups." An earth lead is a useful addition, and has a very beneficial effect on the hum level—an advantage if you have to record at high-volume settings.

The techniques required for tackling various projects

Figure 1.



An important new series by Michael Woodhouse

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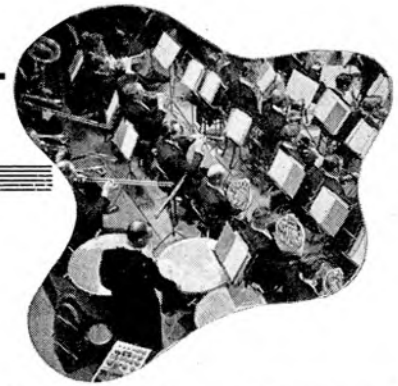
can now be set out in detail. Perhaps surprisingly, the first example I want to discuss is the set-up required for a small chamber music group *without* piano. (It is the experience of many people that the satisfactory recording of piano tone is one of the most difficult of all projects. It will be discussed later.)

The string trio or quartet, or simple variants not exceeding six or seven players can be put on tape in a very satisfactory fashion without too much difficulty. Figure 1 gives one arrangement.

The directional properties of a ribbon microphone are used to good effect here. The two violins are placed on one side of the microphone and equidistant from it; the viola and 'cello share the other side. The viola is about the same distance away as the violins, while the 'cello, because of its lower pitch and greater volume, is placed further back. The balance of the ensemble can be quickly settled after one or two trials—and once the correct positions have been found, the recording is a straightforward affair. Modifications to this set-up for different groups of instruments are easily made. A clarinet quintet, for instance, could be arranged with the clarinet between the two violins and a little further back.

If a ribbon microphone is not available, or other considerations make the arrangement illustrated above unsuitable, the quartet can be arranged as for a concert performance with the microphone placed centrally in front of the group, fairly high up and beamed downwards. (See, for example, Fig. 2.)

In this set-up, the microphone is in almost the same place as a listener would be—a point to which I shall return later when discussing the requirements of larger groups, culminating in full orchestra.



The arrangements described for the small instrumental ensemble may also be used for recording madrigal groups and small unaccompanied choirs. Either set-up can be adapted, though for the madrigal group, consisting of four to six people with only one voice to a part, I am inclined to favour a split arrangement (compare Fig. 1), with the soprano and alto parts on one side of the microphone and the tenors and basses on the other. A great advantage of this arrangement is the ease with which the balance of parts may be adjusted.

If splitting the group causes difficulties with the ensemble, then the more usual concert set-up can be tried. It might be interesting to record such a group in their traditional arrangement, i.e., seated round a long table, and using a central microphone pick-up.

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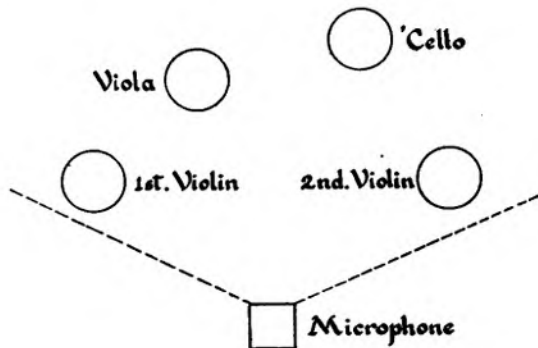
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Figure 2.





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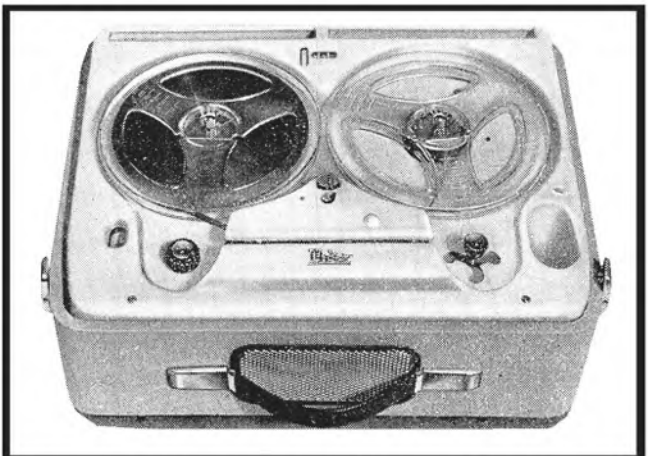
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When the G.P.O. discover tape

TOYING with ideas about tape can lead one in to all kinds of strange paths. I began to muse the other day on the possibility of the post office eventually discovering that magnetic tape can be even more useful than the red kind in its mission of helping people to correspond with each other.

The vision that grew as I mused had me, one day, dialling TAP on the telephone, followed by a code number of the town of Baltimore, the nearest tape relay centre to the little place where my friend Frogmore Farnbery lived. When pips sounded, I gave the name, phone number and address of Farnbery and settled down comfortably—while the spools turned at my own nearest tape centre—to tell him all about my latest scheme to use stereo for the ghost voice in my next production of “Hamlet” at the village hall.

The whole thing cost me only a few pence per minute, and I knew that my message, together with others for the same tape centre, would soon be travelling on a large G.P.O. spool across the ocean to Baltimore, where it would be replayed to Frogmore Farnbery through his telephone. Farnbery would probably connect up his telephone adaptor and take the message on his own recorder, or he would telephone a reply while the subject was fresh in his mind.

The thing was done by the postal people more or less automatically, the spools for the various centres being lifted off for despatch as they filled, or after an appropriate interval of two or three days.

The vision faded, but on reflection it doesn't seem as difficult to realise as most of my idle dreams. It would not be likely to supersede the system of recording one's own tapes and posting them personally, but it might well be much cheaper and more convenient on occasions . . . especially for people who do not happen to own a tape recorder.

Home-made carton

THE letter from Mr. John Murray in the Ideas Pool last month prompted me to ask him for more information about the cartons he has been trying out for mailing tapes. He responded by sending me a sample of a home-made container that he has been using lately with great success. It is made of stiff, corrugated cardboard—the type with the corrugations integrated between two thin sheets. For a three-inch reel he uses five pieces measuring 4 in. × 4½ in. Three of them have a circular hole cut in them the size of the reel, and the other two pieces form the base and lid. Gummed paper is used to bind the base and the three cut-out pieces together at the edges, and the lid is attached by more gummed paper in the form of a hinge.

I know from experience in other fields that this material is probably unequalled for strength with extreme lightness, and Mr. Murray is to be congratulated on finding such a neat way of exploiting it for packing tapes of all sizes. He tells me that he has not had a broken reel

since using this method, although he has had a lot of breakages before with other forms of packing. The weight is negligible, and a three-inch spool goes for 6d. inside Britain.

You would have to go a long way to find a greater enthusiast for tape exchanging than Mr. Murray. He has nine tape pals in America, one in Australia, two in Canada, eight in England and one in Wales. He has exchanged

HOMO TAPIENS

by

Douglas Gardner

83 tapes with Mr. John Hughes of Fulham, and totting up the distance between London and his home in Lanarkshire, Scotland, he calculates that this makes a total of 66,400 miles of tape travel.

Russian recorder

ACUTTING from a Russian radio newspaper has been sent to me by Mr. Stanley R. White describing and illustrating a tape recorder named the Reporter 2. A translation indicates that it is fed by two batteries, has a speed of 7½ ips, a spool size giving 15 minutes playing time, and one universal head. It has no loudspeaker, but earphones are part of the equipment, and the intention is that the tape should be played back on a studio machine. It seems to be of medium size, judging from the illustration, and the design is simple and unornamental. The frequency response is given as 60 to 10,000 cps.

Early start

AT the age of fourteen Mr. Nigel Rees, of Liverpool, whose Contest entry on youth-hostelling was highly commended, has already come quite a long way in the world of tape recording; and the keenness that has brought him so far seems to be of the burning kind that should get him to the forefront in due course. He has been interested in radio and television production for as long as he can remember and madly wanted a tape recorder when he was eleven. He saved for three years and finally got a Philips AG8109, but he did not let the grass grow under his feet while he was saving up. He contacted some B.B.C. people and they helped him to study production techniques at Manchester and elsewhere.

Since owning his own machine he has written and produced programmes such as H. G. Wells' “War of the Worlds,” and “Portrait of Liverpool,” and recorded an operatic society's show, church choirs and music groups in the locality.

There is a lot to be learned in the sphere of sound recording, and Nigel Rees seems to be setting about learning it in the right way—including starting early.

Contest tape

THE response to my paragraph last month on the subject of a dubbing of the four winning tapes in the Individual Section of the British Amateur Tape Recording Contest soon established that there is a desire for them, and orders can now be taken. The tape will consist of Mr. B. W. Harley's “Dialogue for Cats” and “Dawn Chorus,” Mr. W. P. Copinger's “Escape Fantasy” and Mr. R. Charlton's harpsichord recording. The price is 36s., including postage, and orders should be addressed to *Tape Recording and Hi-Fi Magazine*, 426, Camden Road, London, N.7.

Excuse it please

MY favourite Ogden Nash poem is the one that begins “How courteous is the Japanese” and goes on to tell how he climbs into his neighbour's garden, full of apologies, and finally declares “So sorry, this my garden now.”

I wonder if the Ampex people thought of it when they received a long letter from the Japanese patent office regretfully rejecting their application for a Japanese patent for their videotape recording process. The reason they gave, apparently, backed by detailed scientific explanations, as well as apologies, was that it is impossible to record visual signals on tape. In spite of this, it was not long, I am told, before machines very similar to the Ampex type were being made in Japan under the name “Jampex.”

The ways of authority are liable to be mysterious in any country, but it is difficult to grasp the idea of even the most courteous Japanese industrialist climbing into a garden that he knows cannot possibly exist.

Sound magazine

THINGS that begin on tape are liable to reach the world in general on disc—at least until the day comes when there are more tape recorders than turntables—and our pioneers of the magazine on tape will not flinch at the news of the “first sound magazine” being produced in Paris in the form of thin, pliable discs bound into a conventional printed magazine. The venture itself represents, in fact, a reasonable tape-disc partnership, for no matter how the material reaches the public we know that the real work of gathering and shaping the material will represent yet another job for the tape recorder.

Rates for “Tape Recording Magazine” are 11s. post free for six months, 22s. post free for twelve months.

Subscriptions should be addressed to “Tape Recording Magazine,” Rolls House Publishing Company Ltd., 2, Brems Buildings, Fetter Lane, London, E.C.4.



The writer recording the peal of bells of Holy Trinity Church, Stratford-upon-Avon. Equipment—Lustraphone LFV/59 moving coil microphone, Ferrograph matching transformer. EMI portable battery recorder L26. Photo by Jeremy Brownlow, Stratford-upon-Avon

LAST month I discussed the preparation required when producing a "sound picture," and gave a few suggestions about material which might be included in a "shooting script." Having decided to go ahead and put your locality "on record," presumably you are ready to start work on your recording schedule?

I find that, in most instances, it is more convenient to take your initial sound recordings on three-inch spools of tape, for, at a later period when editing is carried out, it is a simple matter to find a particular speech or sound. Quite often, a three-inch spool will contain only one item. When you have taken a recording, write on the container full details, i.e., date and time of recording, subject, and, if time permits, the duration of the sound or speech. The time factor will be useful at a later stage, when you are deciding which items are to be included in the final edition of the "Sound Picture."

When recording interviews, whenever convenient arrange to record the "victim" at home, or at his or her place of work. This is important, for often people can relax better in their own surroundings. It also gives an actuality atmosphere to the recording.

Decide in advance the general outline of the interview, but don't tell the "victim" what you want him to say. Run over the proposed questions and replies before starting to record; you can then extract the important facts from

G. HOLMES TOLLEY

continues his advice on how to make a sound picture of your town or village

the conversation, and so ensure that the information comes over in a concise manner during recording. The "victim" also gets a rough idea of the order in which you will be asking questions. Occasionally, you will discover the type of person who rambles on and edges around the question. This can be exasperating, but it brings rewards, for occasionally the character mentions an interesting point which wasn't thought about at the beginning of the interview.

When you are proposing to record an outside event, such as a procession, it is always a wise move to contact your local police station, well in advance of the event, and explain that you wish to take recordings. You will find that the police are extremely helpful, and at the same time useful when it is necessary to push to the front of a crowd to obtain the desired material. Should you decide to record a military band during a procession, take your recordings on the same level as the band, but in front of the crowd. If you attempt to record in a crowd, or with your microphone between the band and the crowd, you may discover on play-back that you have recorded a perfect discussion between two onlookers. This might be good actuality recording, but not quite the material for a permanent "sound picture."

There are other nuisances at public gatherings which you will very soon discover. I name them in the following order: dogs, children, and a type of anti-recording socialite who should be avoided at all costs. This is the character who appears suddenly at the wrong moment during a recording take. Having checked your input signal, the subject you have gone out to record is performing perfectly. You take a quick look around . . . no dogs or children anywhere. Right, switch ON . . . everything going fine; then suddenly *HE* appears, this inquisitive, out-to-spoil-your-recording type. He sidles up (always from behind), takes one look at you, the recording machine, can easily see that the reels are revolving on the recorder. Then, taking a long look at the microphone, he says very loudly: "Are you recording the band?"

What can one do? The answer one would like to give would melt the tape. My method is either to glare at the character on first approach, which usually has the desired effect, or I take someone along with me to keep a sharp eye open for such people and to steer them gently, but firmly, from the vicinity of the microphone.

With regard to microphone, I suggest a moving-coil type. A directional or omni-directional model is ideal for the job. At present, I am using a Lustraphone LFV/59 pencil type moving-coil microphone, which is very suitable as an all-round piece of equipment. A ribbon microphone will be an advantage when recording the narration during the final production of the "sound picture."

Should you live in a town or city, where numerous clock chimes are available, an interesting result can be obtained

Techniques of production —and mistakes to avoid

by using a different clock to suggest the time of day during the sequence of events and sounds. Also, the use of bird song will add much to the artistic effect of the production, and in addition will illustrate some of the species of birds to be found in a particular area.

Finally, the production and narration of your "picture": here are two illustrations showing the form which your narration and production might follow:

1 This is essentially a sound approach to the subject and, by association of sound images, leaves a great deal to the imagination of the listener. The technique can be very effective, but it may become monotonous on the ear, if overdone.

Sound of train entering a railway station . . . coming slowly to a standstill. Porter walking along the platform, shouting (or amplifier system announcing) the name of the station. (Where the porter is recorded, a good effect can be obtained by asking the porter to walk towards the microphone shouting the place-name and, as he reaches the microphone, speaking the place-name directly into it, and then proceeding to walk away.)

Slamming of carriage door . . . footsteps across platform . . . ticket collector asks for ticket. (At this point we might hear the voice of the narrator asking about a taxi.) Taxi draws up . . . conversation in taxi between narrator and driver, possibly on the subject of the locality. Taxi comes to a standstill, narrator alights. (Fade in street sounds) and the narrator can begin to talk about the locality. "I am in Stratford-upon-Avon, where, for many years, tourists and scholars of many nationalities come to honour one man . . . William Shakespeare."

Then the narrator might ask the way to a well-known place of interest (try to obtain a local voice for this part). Perhaps the narrator asks the way to the parish church. A gradual approach to the church can be produced by a slow fade in of the church bells . . . give them a few seconds, and gradually fade under the voice of the narrator, who can carry out an interview with the vicar, who can give historical details, etc.

And so on.

2 The second illustration is of the formal documentary approach, which immediately gives information to the listener, but also gives the sound engineer plenty of scope to use a little imagination.

ANNOUNCER: We present a Sound Picture of Stratford-upon-Avon.

EFFECTS: FADE IN SOUNDS OF BELLS OF HOLY TRINITY CHURCH, STRATFORD-UPON-AVON:

THESE ARE SUSTAINED FOR TEN SECONDS BEFORE FADING (BUT HELD) UNDER THE FOLLOWING:—

NARRATOR 1: From the ancient tower of Holy Trinity Church, the bells ring out over countryside and town of Stratford-upon-Avon . . . Stratford . . . meaning the street with a ford . . . taking its name from the Roman road which crossed the River Avon . . . situated in the heart of England. A market town in the County of Warwick. To this town have come people from all parts of the globe . . . to pay homage to the world's greatest playwright and poet . . . William Shakespeare. . . .

EFFECTS: BRING UP SOUND OF BELLS FOR FIVE SECONDS, FADING SLOWLY (BUT HELD) UNDER THE FOLLOWING:—

NARRATOR 2: It was from this same tower nearly four hundred years ago that a similar peal would ring out . . . echoing through cobbled streets, and half-timbered houses, when on Saint George's Day, 1564, Mary Arden, wife of John Shakespeare, gave birth to her first son, and third child, at their house in Henley Street. . . .

EFFECTS: BELLS ARE SUSTAINED FOR FIVE SECONDS AFTER ENDING OF THE ABOVE NARRATION: THEN SLOWLY CROSS FADED TO SOUNDS OF PRESENT-DAY HENLEY STREET (OUTSIDE SHAKESPEARE'S BIRTHPLACE), PEOPLE, TRAFFIC NOISE, ETC., FADING UNDER (BUT SUSTAINED) DURING:—

NARRATOR 3: Due to damage and alteration, the appearance of Shakespeare's birthplace has undergone many changes since the 16th century. During restoration in 1858, much attention was given to the appearance which the house held during the poet's life. Now it presents the traditional Elizabethan half-timbered front, with a gabled bay, and the roof housing two high gabled dormers.

EFFECTS: FADE SLOWLY SOUNDS OF HENLEY STREET (AS DOOR OPENS), TO INDOOR SOUNDS OF THE BIRTHPLACE, HELD UNDER THE FOLLOWING.

These are two examples which might be used when writing the narration for your "sound picture." A lot will depend on the recording facilities, the locality, and the material available. It should be fairly easy to produce a script giving the listener enough information about the village, town, or city, and at the same time giving the recording enthusiast ample opportunities to record unique sound angles, with an individual approach.

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Three channel lion

ALION recorded at the London Zoo helped to give a striking demonstration of three-track stereo at the International Broadcasting Studio's Second "At Home," organised jointly by the B.S.R.A., Lockwood and Co. and I.B.C. There were large attendances each day, and great interest was taken in the professional equipment and techniques on show.

You can record the satellites is the title of a booklet issued by Audio Devices, Inc., 444, Madison Avenue, New York. It describes, with numerous charts and diagrams, how to receive, record and interpret satellite signals, and how to assist in space research.

T.A.P.—"Tape Automatic Projection"—recently introduced by Siramco Ltd., 1, Lexham Mews, London, W.8, enables sound to be recorded on one track while inaudible signals are made on the second track which, on playback, automatically actuate a slide or filmstrip projector. The movement signals are made by pressing a button during the recording of the commentary, any desired interval down to 3½ seconds being possible. The T.A.P. system works with any standard projector and any number of them at one time. It may also be used for any desired sequence of switching operations and for maintaining the sequence continuously. Model "M," for recording and playback, costs £165, and Model "S," for playback only, costs £110.

The *Amateur Film Maker*, formerly a "bulletin," is now a pocket-size magazine. It is published by the Institute of Amateur Cinematographers, 8, West Street, Epsom. Entry forms are available from the same address for the 1959 Amateur Film Competition.



Mr. Tony Gibson will be the principal instructor at a five-day tape recorder course to be held from March 31st to April 4 next at the Rose Bruford Training College of Speech and Drama, Lamorbey Park, Sidcup, Kent. It will be limited to forty members—in four groups, depending on the type of work. The fee will be six guineas, and it is hoped that those who attend will include not only teachers but enthusiasts who are making a serious hobby of tape recording. There will be a certain amount of technical instruction but the accent will be on what can be done with a tape recorder. A list of student lodgings is available and there is a canteen on the premises. Further details can be obtained from the College.

Famous comedian Cyril Fletcher is to present the Grundig Shield to Meeching Junior School, Newhaven, for its winning entry in the Schools section of the British Amateur Tape Recording Contest on Friday, October 31st. On the following day the pupils who made the winning tape are to be Grundig's guests at a social function and entertainment.

Tape recorders are now going into action to ensure that politicians do not get away with lightly made election promises. The North Dorset Branch of the National Federation of Old Age Pensioners' Association is going to make and keep tape recordings of all local election speeches so that candidates who make promises at such times can, if necessary, subsequently be challenged by their actual words.

Digests of local news for the blind are becoming a regular service in many districts. The *Aberdare Leader* recently celebrated the completion of the first year of their special edition for the

blind. A digest from the *Birkenhead News and Advertiser* was inaugurated on July 30 by the Mayor of Birkenhead, Alderman Robert N. Melville. Its editor is Mr. F. K. Oliver, B. T. R. S. President, on the left in the photograph. Between him and the Mayor is Mr. S. R. Griffiths, and on the right is Mr. B. Savage, both of Birkenhead Y.M.C.A., who are providing the service.

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The GRUNDIG BOOK

NOW that the total of tape recorder owners has reached a formidable figure several books on the subject, with the layman in mind, have appeared or are on the point of appearing.

Specialists for many years in handbooks on photography, the Focal Press have now turned their attention to tape and published *The Grundig Book*, by Frederick Purves. It is a handy pocket-size book of 200 pages, with flexible binding, priced at 12s. 6d.

The very fact that there are now so many Grundig models poses a difficult problem for an author setting out to provide a guide for the average Grundig owner, but he has tackled it with great thoroughness—dealing, as occasion arises, with the individual characteristics of the various models as well as with the elements which they have in common.

There are chapters on "How your Grundig works," "The Grundig design" and "How to use your Grundig"; and a chapter on "Extras to help you" gives details of the various Grundig microphones, mixers, remote controls and so on, with advice on how to make use of them. A further Data Section gives full tabulated information on the various models and accessories.

Armed with *The Grundig Book* an absolute beginner can learn how to set about using his Grundig right from scratch, with diagrams and symbolic illustrations to provide clarification at every point.

Other chapters deal with the technique of recording, tapes and spools, editing and the ways in which a Grundig can be used in various spheres.

There is a glossary of terms and a useful chapter "Keeping everything right" which explains how to look after a Grundig and how to cure troubles.

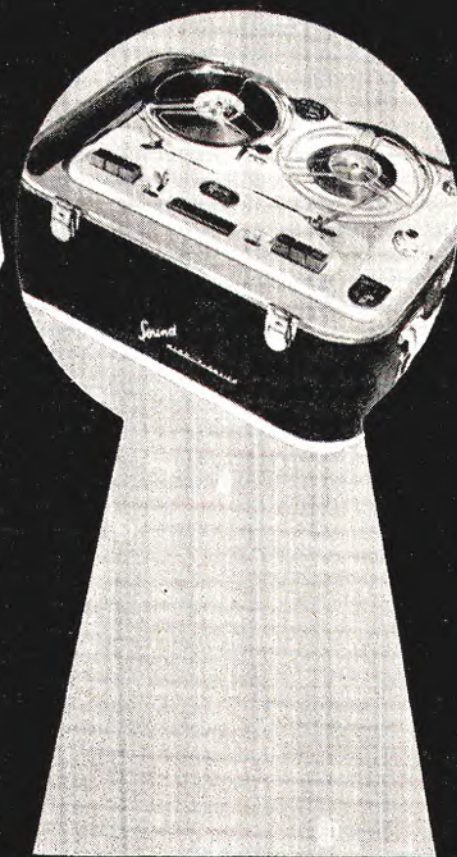
The obvious need for some literature in book form on tape recording generally, as distinct from the existing rather technical ones, is scheduled to be met from more than one source during the next few weeks. One of these is by the same publishers as *The Grundig Book*, the Focal Press. Its title is the *All-in-one Tape Recorder Book* and it is by Joseph M. Lloyd, a writer on the creative staff of a West End advertising agency. This is also a handy pocket-size guide, with flexible cover, priced at 12s. 6d., and here again the reader is taken from the very beginning with step-by-step explanations in the simplest possible language of how a tape recorder works and how it can be used for various purposes. Diagrams and symbols are lavishly employed to reinforce what is written, a treatment which makes the book particularly suitable for those who have had little or no previous acquaintance with a tape recorder.

* * *

AN insight into a section of the 6th International Amateur Recording Contest is provided by a ten-inch disc issued in France by Pathe-Marconi entitled "Chasseurs de Son." Recordings of folk singing and music occupy the major portion of one side, with a striking exception in the shape of a recording by M. Hansruedi Vetsch of 1,200 trombones. The entire second side is occupied by a fantasy recorded by M. Claude Joubert, of Paris, entitled "Un Mariage à l'Ecole Nationale des Beaux-Arts."

R. D.

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TR.2.

Beethoven Violin Concerto is best of first Saga batch

THE trouble with pre-recorded tapes is their price." That is a complaint I have often heard from tape enthusiasts, and it is hardly surprising when some pre-recorded tapes cost twice as much as the comparable L.P. discs. Now comes a notable competitor in this field, Saga-Elizabethan Records, offering pre-recorded tapes at 50 shillings (pre-fix STB) for roughly the amount of music you expect on a 12-inch L.P. and 35 shillings (pre-fix STA) for a 10-inch equivalent. It is still not as attractive as it might be, but it is a good step forward.

Standards are encouraging. For this first batch I made a point of hearing them on a first-rate professional machine (actually a stereo job as almost no monaural professional machines these days can cope with half-track tapes like these).

When I put the first on—Beethoven's violin concerto with Alan Loveday accompanied by the Royal Danish Orchestra under George Hurst (STB 8019)—I was astonished at the quality. The range seemed far wider than can usually be obtained on pre-recorded tape at 7½ ips. It sounded far more like a 15 ips master.

As for the performance, I recommend it to everyone. Loveday is a violinist strangely neglected by the record companies. I always remember hearing him give a Prom performance of the Walton violin concerto worthy of Heifetz himself. He was acting then as a substitute and had only studied the work for a few days.

His great merit is his wonderfully natural and flexible phrasing, which he always makes sound easy and inevitable. He makes the Beethoven concerto sound entirely fresh and new, but I must report too, a besetting fault. Sometimes his intonation is inexplicably shaky. For example, at the end of the first movement, after the cadenza, he plays with a heavenly dreaminess that reminds me of Huberman, but then goes and spoils it all with half a dozen flat notes in the middle.

★ ★ ★

Still, this is a performance to hear. Few violinists can get such a rich tacky noise on the low G string as Loveday, and he is fortunate here in his orchestra and conductor. I first heard Hurst conduct for Rubinstein at the Festival Hall, and he shows similar firmness and understanding, though at times I could do with slightly gentler playing.

Equally fine violin playing comes from the Soviet virtuoso, Leonid Kogan, who plays the fantastically difficult Tchaikovsky concerto with great warmth and abandon (STB 8002). This is a Soviet recording made with the Soviet State Radio Orchestra, and it has not the clarity of the Beethoven, with the orchestra far too distant in comparison with the soloist. Nonetheless, the richness of the violin tone is well caught and, except for some roughness in the loud passages, it is a comfortable enough sound.

So, too, is the sound of Rimsky-Korsakov's *Scheherazade* on another Soviet recording by the same orchestra though there is occasionally a slight pitch-variation. In the Russian manner this is a full-blooded, romantic account of the score. Listeners may be troubled by the euphonium-like French horn, but this is more disciplined playing than we often get on Soviet recordings (STB 8001).

Both these recordings, though satisfying enough, are limited in range up top. For the first ten minutes or so the Bolshoi Theatre Orchestra's performance of Tchaikovsky's *Pathétique* Symphony seems to have similar recording, but almost as though it has been dubbed from a disc the quality deteriorates badly at the end of each track. Unfortunately, the end of the first track comes in the middle of the second movement, so that the change in quality is particularly noticeable (STB 8003).

★ ★ ★

The faults in the recording certainly did not prevent my enjoying the performance, but I was much more doubtful about the same orchestra's account of a generous selection from *Swan Lake*. The recording manages to be edgy and restricted at the same time. As for the performance, it is lively enough in the vigorous sections, bouncing along in the waltzes as one expects an orchestra to do that normally accompanies ballet in the theatre. Unfortunately, it could be much better disciplined (STA 7003).

I was hoping that this restricted range (rarely above 8 kc I would guess) was confined to the Soviet recordings, but unfortunately not. The quality I noted in the Beethoven violin concerto is not matched among any of the other tapes I have heard. Playing the Brahms fourth symphony under John Frandsen, the Royal Danish Orchestra (the same orchestra as in the concerto) gets very variable recording, generally comfortable on the ear but muzzy in some of the big orchestral outbursts. The performance has the right sympathetic feel for Brahms, but discipline is poor and I suspect the recording was done in too much of a hurry (STB 8010).

I still enjoyed the performance, which is more than I can say for the Hamburg Pro Musica's account of Beethoven's fifth symphony under Erich Riede. This is little more than B.B.C. lunch-time concert standard with a very unconvincing crescendo, for example, into the last movement—a moment which makes or breaks any performance. The recording again is variable with sudden patches of really excellent sound (as in the pizzicato section of the scherzo) followed all too soon by mushy passages (STA 7011).

The last record I tried was an interesting piano recital by Eileen Joyce, including Beethoven's *Für Elise*, two Concert Studies by Liszt and Dohnanyi's highly attractive *Rhapsody in C*. The piano tone on this disc is good, though the range is none too wide, and the tape hiss tends

to be noisy. The performances are among the best I have heard from Eileen Joyce for some time (STA 7006).

Saga Tapes are done on Scotch Tape and packed in attractive boxes, though I cannot imagine why the 600 foot tapes should have big boxes (really for seven-inch spools) and the 900 foot ones small boxes. Both the 600 foot and 900 foot tapes in fact are done on five-inch spools. I did find that one of the spools was slightly too narrow and caught the tape as it was being wound to cause some slight volume-fluctuations but that can hardly be a general fault. Each of the tapes is packed with a leaflet giving programme notes, though the one in which it had been forgotten (the Eileen Joyce recital) particularly needed it, for the tape includes some extra items not mentioned on the label.

These language tapes have a promising future

By *Frederick Learoyd*

THERE is no doubt at all that recorded tapes can be of value if you are concerned with either teaching or learning a foreign language. But there are a number of problems that have to be solved before anyone can produce the right sort of tape. Most of these problems are raised, either directly or by implication, in three tapes received for review from the Tutor-Tape Company—one of them concerned with the learning of English as a foreign language, one with German and one with Spanish.

It is reasonable to assume that tape will be of value primarily for the spoken as opposed to the written language, but that the tape should be accompanied by some sort of text-book. The student, at least in the early stages of learning, likes to use his eyes to reinforce what he is learning with his ears. But what sort of text-book? And what exactly should the tape be supplying that the text-book on its own would be unable to provide?

A student struggling with a foreign language will be grateful for anything that enables him to practise listening to the actual sounds that are normally made by native speakers of the language; he will be even more grateful if these sounds come to him in the form of phrases that he is himself likely to use or to hear if he one day finds himself in company with native speakers.

What is essential, then, is that the voices on the tape should reproduce what would be recognised by a native as "normal" speech. When a tape is designed specifically for beginners, it is arguable that the voices may begin by speaking a little more slowly than would be usual; but even

here it is most important that the student should be trained, as quickly as possible, to respond to the speed of delivery, and the accompanying syllable-elisions, which are actually found in the current native speech.

Ideally, the contents of the tape would be intergrated with a complete course in grammar and idiomatic usage, each lesson on the tape being so constructed as to provide practice in the linguistic constructions that have just been learned, either from a grammar-book, a construction-book or a teacher.

The three tapes that are now to hand are relatively unambitious. They consist of short conversations in specific situations of the conventional type (At the railway booking-office; In the family; At the bank, etc.) and are accompanied by text-books that give the conversations in printed form and supply translations of words and phrases. They must be used either apart from, or as supplementary to, work that the student is doing already.

The text-book for English as a foreign language ("English Conversation for Foreign Students," by Jean O. Judd) supplies translations into French, German, Spanish and Italian. The Spanish and the German text-books ("Elementary Spanish Conversation," by C. E. Kany, and "Spoken German for Students and Travellers," by C. E. Kany and C. F. Melz) supply translations into American.

The English tape is presumably intended only for students who already speak one of the major European languages. Within the spheres to which they are directed, the value of the text-books depends on the number and utility of the common phrases introduced; the value of the tape, as such, depends entirely on the clarity and accuracy with which the normal sound of these phrases is reproduced.

In this respect, there are points where improvements seem to be possible. The German tape uses some pronunciation-forms characteristic only of Berlin; the speed with which the slurred consonants slip past will make several of the passages rather difficult for a student who is still at the level where "phrase-book conversation" is likely to be useful. The Spanish tape makes use of a voice that, once or twice, sounds as if it were reading the text rather than speaking it. The English text is delivered by voices at least two of which use intonation and accentuation that would be considered "foreign" by any native English speaker. These are distinct limitations; one must hope that, in their future recordings, the Tutor-Tape Company will accept, as a principle, that a native voice and the natural rhythm of speech-intonation are indispensable in the making of language-tapes. Language-tapes have a great future; the Tutor-Tape Company have taken the lead in exploring their possibilities, and can no doubt be relied on to develop their potentialities to the full in a short space of time.

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Gershwin: An American in Paris, STD. 2001.

Liszt: Piano Concerto No. 1 in E Flat, and Solos (Sergio Fiorentino, piano), STD. 2002.

Gershwin: Rhapsody in Blue (Joyce Hatto, piano), STD. 2003.

Dvorak: Carnival Overture. Beethoven: Overtures Egmont and Coriolanus, STD. 2004.

Grieg: Piano Concerto in A Minor and Solos (Eileen Joyce, piano), STE. 3001.

Chopin: Waltzes (Sergio Fiorentino, piano) STE. 3002.

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Mozart: Eight Overtures, STF. 4001.

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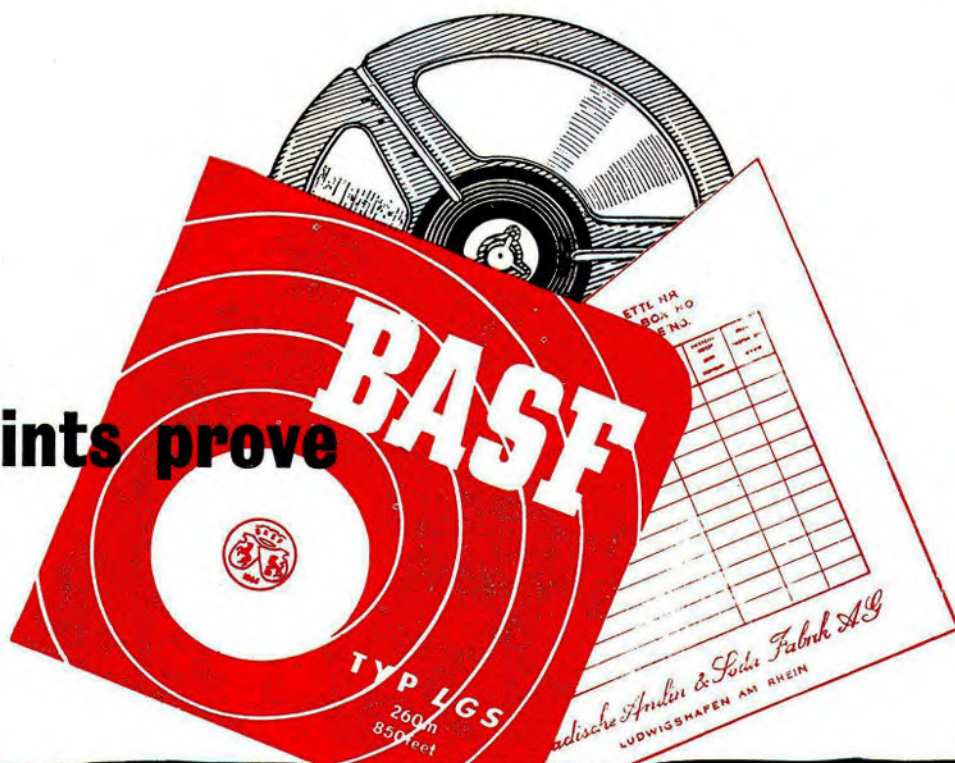
Arne: "The Cooper," STF. 4003.

Tchaikovsky: Overture Romeo and Juliet, Nutcracker Suite, STF. 4004.

Beethoven: Violin Concerto in D Major (Alan Loveday, violin), STF. 4005.

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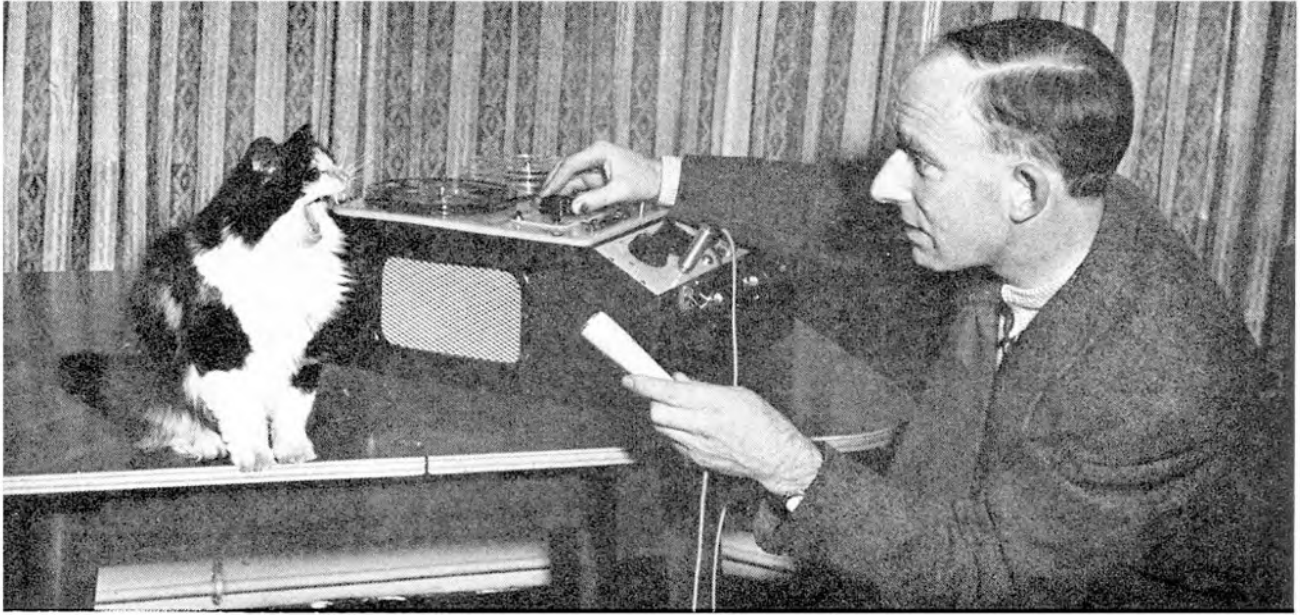


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Mr. B. W. Harley, seen here with one of the assistants who helped him to make the "Tape of the Year," obviously knows how to handle the near-human feline factor

Handling the Human Factor

By John Berridge

WHILE we were travelling in Europe recently we stayed with relatives of my wife for a few days. They're a very musical family and play a number of different instruments with considerable skill and talent. They performed on one or two occasions at family gatherings and I would have given much to be able to record their performances.

Two years ago on holiday in the United States we visited a friend who was the proud owner of an old music box. That time I was able to get hold of a recorder and we still derive great pleasure from listening to that particular tape.

In both of these situations there was an opportunity to record something we wanted to treasure, and yet the two cases were vastly different.

In the first, music was so much a part of the life of the family that they tended to treat their considerable talent for it with complete casualness. If we'd asked to do any recording they would possibly have thought of it as merely putting them to a lot of trouble.

In the other case, the owner of the music box was proud of it and very enthusiastic about the idea of a recording. The only thing that stopped us going on into the not-very-small hours of the morning was that we ran out of tape!

These two examples help to stress the importance of tact and commonsense when we are thinking about making recordings outside of our own homes.

Naturally, we want to make a good impression on the people we wish to record, so that we shall be welcomed back should we ever wish to record again. And the first thing that is absolutely necessary is to ask permission to record before we even think of setting up.

Preferably, try and get permission several days before-

hand and don't take your gear with you the first time. Arriving anywhere loaded up with equipment is likely to arouse suspicion and you will possibly meet with a flat refusal even before you start. Incidentally, should anyone refuse to give permission then, whatever their reasons, recording is out.

This preliminary visiting can be useful in many ways. Not only will it help to ensure that you get permission but it will also give you a chance to have a look around, and that can save a whole lot of trouble. Several times we have arrived somewhere with our gear only to find that the mains plug was of the wrong kind!

So while you are on the spot, ask if you can have a quick look round. If the person to whom you are talking is busy do not press the point. In any event, he will be impressed by your thoroughness. Having got permission from one person you are not in a position to do as you like. If other people are involved ask all of them, and always introduce yourself and explain what you want to do.

This has the double advantage that when you do arrive with your gear everyone will know who you are and you will not be pestered with questions; and also the persons you meet may think of factors that you have not considered. Even if it is your own friends whom you are visiting this still applies.

One last thing to remember. Unless you are being paid to do your recording, then you are virtually an intruder, no matter how many people have given you their permission. If you are recording for your own pleasure then you must be prepared to move out without hesitation if you feel that, after all, you are getting in the way.



If you have a problem, write to "The Ideas Pool" about it. And if you think you have an answer to any of the queries, let other readers share your knowledge and your personal experiences.

THE IDEAS POOL

SUGGESTIONS

SMALL SPOOL SNAG

AN idea in your October issue recommending more tape per spool by reducing the hub diameter may not be generally practicable, even with the small spool proposed.

The modern larger centre has been introduced to combat major tape speed variations which can occur at one or both ends of the tape.

It is likely that a disturbing number of readers have despaired over this rather low-fi phenomena. The stability of any conventional tape mechanism is strained to the limit at minimum spooling diameters and general depreciation or poor design can make the size of the spool hub an extremely critical factor in keeping our recorded music free from uncontrolled "Goon-Show" effects.

E. C. WOODS.

Cheltenham, Glos.

LEARNING WHILE SLEEPING

IAM a newcomer to the field of tape recording, my interest being aroused chiefly by the possibilities of using tape for sleep education.

The recent item in *Tape News Digest* about the use of recorded hypnotic suggestion to help weight control was of considerable interest to me. Sleep education is much the same sort of thing; the use of an automatic timing device to switch the recorder on and off during sleep, in order to play back facts and figures or other forms of education.

My problem is to make or buy (and I have a limited income) such a device and to fit it to a recorder. I would be glad if any one can help me.

V. E. BANKS.

Liverpool, 15.

AND QUERIES

TEST TAPE FOR TIME

IT would be an advantage if one of the tape manufacturers would market a test tape with interval signals at the standard speeds. The method of continuous tape is possible but a longer length of tape for each speed would give greater accuracy when correcting the running of the recorder.

Also is it not high time that the speeds were quoted in the metric system?

RONALD F. W. REDMAN.

Chellaston, Derby.

NOBODY KNOWS

IN declaring musique concrete positively unfit for human consumption (*Ideas Pool*, September) Mr. David Harding has chosen a path of musical criticism that is not so much unfair as unfortunate. In saying "The fact of the matter is that musique concrete is neither music nor art" he voluntarily steps on to a plank that he himself has projected over the remorseless sea of boundless historical precedent, and at the end of that sentence he needs no push from Mr. Tams or myself to cause him to topple into its cold embrace.

Make a list of all the great musicians and of every art form that has ever gained acceptance and you will have a list of people and forms that have been dismissed by masses of their contemporaries, sometimes by all of them, as quite definitely not belonging to real art.

Mr. Harding's expression "These weird sounds may give technical satisfaction to the man who has strung them together but can never convey emotion in the same way as conventional music" is precisely the kind of thing that was written about some of the innovations of Beethoven.

This does not mean that musique concrete will necessarily win a place of honour comparable with the works of Beethoven, but it most certainly does mean that Mr. Tams, Mr. Harding, myself and everyone else living today cannot rationally regard ourselves as

being in a position to dismiss it or to pronounce it immortal. Contemporaries have consistently proved themselves utterly unreliable on these questions since the beginning of time, and if Mr. Harding wants us to accept his dogmatic ruling he must first explain why this long-prevailing situation has suddenly changed.

One of the few "facts of the matter" available so far is that Mr. Harding's assertion that musique concrete "can never convey emotion . . ." is already disproved. It has happened for a lot of people, including yours fraternally.

GEORGE WADLEY.

London, E.C.4.

A MIXER CIRCUIT

IAM wondering if your correspondents who are looking for the circuit diagram of a hi-fi mixer are aware of the article "Gramophone and Microphone Pre-amplifier—versatile design with facilities for mixing several inputs," by P. J. Baxandall, which appeared in *Wireless World* in January and February, 1957, and which has been reprinted this year in the booklet *Low-Cost High-Quality Amplifier, with alternative pre-amplifiers* (Iliffe, 3s. 6d.).

This article describes a pre-amplifier with three inputs, radio, gramophone and microphone, which are what the ordinary home user needs; but there is nothing to stop three (or more) microphone stages being fitted if required, as a glance at the circuit diagram shows.

A version of this pre-amplifier, made by a B.B.C. engineer for his own use, won a prize at a recent B.S.R.A. exhibition.

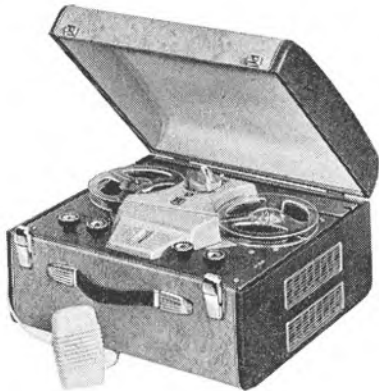
E. F. GOOD.

Malvern.

STELLA ENTER WITH TWO MODELS AT 63 AND 40 gns.

A THREE-SPEED model with a frequency range of 50-15,000 cps, priced at 63 guineas, is one of two portable tape recorders introduced by Stella Radio and Television Co., Ltd., under the name "Stellaphone."

This model, the ST.450, has a three-watts output and uses speeds of $7\frac{1}{2}$, $3\frac{1}{2}$ and $1\frac{1}{2}$ ips. Its dimensions are 16½ in. x 14 in. x 8 in., the weight is 30 lbs, and it incorporates a 5 in. dual cone speaker. Other features include a revolution counter, magic eye recording level indicator, auto stop, safety device on record, sockets for an extension speaker



The two Stellaphone models. The S.T.451 (above) and the S.T.450 (below)



(3-7 ohms), and a special output for playback through a high-fidelity amplifier. A high-quality moving-coil microphone is included, and a 7 in. reel of L.P. tape.

The second Stellaphone introduced, model ST.451, costs 40 guineas, has partially printed circuitry and is supplied with a high-sensitivity crystal microphone and 5 in. reel of tape. This machine records at $3\frac{1}{2}$ ips and has a claimed frequency range of 60 to 9,000 cps. It has separate controls for recording and playback, simple switch for quick stop/start of tape, visual indicator for recording level control, a 6 in. x 4 in. elliptical speaker and playback tone control. The instrument records from microphone, radio or gramophone pick-up, or it can be used as a gramophone amplifier. It can be played back through radio, amplifier or external loudspeaker. Speech can be mixed with radio or records.

Output is $2\frac{1}{2}$ watts, the dimensions are $13\frac{1}{2}$ in. x $12\frac{1}{2}$ in. x 7 in., and the weight is 21 lbs.

Lustraphone stereo mike

CONSIDERABLE interest has been aroused by the recently introduced Lustraphone model VR/65 "Stereomic" combined stereo-ribbon microphone which was seen at the Radio Show and will be among the Lustraphone exhibits at the Autumn Audio Fair at Harrogate.

The microphone unit comprises two identical ribbon velocity microphones mounted vertically in line, the lower one fixed and the upper one able to rotate continuously through an angle of approximately 100 degrees. This permits the user to obtain optimum setting for all stereo transmission situations.

A three-position switch provides an "off" position, correction for stereo and, thirdly, a connection which puts the two ribbon units in series so that the microphone becomes a straightforward ribbon velocity microphone of high sensitivity. In addition, a phase reversing switch gives instantaneous change-over to achieve correct phasing on any equipment.

The VR/65 was incorrectly referred to in the October issue as an amplifier. The new Lustraphone transistorised audio amplifier is model TPA/557, a 15-watt unit measuring approximately $3\frac{1}{2}$ in. x $4\frac{1}{2}$ in.



Transistorised battery portable weighs 13 lbs

THE MINITAPE, a Stencil Hoffman battery portable tape recorder weighing 13 lbs., including battery, has now been introduced to this country by Soundrite Ltd., 83, New Bond Street, London, W.1. Its dimensions are approximately 12 in. x 9 in. x 5 in. and it takes 5 in. reels which lock in place so that the machine can be operated in any position. It can be operated closed.

A single speed is employed, which can be $7\frac{1}{2}$, $3\frac{1}{2}$ or $1\frac{1}{2}$ ips as ordered. The operations of record, play and rewind are effected by means of one control and the rewind time is 40 seconds. The transistor amplifiers furnish automatic volume control over a 40 dB range so that no level indicator is required; it is claimed that the amplifier will hold a constant recording level within 4 dB from lip distance to 10 feet.

The Minitape has separate record and playback amplifiers and a separate playback head and monitoring is provided through headphones. No power amplifier is incorporated, but one of the several accessories is a small power amplifier with a 3 in. speaker, which also acts as a remote start/stop control. A minitape recording played back on standard equipment of adequate quality will, the makers state, provide a response at $7\frac{1}{2}$ ips that is flat to 10,000 cps.

No erase oscillator is incorporated, to save the high current drain, but a permanent magnet is installed to permit erasure during high speed rewind.

A sensitivity switch is incorporated to give instant adjustment for interview work or distant recording. An automatic regulating charger is supplied, but charging can also be carried out from a 12 volt car battery. Several types of microphones are available to suit different requirements.

The price of the recorder alone is £248 19s. 11d.

**IT'S SPECTACULAR!
THE STUZZI 'MAGNETTE'**



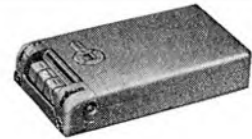
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TRADE ENQUIRIES INVITED

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69gns. complete with microphone and radio connecting leads.



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Philips A.G. 8109
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TWO NEW MACHINES FROM TELEFUNKEN

HIGH claims in terms of frequency response are made for two new Telefunken tape recorders recently announced by Welmec Corporation Ltd., the KL. 85, costing 75 guineas and the KL.75, costing 50 guineas. In each case there is a range of three microphones available costing from five guineas.

The KL.85, which Telefunken consider to be the best machine they have ever produced, has a claimed frequency range at 7½ ips of 30 to 20,000 cps ± 3 dB, and of 30 to 15,000 cps at the other speed of 3¼ ips. A certificate guaranteeing these figures is issued with every machine sold. Another important advantage claimed is the elimination of hum by the use of pre-amplifier valves with D.C. heaters.

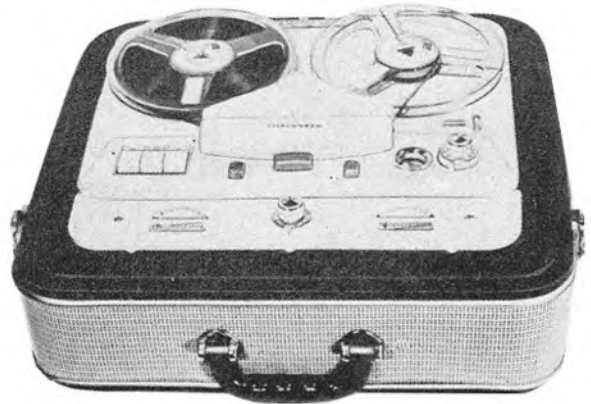
The KL.85 has two oval loudspeakers with treble-bass controls and in addition to the five push button controls there is a trick button which allows the superimposing of sound effects or speech on to existing recordings. Recording level control is by magic eye and there is also a built-in splicer so that tapes may be edited on the machine. The weight is 30 lbs, and up to 7 in. spools can be used.

An additional model with push-pull output stage (at 79 guineas) and a stereo version (price not yet fixed) will be available shortly. The standard table model of the KL.85, for direct use with hi-fi equipment, costs 63 guineas.

The KL.75 is a smaller table model, weighing no more than 20 lbs, and with a claimed frequency range of 60 to 16,000 cps at 3¼ ips and 60 to 9,000 cps at the second speed of 1½ ips, the latter giving a playing time of 4 hours 12 minutes with double play tape.

Accessories available for the KL.75 in-

The two new Telefunken models, the KL 85 (right) and the KL 75 (below)



clude a trick control for superimposing on existing recordings, a twin channel mixer, a unit for the fully automatic control of a slide or film strip projector and an electric remote control for dictation, lip synchronisation of ciné films, and so on.

The standard portable model (straight output stage), costs 50 guineas, and KL.75 standard table model costs 45 guineas.

Both the KL.85 and the KL.75 will be on the Welmec stand (No. 235) at the Autumn Audio Fair.

Saba has automatic reversal

AUTOMATIC reversal is a feature of the Saba tape recorder, now being distributed in this country by Henri Selmer & Co. Ltd., 114-116, Charing Cross Road, London, W.C. 2. Recording and playback in both directions is effected by means of an automatic track change-over system and, if desired, the playback will continue non-stop without attention.

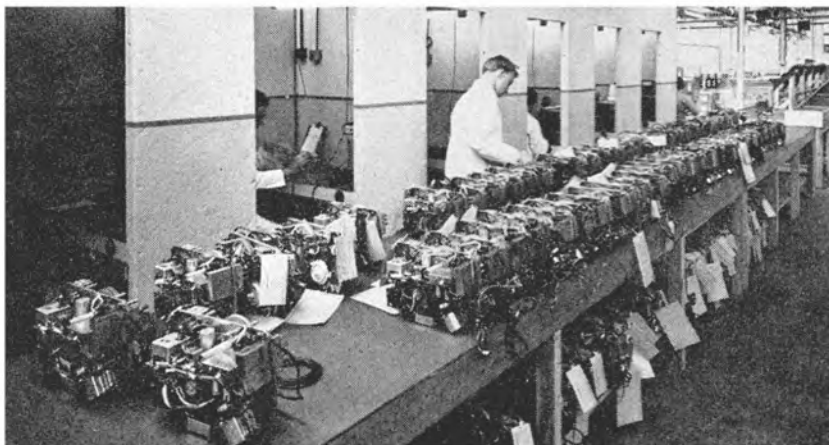
During recording the instrument stops automatically after both tracks have been filled. Spools up to 7 in. can be accommodated.

The Saba has two speeds, 7½ ips and 3¼ ips, and at the higher speed the frequency response is claimed as 30 to 20,000 cps. At 3¼ ips a range of 30 to 16,000 is claimed. There are two built-in twin speakers.

The press button controls are illuminated and electronically actuated for lightness of action. There is a "trick" key for superimposition, magic eye recording level meter, tone control, revolution counter and outputs for headphones or extension speaker (5-10 ohms) and for connection to external amplifier. There is also a connection for remote control, for dictation, and provision for connection to a mixing panel.

Another feature is a selector switch for the selection of microphone, radio or disc, so that all three channels can remain connected to the machine.

The price of the complete Saba recorder, in its portable case and weighing 39 lb., is 110 guineas. The Saba D/11 microphone with speech/music switch, is 9 guineas extra.



A view of the main service bench in the new 42,000 square foot factory of Grundig (Great Britain) Ltd., at Sydenham. Grundig estimate that the move has speeded up their service by fifty per cent. They aim to improve on this figure. Their radio factory is scheduled to move from Walthamstow to Sydenham in the New Year



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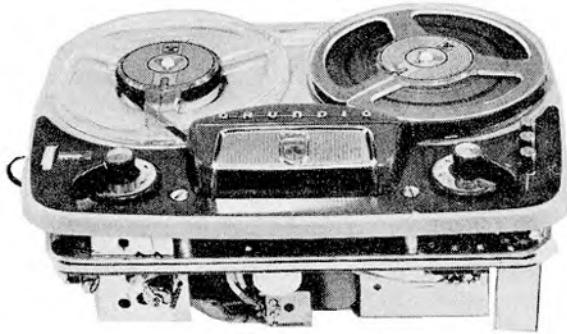
★ **GO STEREO with TRUVOX**

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Available from all leading radio dealers or full details from:—

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TRUVOX LIMITED, NEASDEN LANE, LONDON, N.W. 10 (Tel.: GLAdstone 6455)



THREE-SPEED GRUNDIG AND SEPARATE DECK

Left: The TM 20 deck. Below: The TK 35, with remote control and superimposition facilities

See them at Harrogate

THE Autumn Audio Fair opens at Harrogate on Friday, October 24, at the Grand Hotel, Harrogate, and continues on the Saturday and Sunday, 25th and 26th. As far as is known at the time of going to Press the principal exhibitors will be as follows:—

Acoustical Manufacturing Co. Ltd., Akustische u. Kino Gerate, Altobass Ltd., Associated Electronic Engs. Ltd., Badische Anilin- & Soda-Fabrik A.G., Beam-Echo Ltd., B.T.H. Sound Equipment Ltd., Capital Radio, C. T. Chapman (Reproducers) Ltd., Decca Record Co. Ltd., Dulci Co. Ltd., Dynatron Radio Ltd.

E.A.P. (Tape Recorders) Ltd., E.M.I. Sales & Service Ltd., Fane Acoustics Ltd., Garrard Engineering & Manufacturing Co. Ltd., General Electric Co. Ltd., Goldring Manufacturing Co. Ltd., Goodmans Industries Ltd., Grundig (Great Britain) Ltd., Wilhelm Harting.

Kolster Brandes Ltd., H. J. Leak & Co. Ltd., Lockwood & Co., Lustraphone Ltd., M.S.S. Recording Co. Ltd., Mullard Ltd., Multimusic Ltd., Pamphonic Reproducers Ltd., Philco (Great Britain) Ltd., Philips Electrical Ltd., Pilot Radio Ltd., Pye Ltd., Pye Group Records (Sales) Ltd.

Rogers Developments Ltd., Rola Celebration Ltd., Scientific & Technical Developments Ltd., Simon Sound Service, Ltd., Sonomag Ltd., A. R. Sugden & Co. Ltd., Tannoy Products Ltd., Telefunken G.m.b.H., Trix Electrical Co. Ltd., Vita-vox Ltd., Wharfedale Wireless Works Ltd., Whiteley Electrical Radio Co. Ltd., Wright & Weaire Ltd.

Admission is by tickets obtainable through local dealers or through *Tape Recording and Hi-Fi Magazine* (in the case of prompt postal applications).



A THREE-SPEED version of the ATK 30 has now been launched by Grundig (Great Britain) Ltd. Known as the TK 35 this machine has a claimed frequency response of 50-18,000 cps at 7½ ips. The other speeds available are 3½ ips (50-14,000 cps), and 1½ ips (100-8,000 cps).

The TK 35 has remote control and superimposition facilities. It measures 17 in. x 16½ in. x 9½ in. and incorporates a permanent (ferrite) magnet speaker. The price is 82 guineas, without microphone.

Grundig have also introduced a tape deck of their TK 20 tape recorder, which will be known as the TM 20. The deck itself is exactly similar to that of the TK 20 and contains the whole electronic equipment of the TK 20 except the output stage and speaker.

The machine is supplied with a connecting cable for microphone, diode connection and for recording from pick-up or extension speaker, all of which connect to the plug which fits into the 6-way input/output socket.

The TM 20 can be used with any good amplifier, radio or radiogram. With connecting lead, Grundig condenser microphone and 1,200 feet of long play tape, the price is 44 guineas.

MANUFACTURERS NEWS ROUND UP

TO cope with the demand for Perth-Saja recorders (sales are now 800-900 a month), Perth Radios Ltd. are now chartering a special B.E.A. flight once a fortnight to deliver the machines from Western Germany.

The latest Lustraphone catalogue is a well-produced publication of 24 pages, giving full details of Lustraphone microphones and other products and arranged with a special view to assisting in the selection of suitable equipment.

The long-play tape which was being advertised by E. C. Kingsley & Co., Ltd., 132, Tottenham Court Road, London, W. 1, has now been sold out and no more is available.

Pilot Radio Ltd. will be announcing the price of their SHF 15 combined

stereophonic amplifier and control unit on the eve of the Autumn Audio Fair. It was first shown at the Radio Show and will be continuously demonstrated at Harrogate.

Manufacturers of tape recorders and radio equipment will be interested to learn that Tantalum capacitors are now available in this country without import restrictions.

A range of high quality components, many hitherto unobtainable in the U.K. is being offered to the trade by Messrs. Super Electronics Ltd. of 5, Violet Hill, London N.W.8. The range includes magnetic heads and other components for use in the manufacture of domestic tape recorders. Interested readers are advised to contact Messrs. Super Electronics Ltd. direct.

TRUVOX EXPAND AND REDUCE

FOLLOWING the opening of their new factory at Neasden Lane, London, N.W. 10, shown in the accompanying photograph, Truvox Ltd. have announced reductions in the prices of their R2 tape recorders, made possible by the considerable economies resulting from the factory's modern equipment and layout. The R2 Recorder with counter is now 59 guineas (reduced from 69 guineas), and the model with timing scale is now 56 guineas, reduced from 66 guineas.

The new main building covers an area of 36,000 square feet, and the flat roof has been designed to accommodate an additional storey.



Introducing loudspeaker systems

A MOST important link in the chain of reproduction (and until recent years one of the weakest) is the loudspeaker. The most expensive amplifiers, tape decks, or tuner units are virtually only as good as the loudspeaker, and a cheap quality loudspeaker can pull the performance of a £200 installation down to one tenth the value.

In general when planning a high fidelity system to a budget, it is probably better to indulge in a good loud-

speaker at the outset. The amplifier can then be improved and added to as time goes on, with the full knowledge that the speaker will always be pulling its weight.

A loudspeaker, or reproducer, converts electrical impulses into audible sounds. It does this by causing a lightweight cone or diaphragm to vibrate in sympathy with the electrical signals, which in turn alternately compresses and rarefies the air in the immediate vicinity. These waves of high and low air pressures spread out in all directions at the speed of sound, that is, about 1,100 feet per second, and arrive at the ear resulting in the sensation of sound.



The essential requirement for high performance is that the cone should readily vibrate in precise sympathy with the electrical signal, whatever the frequency or magnitude of the signal. This means that the cone and its attachments have to be extremely light in weight. Unfortunately, a good bass response demands a large cone, which is therefore heavier, and so will not easily vibrate at frequencies above about 8 kc/s. This limits the high frequency response, and generally if one speaker only is used the result is a compromise between the two extremes.

An improved method is to use a large speaker to handle the middle and bass frequencies, and supplement this with a much smaller speaker whose cone is so light that it will easily vibrate at frequencies up to 15 kc/s or more.

A small speaker such as this, designed to handle frequencies above about 2 or 3 kc/s is called a tweeter. As it is important that the low and middle notes should not overload the tweeter, an electrical filter is connected

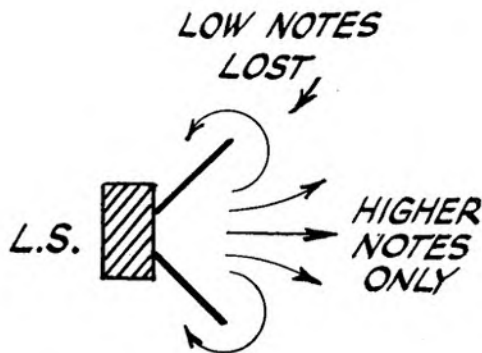


FIG 1. SPEAKER WITHOUT A Baffle

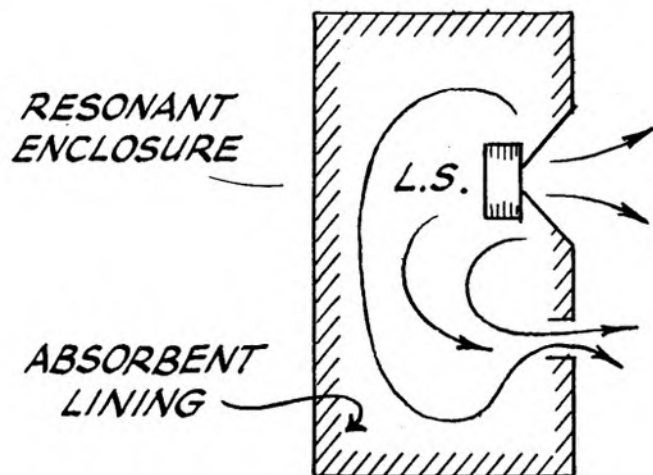


FIG 2. BASS REFLEX CABINET

BY CHARLES LANGTON, A.M.Brit.I.R.E.

between the amplifier and tweeter so that only the signals above about 2 kc/s are fed through. This is called a "high pass" filter. Similarly, it is undesirable that the high notes should be fed into the large loudspeaker, which would not be able to treat them faithfully, and hence a "low pass" filter should be used to feed this speaker.

The frequency at which one speaker "hands over" the signal to the other is known as the "cross-over" frequency, in this case about 2 kc/s. If desired, a complete "cross-over unit" comprising both high pass and low pass filters may be purchased. If this is done, care must be taken to see that the loudspeakers, cross-over unit, and amplifier match one another.

Even better results may be obtained using a correctly designed three loudspeaker system. In this system, a large loudspeaker (or woofer) handles the bass notes, a tweeter the high notes, whilst a medium-sized speaker, or "presence unit" reproduces the middle range of frequencies. A three-way cross-over unit is required, the two cross-over frequencies in a typical case being about 1 kc/s and 8 kc/s respectively, although no hard and fast rules are laid down.

BAFFLE. The bass notes have longer wave lengths than the treble, and these longer waves tend to creep round the edge of a loudspeaker. It must be realised that waves are sent out from the back of the cone as well as the front, and that these back waves will be out

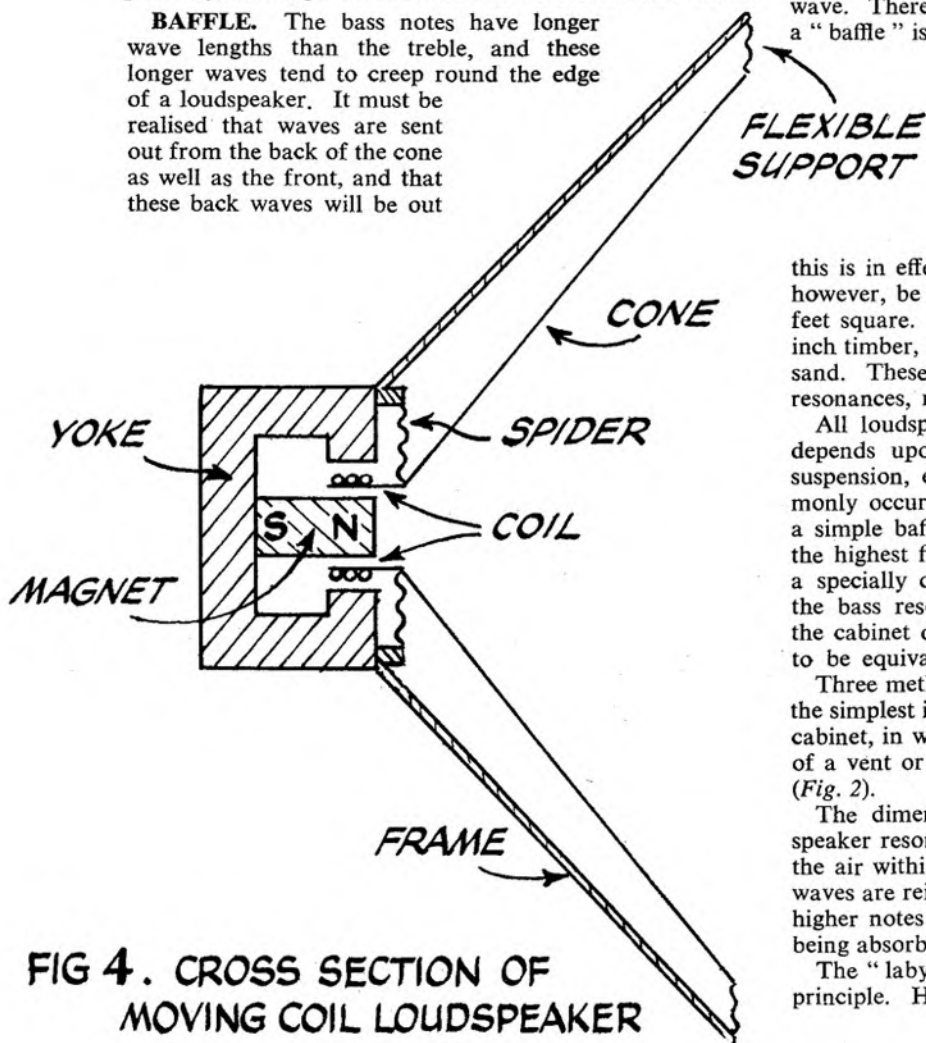


FIG 4. CROSS SECTION OF MOVING COIL LOUDSPEAKER

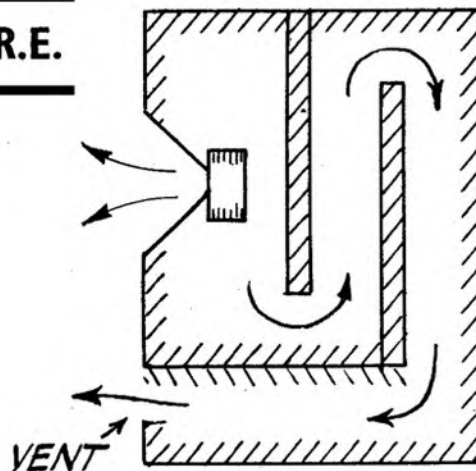


FIG 3. LABYRINTH ENCLOSURE

of phase with the front waves, i.e., when the air in front of the speaker is compressed, a low pressure wave is simultaneously created at the rear of the cone (Fig. 1).

It is easy to see that the compression wave will tend to flow round the edge of the cone, to cancel out the back wave. Therefore the bass notes will be lost. To avoid this, a "baffle" is used, and this may take the form of the front of the cabinet, as in the case of a tape recorder or radio receiver, or a simple flat board with a hole in the centre for the speaker.

The essential requirements of a good baffle are first of all size, the larger the area the better. Some enthusiasts have the speaker built in to a wall in the room, and this is in effect an infinite baffle. Very good results may, however, be achieved with the use of a baffle about three feet square. This must be solidly constructed out of one-inch timber, softboard, or even made hollow and filled with sand. These precautions are necessary in order to prevent resonances, rattles, etc.

All loudspeakers have a natural bass resonance which depends upon the type of cone used, method of cone suspension, etc. This resonance is undesirable, and commonly occurs at a frequency around 100 cps. The use of a simple baffle will not overcome this defect, and so for the highest fidelity the loudspeaker should be mounted in a specially designed cabinet having such dimensions that the bass resonance is cancelled out. At the same time, the cabinet or enclosure enhances the bass response so as to be equivalent to a comparatively large baffle.

Three methods of construction are commonly employed, the simplest in appearance being known as the "bass-reflex" cabinet, in which the low notes leave the cabinet by means of a vent or port as well as by the usual speaker opening (Fig. 2).

The dimensions are carefully designed so that at the speaker resonant frequency the cone is heavily damped by the air within the enclosure. At other low frequencies the waves are reinforced, and the bass generally improved. The higher notes are unaffected by the cabinet, the back wave being absorbed by the absorbent lining of the box.

The "labyrinth" type of enclosure works on a different principle. Here, the back wave is made to travel a definite

(Continued on page 45)

Another winner from Wyndсор



**The
Wyndсор
'Viscount'—a
brilliant new
portable at
only 49 gns.**

The Wyndсор "Viscount" is the brilliant new portable the electronic industry is talking about: brilliant in design and brilliant in performance. The Wyndсор Recording Company—makers of the Wyndсор "Regent" one of the most popular tape recorders ever—have excelled themselves in the "Viscount" by creating a successor worthy to come from the same stable. Yet they have kept the cost below fifty guineas, which is an achievement in itself.

It has three speeds—15", 7½" or 3¾" per second—and carries up to 7" spools (giving up to 3 hours recording on one L.P. tape) with location of position by digital counter.

The two tracks are immediately available by push-button control; there is an independent set of "Record/Play-back" and "Erase" heads for each track, halving the wear and facilitating instantaneous switching from one to the other.

Additional facilities include the speaker's being detachable. This means that cine-camera enthusiasts—and others—can place the source of the sound well away from the point of operation.

There are two inputs, one high and one low gain. And only two electronic controls; a master gain control and a tone control.

Every recording can be monitored because the moment you push the "Record" button, the tone-control automatically becomes a volume-control for hearing whatever you are recording at the same time. At this point the "Viscount's" frequency response conforms to C.C.I.R. standards.

Finally, the instrument can quite simply be used either in conjunction with a subsequent amplification system if desired, or as a self-contained straight-through amplifier.

The "Viscount" looks good, too. It is tastefully styled in coffee and cream colours with gold-coloured inlay and grill and matching cream-and-gold controls.

It is fitted complete with a 7" spool of Emitape and an "Acos" high-sensitivity crystal microphone in matching colours. The price, remarkably, is only 49 guineas.

BRIEF TECHNICAL DATA

Frequency Response: 50 c/s to 12 kc/s ± 3dB at 7½ ips.
50 c/s to 9 kc/s ± 3dB at 3¾ ips.

Inputs: Two: High and Low sensitivity both at 1 megohm.

Outputs: Low impedance: 3 ohms feeding 10" × 6" elliptical Goodman Speaker. High impedance: 1v at 10 K ohms (conforming to C.C.I.R. standards).

Record/Playing Time: ½ hour at 15 ips. 1 hour at 7½ ips.
2 hours at 3¾ ips. Using long-play tape times are increased by 50 per cent.

Weight: Approximately 35 lbs.

THE WYNDSOR RECORDING COMPANY LIMITED

2, Bellevue Road, Friern Barnet, London, N.11 : Telephone: ENTerprise 2226/7 : Telegraphic Address: Wyndreco

THE WYNDSOR DAUPHIN

The Wyndсор Dauphin is a logical and up-to-date approach to the problem of getting hi-fi performance without the usual hi-fi paraphernalia: superb reproduction with a single piece of equipment instead of having to connect up two or three separate items. Be sure to see the Wyndсор Dauphin before you invest in a tape recorder. We'll be pleased to send you a leaflet giving you full particulars.

BRIEF TECHNICAL DATA

Tape Speeds..... 7½ and 3¾ ips.
Frequency response... 50—15,000 c/s ± 3dB at 7½ ips.
50—8,000 c/s ± 3dB at 3¾ ips.

Wow and Flutter..... better than 0.1 of 1 per cent.
Signal/Noise ratio ... better than 40dB unweighted.

Output 3 watts ultra-linear at 15 ohm.
3 matched speakers, base, elliptical and tweeter. Actual tape-monitoring through third head. Independent record and playback amplifiers.

89 GNS. Complete, including Stand, Microphone and Tape.

WyndSOR Viscount

Instrument under review: WyndSOR Viscount.

Price: 49 gns.

Manufacturers: WyndSOR Recording Co. Ltd.

Dimensions: 15½" x 14½" x 10½".

THE appearance of the WyndSOR "Viscount" should have a wide appeal, for it looks very attractive in its cream and coffee leather-cloth, gold-coloured inlay and grill, and knobs to match. The weight of 35 lbs. is well balanced about the carrying handle, making for convenient mobility.

It should be appreciated that, although described as a portable, it is necessary to have access to the A.C. mains or a suitable power supply. The term "portable" when applied to tape recorders seems to be universally applied to the type of instrument described by radio manufacturers as "transportable."

The tape deck used is the Collaro Mark IV. This deck may be familiar to many readers, but I shall describe it here for the benefit of those who do not know it. It has three speeds, 15, 7½ and 3½ ips. Speed changing is by means of a sensibly shaped, clearly marked knob, which may be operated whether or not the machine is running. It is, however, recommended that the recorder be stopped before changing speeds. The outstanding feature of this deck is that top or bottom tracks may be played at will, without having to change the reels over. Thus the full playing time may be had from any reel by simple push-button control. This is accomplished by reversing the direction of the tape and using two sets of heads. There are thus two sets of push-button controls, one set for top track (left to right) operation, and the other set for the lower track (right to left). Each set contains three push-buttons marked "record," "play," and "fast" respectively, and control of the tape direction and function is very simple.

★ ★ ★

It is necessary to press the stop-bar before changing from one push-button function to another, and this brings the mechanism to a stop very quickly. As an example, it took less than five seconds to stop a top-track replay and change to the lower track, at 15 ips. This was reduced to less than two seconds at 3½ ips.

Either track may be played back by pressing the appropriate "play" button, having previously adjusted the speed as required. Before the "record" buttons may be pushed, a safety catch has to be moved over. This operation may be carried out with one hand after a little practise, and is a good

safeguard against accidental erasure. Pressing either of the "fast" controls causes the tape to wind on rapidly. The time taken to fast-wind a standard 1,200 ft. tape in either direction was 2½ to 3 minutes. The position of any part of a recording may be accurately repeated with the aid of the tape position indicator. This is a cyclometer type, having three digits and a reset control.

An extremely valuable asset on any recorder is a pause control. Such a control is incorporated in the "Viscount," and this makes it possible to stop and start the instrument within the space of two or three syllables.

Two motors are used to operate the mechanism, speed changing being accomplished by an alteration of pulley ratios. A 6½ in. flywheel of aluminium alloy is employed to smooth out speed variations, and wow was hardly noticeable on speech or music. Cross-talk from track to track was non-existent. Mechanically, the instrument is built on sound lines, the moving parts being well laid out and so simplified as to give the impression of long-term reliability. The main chassis is generously constructed, which is not only good from the strength point of view, but also acts as a good heat conductor to prevent local hot-spots.

★ ★ ★

The recorder has two inputs, microphone and radio. An "Acos" MIC 40 crystal microphone is supplied, and its output is more than adequate fully to modulate the tape through the high gain recording amplifier of the "Viscount." With the microphone placed in a central position, conversation could be clearly recorded from a group of people disposed about the room. An input voltage of about 2 mv. is sufficient for the microphone input. On the other hand, approximately 200 mv. is required into the radio socket, for comparable results. An output socket having an impedance of 10 K is incorporated for monitoring purposes.

The first three stages of the amplifier are common to both record and playback, whilst an EL 84 is employed as the power output on playback. A useful feature is that the output valve remains in circuit when recording; therefore, if the microphone is in another room, it is possible to monitor the proceedings by loudspeaker. Furthermore, when the mechanism is stopped by pressing the "stop" bar, the circuit behaves as a straight-through amplifier of good quality.

It is, however, a pity that the manufacturers have not included a switch or other means of cutting out the last two features when not required, because it is essential to remove the microphone plug at the end of every recording in order to avoid a feedback howl when the microphone is in the same room as the loudspeaker. Otherwise a certain amount of juggling with the volume and tone controls is necessary.

The replay volume control also acts as modulation control when recording. An EM 84 modulation indicator is used, and is very neat and clear in operation. The tone control is a top cut circuit, but when in the "record" position acts as a volume control for the monitor amplifier. Therefore, it must be turned down to zero when using a microphone in the same room, to avoid a feedback howl.

The overall frequency response from radio input to replay output was rather better than the figures published by the manufacturer, on the particular model tested. These figures are: 50 to 12,000 cps ±3 db at 7½ ips, or 50 to 9,000 cps ±3 db at 3½ ips.

(Continued on page 46)





I must have a wide frequency range, full dynamic range and a really good signal/noise ratio

THE PROFESSIONAL RECORDIST

Tell him—someone!

He, like the serious hi-fi enthusiast, the concert artiste and the music lover requires tape recording equipment which gives superb performance, versatility in operation and, of course, the best value for money.

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phonic/dual track record playback equipment.*

Outstanding features include:—

★ **Four recording speeds**

1¼, 3¼, 7½ and 15 giving an exceptionally wide frequency range.

★ **Permits use of 8¼ in. reels**

(2,400ft. of tape for long play; 1½ i.p.s. over 8 hours).

★ **Three independent motors (B.T.H.)**

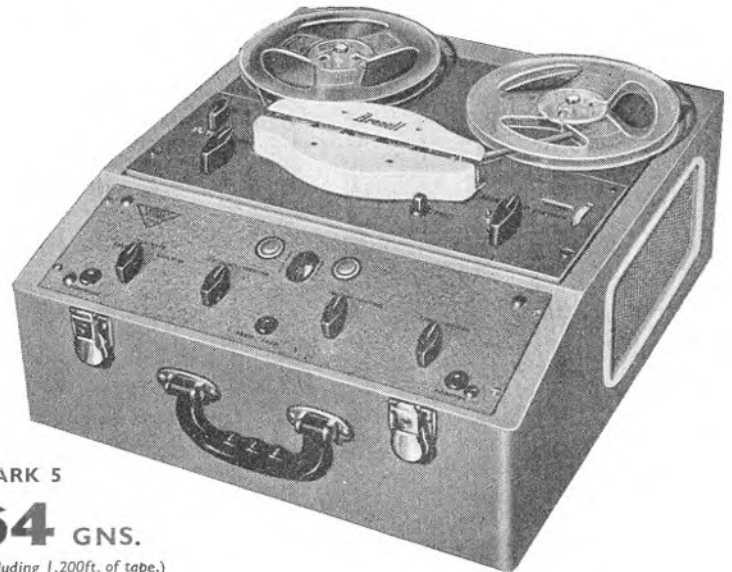
★ **Special foolproof interlocking controls** ● Instant stop without spillage ● Pause control ● Digital rev. counter ● High quality amplifier ● Recording level indicator ● Monitoring facilities ● Azimuth head adjustment ● Provision for extra sound heads ● Fast re-wind (1,200ft. in 45 secs.). Coloured signal lights.

Because the Mark 5 is of unit construction the following can be supplied as separate items for incorporation in your own equipment.

Tape deck with provision for extra heads	28 gns.
Tape Pre-amplifier Type T.P.2	17 gns.
Power Unit T.U.2.	£4 18 0
Mixer Unit	£2 18 0

Full details of this equipment available on request

Brenell MARK 5



MARK 5

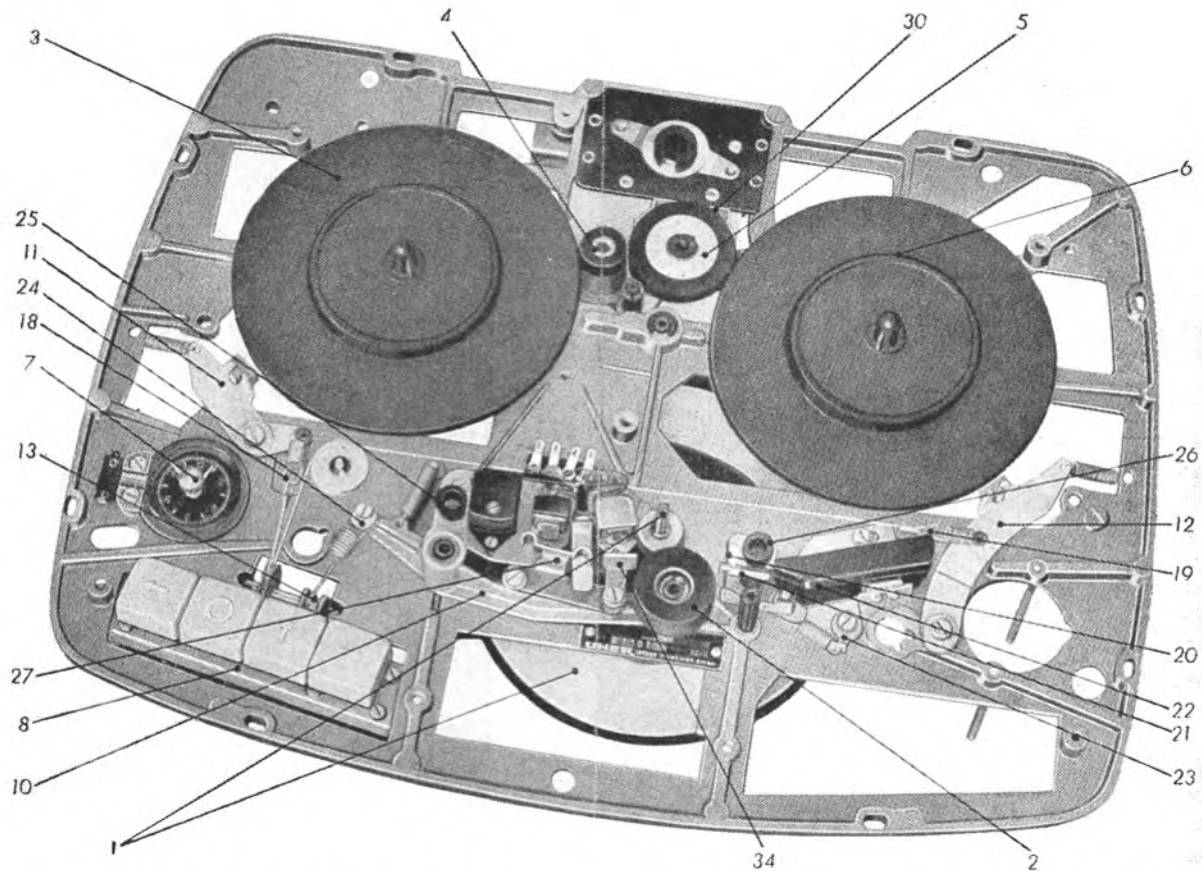
64 GNS.

(Including 1,200ft. of tape.)



Sole Manufacturers: BRENELL ENGINEERING CO. LTD. 1a DOUGHTY STREET, LONDON, W.C.1 Tel. CHA 5809 and HOL 7358

THE UHER 195



1 Fly wheel and axle; 2 Tape drive wheel; 3 and 6 Tape turn-table; 4 Motor pulley; 5 Friction wheel; 7 Counter clock; 8 Mechanical press button unit; 10 Tape movement arm; 11 and 12 Left and right-hand brakes; 13 bowden cable guide; 18 and 19 Spring; 20 Automatic tape and lever; 21 Tape guide; 22 Switch complete; 23 Adjustable spring lever; 24 Adjustable excenter; 25 and 26 Tape guide; 27 and 34 Adjustable tape guide; 30 Friction wheel holder

DISMANTLING

NEARLY every mechanical part of the machine can be seen and adjusted without removing the chassis. Changing valves and magic eye requires the bottom part of the machine to be removed and you can then see those parts. To adjust the mechanical parts you remove all the tuning knobs and unscrew the plastic top and on the edge of that chassis you will find eight screws. Remove those for removing the complete chassis; before taking away the

top part disconnect the loudspeaker and the back of the connector plate and the chassis is then completely free.

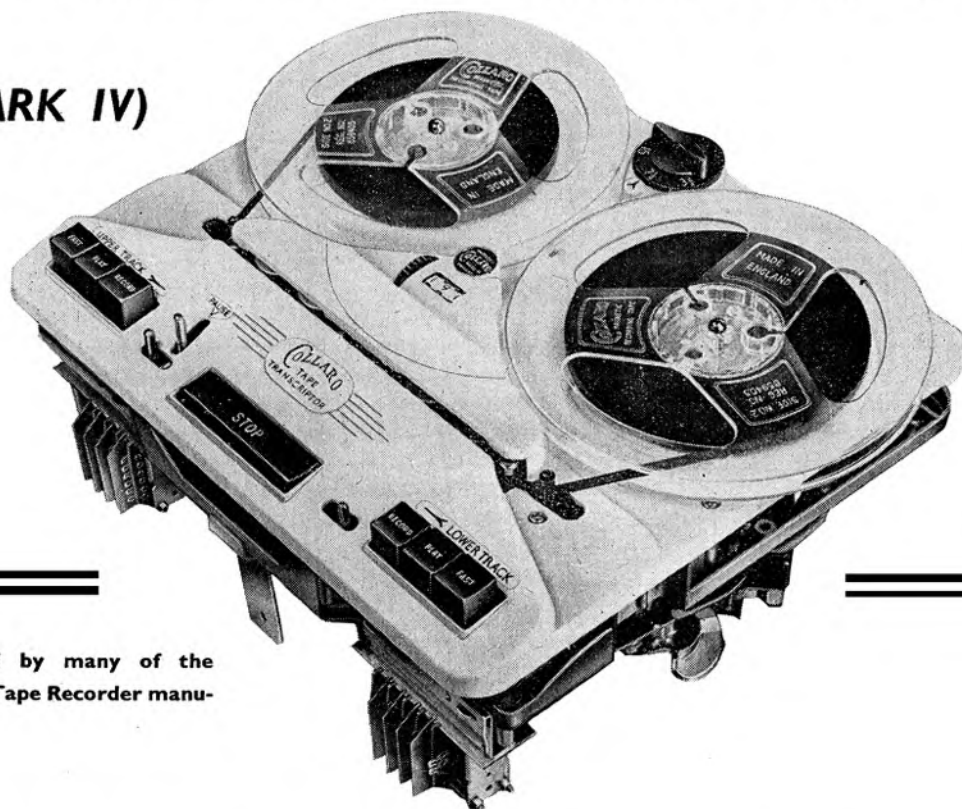
DESIGN OF THE 195

THE 195 has a valve line-up of an ECC83, ECC81, 6EL84, EC92 and EM71. Two loudspeakers are fitted, one elliptical and one flat round speaker, which is situated in the bottom of the set. The EC92 valve is the low

(Concluded on page 45)

THE NEW IMPROVED COLLARO TAPE TRANSCRIPTOR

(MARK IV)



. . . as used by many of the leading British Tape Recorder manufacturers

This High-Fidelity Tape Transcriber, designed on Transcription quality principles for live recording, recording from F.M. Broadcasts, etc., and for reproducing pre-recorded tapes, is a twin-track model fitted with two sets of heads, and runs at speeds of $3\frac{3}{4}$, $7\frac{1}{2}$ and 15ins. per second.

Several new modifications are incorporated in the MARK IV. The new interconnected Micro-Switch and Fly-Wheel Brake switch off both motors and stop the fly-wheel immediately the "stop" button is operated. Any one of the six smaller knobs will then re-start

the machine in either direction, without overloading the motors. Due to reduced wattage input, these are cooler and run more quietly. The enlarged diameter of the motor pulleys, new type re-wind pulleys and new springing arrangements make for more active re-wind.

The COLLARO STUDIO MICROPHONE is a high-fidelity, super-sensitive crystal type miniature hand microphone. Finished in maroon or cream, it has a frequency range of 30-10,000c.p.s. with an output of 1.8 mv/ub at 1,000c.p.s. It has an equivalent capacity of 1,500pf.



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KNOW YOUR RECORDER No. 10

(Continued from page 43)

frequency erasing oscillator valve, the ECC83 and the ECC81 are pre-amplifiers, the EL84 is the output stage.

Further, the EM71 is the modulation indicator valve. The set is fused in the primary and secondary of the mains transformer as a safeguard to the equipment.

There are three heads seen on the picture and the first from the left is the erasing head, the second one is the recording head and the third one is the pick-up head. On the left-hand side in the picture the part No. 7 is the revolution counter clock, which indicates the amount of tape which has been used. The operation of the set is completely a press-button one, the left-hand side mechanically, the right-hand side electrically. The tape recorder switches off automatically without having an aluminium foil tape end. This is operated through switch No. 22 and lever No. 20.

The transport of the tape is kept constant by using a fly wheel. This fly wheel is connected with a drive belt to the motor. The tape wheel No. 2 engages the whole recording and the play back procedure. During fast forward the friction wheel No. 5 engages with the motor and the tape wheel No. 6. During fast rewind the left-hand tape wheel No. 3 engages with the motor.

The machine has two speeds, $3\frac{3}{4}$ and $7\frac{1}{2}$ inches per second. To change speed the drive belt on the motor pulley No. 4 is moved upwards and downwards by a switch lever. The switch movements of fast forward and fast backward winding and recording speed are done by bowden cable,

which can be adjusted on little levers fitted to the press button unit, to avoid shortening and lengthening the bowden cable.

RECORDING ADJUSTMENTS

FIRST the speed of the tape, $3\frac{3}{4}$ or $7\frac{1}{2}$, should be checked. If it varies check drive belt from motor to fly wheel. An excessive slackness is not allowed, part should be exchanged. The erasing and recording heads should be checked for accumulated dirt and cleaned with methylated spirit, using a duster with a match stick, use of metal tools near the recording head might cause considerable damage. All parts which are connected with the drive mechanism should be cleaned with methylated spirit.

To make good adjustments on the heads you need a valve-volt-meter, low signal generator and a universal oscilloscope. A tension gauge, screwdrivers, pliers and a demagnetising unit, are desirable.

FAULT FINDING

Mechanical part of set does not work after you have inserted the tape—Check fuses, replace faulty one.

Mechanical part works, but electrical part out of order—Check secondary fuse.

Set does not record or play back. Magic eye lights up, magic eye indicates modulation of the recording; check screened cable to trimer C2 and screened cable from erasing head to switch for super imposing, leading to 2K ohm resistor—Check valves No. 4 and No. 1.

Tape is jamming—Friction wheel No. 5 does not engage and left-hand tape wheel is not engaged to lower clutch wheel. Free friction wheel No. 5 by adjusting the whole mechanism as shown on blue print.

Introducing loudspeaker systems

(Concluded from page 39)

distance before emerging from the vent (*Fig. 3*). The consequent time delay results in a partial cancellation of the sound at the unwanted resonant frequency, and improved results at other low frequencies.

The third type of enclosure is a development of the horn loudspeaker, the modern version being that of a horn turned within itself to reduce the otherwise unwieldy length. This is aptly named the "re-entrant horn" enclosure.

MOVING COIL SPEAKER. Up to now nothing has been said about the operation of the speaker unit itself. This is almost invariably a moving coil device, although a few electrostatic speakers are making their appearance. Tweeters sometimes use the piezo-electric crystal principle.

A cross-section of a moving coil speaker is shown in *Fig. 4*. A powerful permanent magnet is used in conjunction with a soft iron yoke to produce a very strong field in the gap between the pole-pieces. The moving coil, or speech coil, is wound with a few turns of enamelled copper or aluminium wire, and is rigidly fixed to the apex of the

cone, the whole assembly being flexibly mounted so that the coil fits within the magnetic gap.

It is most important that the coil should not rub against the sides of the gap, and so a flexible support called the spider holds the coil in the centre of the gap, but allows freedom of movement for the coil (and therefore the cone) to move in and out, so as to act rather like a piston. The periphery of the cone also has to have flexible support.

When a current is passed through the coil, a magnetic field is set up which interacts with the permanent magnetic field already in the gap, and as a result the coil tends to be pushed out of the gap or pulled in, depending upon the direction of the current at that instant.

It is evident that such a small coil will have a low impedance and in fact, all normal moving coil speakers have impedances between 2 and 15 ohms. As the optimum load for all output valves is several hundreds of thousands of ohms, it is not possible to use such a low impedance speaker connected directly, and a matching transformer is required. This will be a step-down transformer, and the ratio may be determined as follows. First, by referring to the valve data book, determine one optimum load required by the output valve in use. Then divide this by the speech coil impedance. Finally, the square root of this answer will be the turns ratio of the transformer required

$$\text{or, turns ratio} = \frac{\text{Optimum load of valve}}{\sqrt{\text{Speech coil impedance}}}$$



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 All Machines demonstrated for performance on
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Letters to the Editor

WOMEN CAN TAPE IT

FURTHER to Jo. Lougla's enquiry about the small number of entries from women in the British Amateur Tape Recording Contest, may I say that I shall not be satisfied until the Tape of the Year has been made by a woman. (I am nicknamed the Mrs. Pankhurst of Tape Recording by my family because of my continual efforts to encourage women to take a place beside, not merely behind, their man in this fascinating hobby.) May I, through your excellent go-ahead magazine, exhort women to make the resolve suggested by Douglas Gardner. Anyway, I'm starting on my entry right away.

Southall.

PHYLLIS COPINGER.

* * *

CLUBS AND THE YEAR BOOK

THE unanimous verdict of Middlesbrough Tape Recording Club after purchasing *Tape Recording and Hi-Fi Magazine Year Book* is "Excellent value for money—a first-class addition to the publications aimed at the ordinary enthusiast, incorporating a cross-section of all subjects which, without explanation, may well be dismissed as 'too technical' by the most ardent and keen 'disciples' of this wonderful tape revolution."

G. W. BRIAN HARRISON.

Secretary, Middlesbrough Tape Recording Club.

* * *

IHAVE just received your 1958 Year Book. Congratulations to you and the staff of *Tape Recording Magazine* on a magnificent effort—well worth double the price.

MIKE BROWN.

Secretary, Rugby Amateur Tape Recording Club.

* * *

MESSAGES FOR "H.M.S. VICTORIOUS"

WE are recording "messages from home" for the men of "H.M.S. Victorious." I have been recording the families of men from Glasgow and district. If you would like to help write to Hugh Cheyne, Pay Office, "H.M.S. Victorious," c/o G.P.O., London.

HUGH KERR.

Glasgow Tape Recording Club.

WYNDSOR VISCOUNT (Continued from page 41)

The remaining valves used are 6BR7, pentode pre-amplifier, followed by two stages of triode amplification (both sections of 12AX7). Output to the recording head is taken from this point, as is the headphone monitoring output. A 6BW6 is used as H.F. bias and erase oscillator. H.T. is supplied via the mains transformer and bridge connected selenium rectifiers. Hum and noise are negligible for normal purposes. Distortion is low for an instrument in this price range.

The use of a 10 in. x 6 in. elliptical loudspeaker mounted in a detachable lid is very effective, and is one of the leading features of the "Viscount." The resulting bass response is much better than could have been achieved by the more usual method of mounting the speaker in the side of the case. Also, the speaker may be stood some distance from the tape deck, thereby reducing vibration to a minimum.

Ease of servicing is one of the important features to be looked for in any tape recorder. In this model both electronic and mechanical sections have been well laid out, and most components are easily accessible.

There is no automatic stop when the reel comes to an end, and this will result in the tape end detaching itself from the empty spool unless stopped manually. A minor criticism which does not affect the recorder is that the microphone supplied had an all-metal plug instead of being insulated. This is surprising, in view of the excellent safety precautions taken regarding the recorder itself.

In conclusion, the WyndSOR "Viscount" is considered to be excellent value for money, and will give satisfactory results to all who require a recorder for general purposes.

CHARLES LANGTON

NEWS FROM THE CLUBS

The Federation

AMBITIOUS plans for an extension of the activities of the Federation of British Tape Recording Clubs have been laid as a result of a recent meeting in Coventry.

The Federation is going to sponsor Tape Recording Weeks in various cities of the British Isles. These will take the form of demonstrations, lectures and special events. In this way it is hoped to help local enthusiasts to form clubs and to bring the Federation to the notice of a wide public.

The first week is being held in Leicester from November 24 to 29. *Tape Recording Magazine* has promised to co-operate closely with the Federation in sponsoring these events.

Sub-Committees have been formed to co-ordinate more closely the Federation's work in particular areas. The Southern Sub-Committee consists of John Amphlett and Alan Stableford; the Midlands of Roy Penfold, Brian Race and Malcolm Simmons. In the North Brian Spring of the Glisterspring Network and another member of the Federation will look after local events.

The Midlands Sub-Committee is already making preliminary arrangements for the Leicester Tape Recording week. Bernard Laycock, Librarian of the London Tape Recording Club has been co-opted Librarian of the Federation.

London

TWENTY-ONE members attended a recent meeting of the club and heard recordings being made of the second tape to be sent to the crew of the South Goodwin Lightship. The programme is being produced by the club's Tape Productions Committee. Several new members have been welcomed, and additions made to the club library.

Merseyside

MERSEYSIDE Tape Club has recently been formed and proposes to hold a public meeting to recruit members. Honorary Secretary, Mary Reilly, 11 Speke Hall Road, Liverpool 24.

Warwick and Leamington

THIS society has been very occupied during the summer months making outside recordings, one of which was the march past at the Jubilee Celebrations of the Territorial Army in Leamington Spa.

At a local "Teenage Cavalcade" members operated a small outdoor studio where members of the public made voice and group recordings. The society has recently sent a seven-inch spool containing greetings to a World Tape Pals member in St. Kilda, Victoria, Australia. The Australian club in turn are sending a sound magazine to the society.

This contact between England and Australia has caused widespread interest among members and it is hoped to expand such links. Monthly tape contests within the Society are being started shortly. A further tape has been sent to Bournemouth Club and the Society is only too anxious to contact other clubs. Secretary, D. V. Randle, 4, Edmonscote Road, Leamington Spa.

Dundee

DUNDEE Club compared items of equipment including a Vortexion recorder, a Grundig TK5, a Ferrograph, Mark II and Mark V Brennels, and two Philips machines at its last meeting. At its next function the Club is hoping to compare the two battery portables, the Fi-Cord and Stuzzi. They are moving into new club premises in which they will have three rooms in which to work. Secretary: Charles Aitken, 59 Strathmartine Road, Dundee, Angus.

Bournemouth

FIRST autumn meeting of Bournemouth Society heard a talk by Mr. A. Tutchings on the basic principles of magnetic recording. Members heard a "Musique concrete" tape by Mr. H. Jones.



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Luton

LUTON Society attended the open days at the I.B.C. Studios. They have decided against affiliation to either the Federation or the BTRS as they regard their membership of World Tape Pals as sufficient international coverage. Secretary: Maurice Nichols, 53, Sundon Park Road, Sundon Park, Luton, Beds.

Ulster

AT a meeting the following officers were elected:— W. Patton, President; John Douglas, Chairman; W. Scott, Secretary; E. Logan, Treasurer.

The Club was formed three months ago. It has a membership of twenty-five and expects this number to increase rapidly. Enquiries to 41, Haypark Avenue, Ormean Road, Belfast.

Norwich

NORWICH Society is meeting in future at the Assembly House, Theatre Street, Norwich, beginning October 23rd at 7.45 p.m. On this occasion there will be a hi-fi demonstration, together with colour slides with a tape commentary and films with tape music. The meeting is being held specially to recruit new members and local enthusiasts are asked to bring along a friend. Publicity Officer is Ernest Murrell, 40 Barrett Road, Lakenham, Norwich.

Rugby

FOURTH club night of Rugby Society attracted fourteen members. Mr. Lovett presented a quiz tape record. This will be a regular feature with a prize for the winner who has the most points after six months. This month's winner was R. Longmore.

The Secretary gave details of future events, including a visit to the B.B.C. Studios at Birmingham, Rugby Radio Station, and a series of semi-technical talks on aspects of tape recording which will be given by members and guest speakers. The main item on the evening's programme was an experimental demonstration of recording with microphones brought along by members. Mr. Hartwell, a local engineer, answered questions and gave advice on work he encountered when servicing machines.

Coventry

COVENTRY Club are at present considering a Constitution. Each member is receiving a copy prior to a special meeting. The recent meeting of the club was the best attended so far and several new members were welcomed. Main feature was a film show together with sound commentary spoken by members. Joe Harris, of the Birmingham Cine Society, spoke on the work of his organisation and Roger Smallwood told members something of the work of World Tape Pals.

Halifax

THIRTY members attended the Annual Meeting of Halifax Tape Recording Society. The present temporary Committee was re-elected to office for a further twelve months. Tapes played included those made by the outside recording section and one by a member during his holiday in Majorca. A stereo and loudspeaker demonstration has been arranged for the next meeting. The club will be happy to tapespond with any other clubs. Address of the Secretary is D. Gray, Mount Pellon Vicarage, Halifax, Yorkshire.

Voicespondence Club

MEMBERS are asked to return voting forms for the new U.K. representative as soon as possible. Ron Davies is continuing as London representative. His new address is 15, Fetton Avenue, E. 13. Circulation of "Voices in the Post" continues to increase. Owing to increased U.S. postal rates membership fee for British members has had to be increased to 15s., payable in money orders.

Edinburgh

DAVE JEFFERIES demonstrated a tape he had made of the Edinburgh Military Tattoo at the last meeting of the club. He used the Brenell Stereo Tape Deck and the Fi-Cord Portable Recorder. President Bill Young demonstrated the Stuzzi Magnette. At another recent meeting members heard a talk on making feature tapes by Secretary Alex Whyte.

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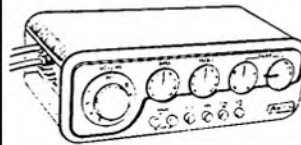
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INDEX TO ADVERTISERS

	Page
Brenell Engineering Co. Ltd.	42
Brown, A. & Son Ltd.	34
Collaro Ltd.	44
C. Q. Audio Ltd.	6
Dickinsons of Pall Mall	6
E.A.P. (Tape Recorders) Ltd.	5
E.M.I. Sales and Service Ltd.	Front cover
Fi-Cord Ltd.	10
Francis of Streatham	8
Grundig (Great Britain) Ltd.	15
"Hatherley"	19
Howard Photographic	2
Hughes, F. A. & Co. Ltd.	30
Jason Motor & Electronic Co.	4
Kingsley, E. C. & Co.	3
Lustraphone Ltd.	12
Modern Techniques	3
M.S.S. Recording Co. Ltd.	8
Norwich Union	7
Perth Radios Ltd.	51
Quality Mart	14
Reps (Tape Recorders) Ltd.	16
R.E.W. Earlsfield Ltd.	6
Simon Sound Service Ltd.	13
Sonomag Ltd.	2
Specto Ltd.	52
Super Electronics Ltd.	4
Sypha Sound Sales Ltd.	4
Tape Recorders (Electronics) Ltd.	26 & 27
Teletape	34
The Recorder Co.	12
Trianon Electric Ltd.	51
Truvox Ltd.	36
Veritone Ltd.	11
Walter Instruments Ltd.	20
Watts Radio (Mail Order) Ltd.	12
Welme: Corporation Ltd.	9
Wyndor Recording Co. Ltd.	40

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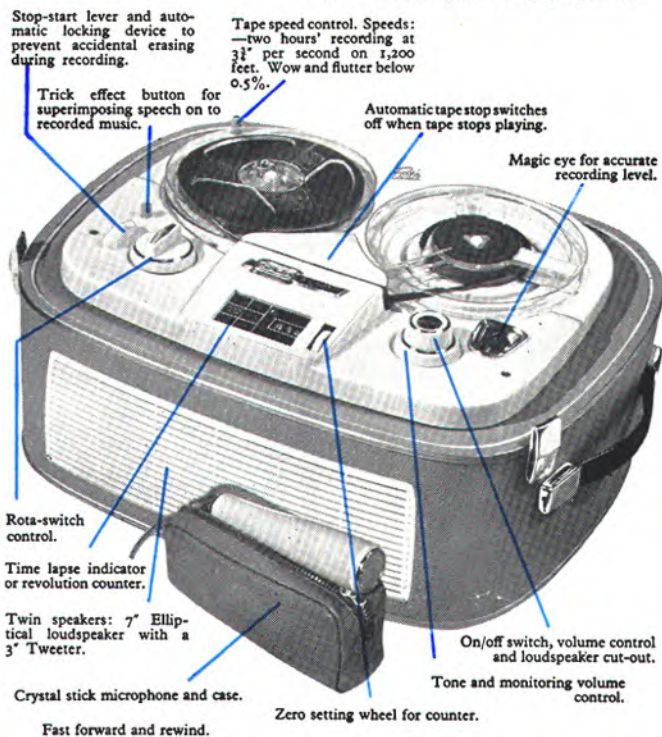
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