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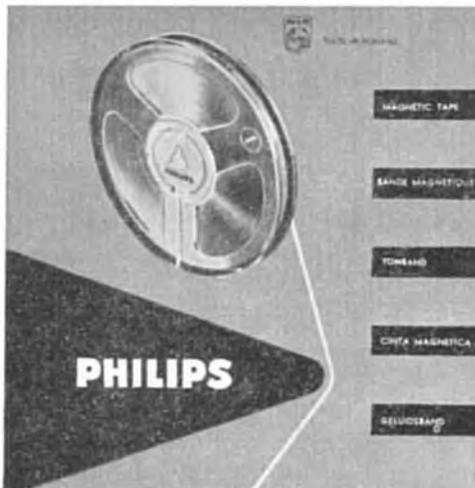
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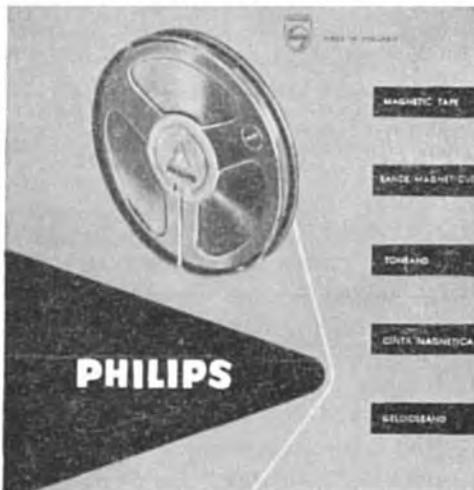
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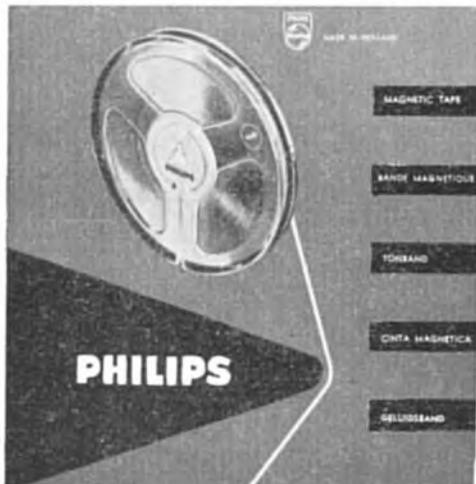
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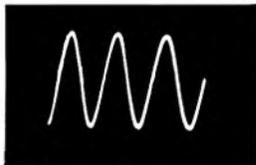
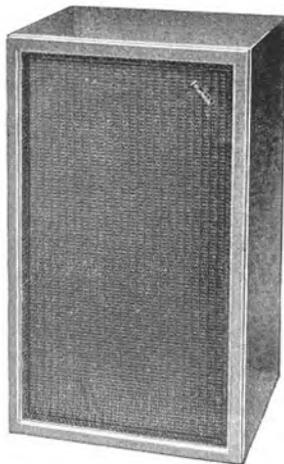
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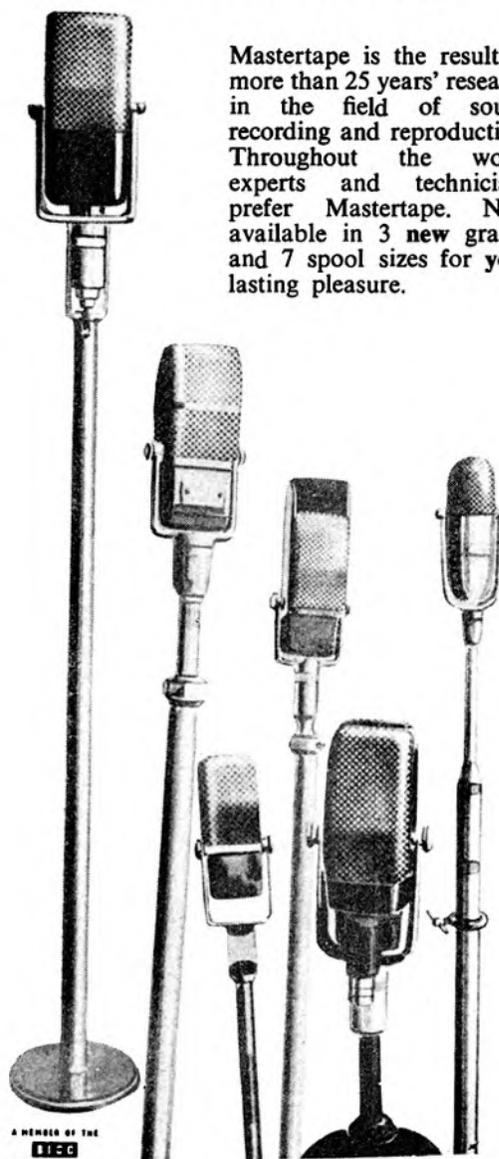
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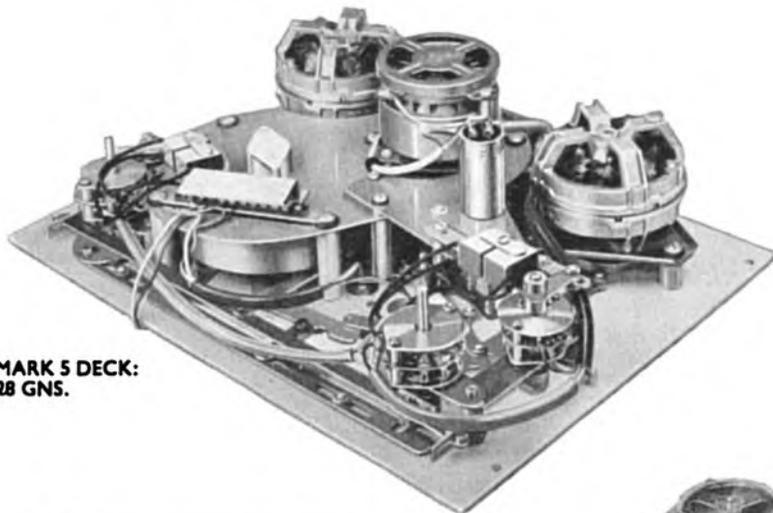
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# TAPE

RECORDING  
 FORTNIGHTLY

Vol. 5 No. 18 6th September, 1961

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# We take the view . . .

## A DIGEST OF NEWS, COMMENT AND EDITORIAL OPINION

AT the time of writing, the Radio Show has still to open; when these words are read, it will all be over. It is necessary to be cautious in our comment, but it seems certain at this stage that there will be less of direct interest to the tape and hi-fi enthusiast in this Show than has been the case in most recent years.

The big radio firms have again given a sign that they are seriously interesting themselves in tape recording, but we have seen these signs before and they have meant very little. Bush and Philco have introduced their first tape recorders; Ekco, Kolster-Brandes, Ferranti and Fidelity were also billed to show popularly-priced models.

The only recorder that breaks new ground seems to be the Simon SP5, illustrated in our last issue and described in more detail elsewhere in this one. Apart from Simon, Elizabethan and Tape Recorders (Electronics)—with new low-priced models to show publicly for the first time—were the only well-known tape recording specialists to make a show at Earls Court.

### Common Market

BRITAIN has begun her negotiations with the European Economic Community for membership of the Common Market and manufacturers in all fields in this country need now to consider the effect on their business if we join the Six.

What about the magnetic recording industry?

In some ways, its situation is unique. Grundig have always been the pace-setters in this country in the past. Now Philips and Telefunken have established themselves firmly, too, and are offering strong competition.

In the mass-sales price range, no British manufacturer has yet been able seriously to undermine the position of these giants.

In one sense, then, the British industry has already taken the main shock of Continental competition.

If we join the Common Market,

however, I think we may look for much keener price competition and the Continentals, with much bigger production runs, will probably cause us a good deal more worry.

British firms who will be best able to hold their own in the new circumstances will be those who have concentrated on quality and who have paid more attention to building up an efficient exporting organisation, rather than those who have aimed solely at a "soft" home market.

All in all, the customer stands to benefit.

### Stereo Radio

FIRMLY convinced as I am that stereo will never boom here until there are regular stereo radio transmissions, I have been very interested to study the effects in the United States of the approval by the Federal Communications Commission of a standard for stereo broadcasting.

First indication was of a real shot in the arm for the industry. The tenth Chicago Annual High Fidelity Show was brought forward to catch the anticipated public enthusiasm at its peak.

The American Tape Recording sounds a cautious note. First problem is whether radio stations should go ahead and spend the considerable sums needed for multiplexing equipment or wait awhile until manufacturers have turned out a bigger range of tuners to get the programmes? The tuner manufacturers, of course, look at it the other way: shall they go ahead rapidly, or wait on more stations transmitting?

So, after one whole month, only three stations were on the air, each with one hour of stereo material each day. And less than a dozen firms had announced new tuners or adaptors.

It is clear that we must wait some time yet for a decision on European stereo radio.

Meanwhile, the minority of stereo enthusiasts expands steadily. To cater for them, we shall publish, in our next issue, another of our special stereo supplements.

### LAUGH WITH JEEVES



“.00001 per cent of wow and flutter, but I can't get rid of the hum”



# Tom Wheatley's

## NOTEBOOK

**E**ARLIER this year I took part in one of the BBC "Sound" programmes with the Editor and Johnnie Ford. This particular edition, the final in that series, included a talk on travel with a tape recorder, and as I listened to the repeat broadcast, I mused on those enthusiasts who were perhaps unable to hear the programme. Many may have been on holiday at the time, and may since have found some of their tapes have been spoilt, sometimes completely erased, by an unknown factor. This is not an unusual claim, and we are constantly being asked for information on the subject.

During holidays, the enthusiast is more than likely to make a sea or air trip. And it is with such modes of transport that the erasure of a recording is likely to happen. It is, of course, due to the strong magnetic fields which are present, and which can ruin precious tapes. For instance, what may be thought a convenient resting spot for a tape recorder on board, may, in fact, be the cover for a winch motor. It could be switched on whilst your recorded tapes are there, and a strong magnetic field extended through the casing to your tapes.

Another snag, not so widely known, affects recording on board ship. It is advisable to monitor quite frequently. The ship's transmitter may be operating, and by its nearness could superimpose a signal on top of your recording. Radar signals can play havoc, too. Once I was using an EMI L2 on board a frigate during a NATO exercise at sea, when a sequence was required on the bridge. Some fifteen feet above, the radar aerial kept up its everlasting rotation, watchful and silent as usual.

Fortunately for me, I checked the recording achieved, before vacating the bridge. On the headphones I heard bits of the recording just made, but with gaps which appeared in a regular sequence.

Checking the entire tape through, including the recordings made earlier, I found a wedge-shaped section of the programme material had been completely erased each time the radar aerial had swept through the position where I was ensconced on the wing of the bridge. The transmission was very high frequency of course, and to show how rapidly it had attenuated, the outer diameter of the tape had suffered over some 15 degrees whilst the inner section near the hub, only over two degrees.

Experiments followed right away, and it was found that the deck below, indeed everywhere else on the ship, was immune from the radar interference. This type, is a form of high frequency erasure—low frequency AC and DC apparatus, can cause disaster also.

Some years ago a very exclusive programme for the BBC recorded in New York was flown to London for transmission the next day. The producer had taken it to the studio for checking contents etc., and found that there was absolutely nothing on the tape—all 2,400 ft. of it. Naturally a major investigation took place.

### When a recording disappears

The New York engineers swore that it had been all right when it had left them, and our man was equally certain that nothing had happened to it here. So what *had* caused the modulation to disappear? The reason put forward in the end was that the tape had been placed in close proximity to the aircraft's electric generators which were under the floor of the compartment. The magnetic field generated had erased the programme. A similar thing could occur on a train. We always asked users to keep their tapes on the seat whenever possible, they were then less likely to become involved with stray fields in this situation.

If you possess a bulk eraser, try this experiment for yourself. Using a tape with good strong signals recorded on it already, and which you no longer want to keep, run it halfway forward so there is part of the recorded tape on each reel.

Switch on the eraser and lower the right-hand reel on to its spindle. Give it the usual complete turn, and remove it. Next put on to the spindle of the eraser an empty reel to act as a spacer. Now place your left hand reel on top of this spacer and rotate it as before. Remove this, and rewind it on to your machine.

When you play through this experiment you should find that the first half is completely erased whilst the second half is much reduced in volume but by no means erased. This shows the magnetic field has to be intense and delib-

erate if full modulation is to be completely removed.

A recent letter came from a reader who told us he had received a tape from overseas with no modulation on it. It seems likely that his trouble was the same, although, he was advised, it is always best to playback both tracks. It does sometimes happen that a tape is despatched, without being rewound and the correspondent may have listened to the unrecorded track. It seems too simple an error to be believed, but when one is used to full-track work it is very easy to forget about the other track in amateur work.

How then to protect a recorded tape in transit? Unfortunately, a metal case of some non-magnetic material, such as brass, copper or lead alloy would be expensive or weighty. A tin film case or commercial tin would give some measure of protection as well as providing a neat parcel, but the tape should be packed so that it is held centrally in the container. Cardboard, plain or corrugated will serve. I do not wish to cast too gloomy a picture on this aspect, however, for many hundreds of tapes are in transit every day, and in my experience few have come to grief. My advice is to keep them with you whenever possible whilst travelling and be a bit careful at home. Do not be tempted to fit a neat tape storage compartment in that loudspeaker enclosure you are making.

There is another storage hazard known as "printing" but more of that some other time.

### RADIO INTERFERENCE

Other letters received show that readers are having trouble with interference picked up from mobile or other radio sources. Police, fire, ambulance vehicles and taxis are usually the source. A bit of a nuisance, of course, but being mobile they are likely to clear off and take their interference with them.

Ignition from motor car engines is another form of high frequency transmission, although this is more of a nuisance to television than recorders. In this age of almost universal television I think suppressors on all internal combustion engines should be compulsory. It is not the cost that prevents them being fitted, but a stubborn refusal to shoulder responsibility for a nuisance which could be easily avoided. My experience of radio interference is that it only spoils a recording if very close, a few yards away for instance. It is worse with valve amplifiers than with transistor equipment.

One solution is to try a high frequency choke. Wire it into the first grid circuit, right up against the valve holder grid tag, having disconnected the component first. Wind about 25 turns of a fine wire, say gauge 26 cotton, silk or enamelled, on to a lead pencil as a former. Dope it with shellac or nail varnish leaving a tail at each end to be cleaned of insulation. Wire one end on to the grid tag and the other on to the component displaced.

You could do a lash-up test without touching the circuit wiring by connecting the choke in series with the microphone, live side of the microphone plug or socket. Naturally a fully screened metal container for the recorder would reduce the likelihood of unwanted radio pick-up.

# **As a new school year approaches three experts on recording for education get together . . .**

# **CAN ONE PLAN A YEAR AHEAD ?**

The Editor of our "Tape in the Schools" feature, Geoffrey Hodson, recently invited an experienced Junior School teacher, Glyn Harris, and an experienced Secondary School teacher, Graham Jones, to say how they had set about planning their school recording activities for the coming year. Their recorded conversation ranged over a number of topics, and this is the first of two transcribed reports.

HODSON: First of all, do you think it is possible to plan a year ahead?

HARRIS: I think a Junior teacher always has to think ahead, and plan to a certain extent all his work. But as far as the tape recorder is concerned, I think it ought to be something there to be used, something to help, a teaching aid—rather than something that one *plans* for. When I am planning my year's work I don't think in terms of the tape recorder. But as the year goes by, and throughout the year, I think "Is a tape recorder going to be of value? Is it going to help?" Not, "Is it going to help me?" but "Is it going to help the children?"

JONES: I think it is possible to plan a little more than that, in the Secondary school at any rate, and at least to have in mind some idea of the sort of programme one would like to do if the occasion arose. But I do agree you should never say to the class, "We are now going to perform on the tape recorder and this is what we are going to do." Rather, I let the excitement and interest come from the class, and then perhaps mould their thoughts and ideas a little to canalise them in the lines I first thought of.

HODSON: Can we have some specific ideas for each of the terms of the year?

HARRIS: Well, the obvious things that spring to mind in the first term, the autumn term: Guy Fawkes Day—using music and movement, the children producing their own sounds of fireworks and then moving to them; Harvest Festival—recordings of the service itself, possibly inviting visitors, such as old people, along, and getting

their comments either on the service or on what school was like in their day—then building this up into a magazine programme; changes in nature—hibernation, migration, and so on; Halloween—again, wonderful scope for drama for recording the children's own effects.

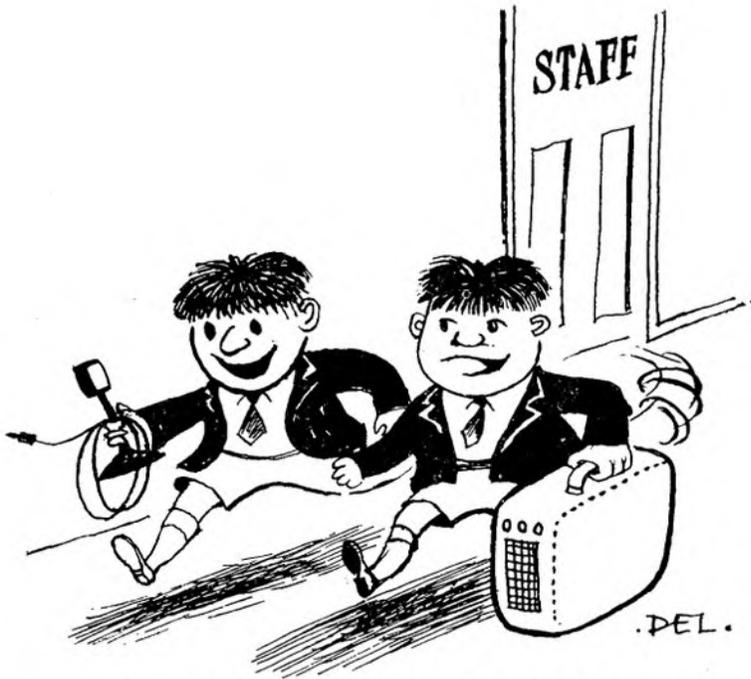
At the beginning of the autumn term, one can very often bring the adult to the tape recorder—for instance, if a member of the staff has had a holiday overseas they can talk about their experiences; if by good chance they also have recorded sounds on a battery portable, these can be built up into a programme. We have somebody in Yugoslavia at the moment with a Grundig TK1 and we are hoping to develop a programme from the recordings. What else? Seasonal workers—hop-pickers, potato-pickers.

And then, leading on to Christmas, the tape recorder is invaluable in a nativity play. If you have a number of mimed sequences, the choir and other music can be recorded at quite an early stage in the rehearsals, and the mime rehearsals can then go on without the whole group.

JONES: It occurs to me at this point that many people say that what you can do in a Secondary school you can't in a Primary, and *vice versa*. But what has just been said proves quite conclusively that the two kinds of work run along parallel lines. Certainly, the Halloween and Guy Fawkes ideas can be used in a Secondary school. The difference is, of course, that, as you have the same group of children practically all the week in the Junior school, you are much freer to seize a topical moment, be it in tape recording or in anything else. Meeting a class perhaps only once or twice a week in a Secondary school is a bit more limiting.

However, one idea I think we may use in my own school for Christmas is to get the boys to illustrate in painting the sequences of the Nativity story. And to say then that they are making on paper a large film strip which they can put on to wooden rollers made in Woodwork. Finally they would tell the story to the pictures that they

## TAPE in the SCHOOLS



“Now we'll find out what really goes on in there!”

have painted, and they can also provide music, either by singing or instruments. That's my idea for a Christmas programme this term—with a backward form.

HARRIS: May I say here that many people isolate the tape recorder and think of it being used purely for speech or for music. I think this is wrong, because very often the tape recorder can be used to provide a link—as in your Christmas idea. For another example, if a teacher wanted the children to perform a mime of a circus—recorded music links, recorded speech links, and children actually providing music on the spot, can all be worked in together. I think the teacher must bear in mind that the tape recorder is not something that comes out to be used as a lesson. It can be used so often as an incidental link.

HODSON: Well, Graham, what ideas have you got for us for the spring term?

JONES: I am planning a project with a senior form. I hope we will do a commentary with music to an athletics film that has been made in the school. This will lead on to sports reports and so on in the summer term. But, you know, it isn't easy to be specific about what you are going to do and when. It isn't like drawing up an English syllabus. It's a matter of sitting down in the summer holidays and having a series of

ideas—seeing where they will fit in, and rejecting those that might not.

HARRIS: Yes, and in the Junior School I think even more important is to see things as they arise, using one's ears instead of just relying on eyesight. I think that you realise suddenly that here is something going on where the tape recorder would be of inestimable help, and you use it. You don't think ahead that you are going to use it here; but something happens and you say, “This is it,” and you use the tape recorder. For example, at the Harvest Festival last year we knew the old folk were coming. It was not planned there would be a recording, but, once there, it seemed to be the obvious thing to do.

JONES: Yes, we had an occasion when suddenly the tape recorder appeared to be providing the focal point of excitement, earlier this year when the school moved to new buildings. During that time we did more reports and discussion programmes about the school move than we had on any other topic before.

HODSON: Nevertheless, you have both made it clear that a certain amount of planning or thinking ahead or what-you-will is possible. Glyn, what about the spring term in the Junior School?

HARRIS: Winter games and sports—commentaries, reports back after the games. The sounds of spring—a

wonderful opportunity to take children out into the country and let them record the sounds of spring. A portable battery machine is needed here; in fact I think it is an essential item of school equipment now. The Easter Festival. This time of year one would probably want to bring people into the classroom. If this is not physically possible, one can either take individual children out to interview people, or the teacher can do the interviewing and bring the results back to the children. Shrove Tuesday. What about spring cleaning? It might form quite an interesting beginning to start with tape comments from parents on spring cleaning, and see where this leads. Sheer propaganda—an interview included in a regular magazine programme; at this time of year, an interview with the caretaker about his methods used to keep the school warm and clean. Here one can use propaganda to keep doors closed and so on.

JONES: I would like to take you up on a couple of points there. Propaganda. Your Junior children may accept it, but when they come up to us they suspect everything! And you say regular magazine programmes, and yet you said earlier on, “You don't think ahead that you are going to use a tape recorder,” whereas a regular magazine programme implies just that.

HARRIS: No, the phrase “regular magazine programmes” means this. I don't collect all material with the thought that this will be used—the people are going to hear this. Very often the tape recorder is used merely as a means of getting people together and getting them to develop their imaginative powers. Now sometimes what they record is of value, and one feels that other children ought to hear it. Well, I collect these tapes, and when I have enough for a quarter of an hour or twenty minutes tape magazine, I build one up. So one doesn't begin with the idea, “I am going to do a programme that will consist of this and this and this.” One merely records, and when one has sufficient material, one builds a programme.

*(The concluding part of this discussion will be printed in the next issue.)*

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# FROM RECORDING TO CINE

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Part two of a new series by Richard A. Margoschis

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## MAKING THE FILM

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WHILE I do not want to discuss the making of films in great detail, there are points which should be borne in mind when film is being shot, in order to simplify the later process of making the sound track. To have a fair idea of your final film and sound track is half the battle.

For instance, if the film script requires that two people should be seen, and heard, in conversation, the difficulty of lip synchronisation can be overcome by arranging that the camera is filming the *listener*, over the shoulder of the speaker. When a reply is made, the camera position is reversed. The scope of this method is, of course, limited and depends to a great degree upon the capabilities of your actors.

If you wish to film somebody at work, and have him describing what he is doing, lip-sync is not essential, provided that he is not moving his lips when you film him. What is necessary in such circumstances is that you should have sufficient film of each sequence to allow it to be cut to cover the time which it takes him to describe that sequence.

It might, therefore, be better to record his description first, check the time required for each sequence, and film accordingly. The fact that the film takes longer than the speech need not matter so much, for the tape can later be made to fit the actions.

Because the amateur does not enjoy the same facilities as the professional, there are many occasions when one will film without shooting a script at

all. As a matter of fact, most of my work has been done in this way.

My filming, mostly of a documentary nature, is done mainly in holiday periods when I often come across a subject unexpectedly. There is little time for detailed arrangements and I simply have to take what comes. In fact, you cannot expect a craftsman, for instance, to give up too much of his time for your benefit, and a procession or dance will not wait for you to change from one position to another.

It is possible, however, even in a very limited time, to get to know the main points of any craft or ceremony and to formulate a rough shooting sequence in your mind as you proceed. Later, your commentary will have to be made to fit your edited film, and a few notes made at the time of shooting will be of great assistance in this work.

## EDITING THE FILM

The preparation of the sound script cannot be completed until the editing of the film has been carried out, but the two jobs are complementary, and should be treated as such.

I suggest you should first spool up all the film you have available, keeping together all shots of any one particular subject or sequence, and then see it on the screen a couple of times. You will be able to remove any shots which do not come up to standard—but keep them by you, just in case you find later that you have no alternative but to use them. Watch the film again, until you know by heart exactly what you have to work with.

You can now proceed with your film editing. As you carry out this work, bear in mind the type of commentary and/or musical background you intend to provide. Again, notes of ideas which come to mind as you cut the film are well worth while.

By this time the film will have been broken down into sequences or, if you like, Acts and Scenes. At this point I would like to pass on a tip.

Progress from one sequence to another is often assisted by a fade or a fade-mix. This is a process difficult for the amateur, but it can be simulated in a simple way, by the use of black Sellotape. A piece of this thin tape is stuck along the film ( $\frac{1}{8}$  inch tape is just the right width for 16 mm. film) over the last eight frames of one shot and the first eight frames of the next shot.

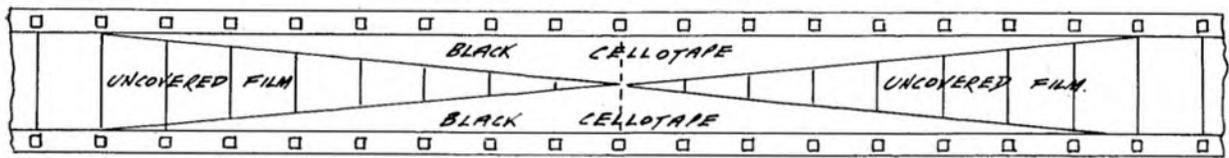
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It is an amazing fact, when you think about it, that in these days of intense mechanisation so many horses are at work daily, and doing such varied tasks, in the greatest city in the world. Music UP (10'30")

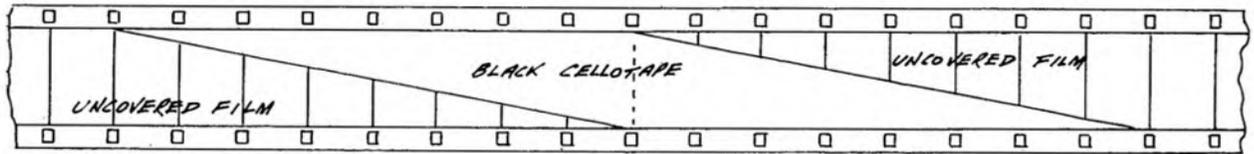
\* \* \*  
11'15" From this great city the camera takes us 300 miles south west to the little town of Padstow in Cornwall, from real live horses to a Hobby Horse, and, it seems, from the present to the past. May the first has always been a time for celebrations but Padstow's May Day Festival is unique in this country and its antiquity carries us back to pagan days. Even the decorations, which are as much of green leaves and flowers as they are of flags and bunting, are a link with the past, for it was a pagan belief that green leaves contained the good spirits of life, and so each year they were attached to the houses to drive away evil spirits and to welcome the warmth and fragrance of summer (12'01") Early in the morning the childrens Horse is seen parading the streets as a prelude to what is to come. MUSIC UP (12'07")

\* \* \*  
12'23" Soon after ten o'clock a rattle of drums tells us that the real 'Obby 'Oss has started his day long dancing through the streets and, accompanied by a party of dancers and musicians, is making his way to the quayside where the first complete sequence of the dance is performed (MUSIC UP).

*Extract from a typical sound script*



A - MIX EFFECT



B - WIPE OFF AND ON.

Figure 1—Two methods of securing “fades”

By means of a rule and sharp pointed pen-knife the tape is scored along each side of the film just inside the sprocket holes, taking care not to cut into the film, and the tape peeled off the holes. In the same way now cut two Vs in the tape as shown in Fig. 1a. It will take one second for this to pass across the screen and its effect is quite remarkable. A wipe on and off can be done in a similar way, Fig. 1b, the duration depending upon the length of tape used.

I have used this method extensively on my 16 mm. film and see no reason why it should not be applied to 8 mm. film. On 9.5 mm. film, however, the centre sprocket holes would cause difficulty.

## TIMING THE FILM

Before proceeding with the preparation of the sound script it is now necessary to time the film, and it is essential that this timing should be very accurate. For the purpose of this article I am presuming that the film will be run through the projector at a speed of 16 frames per second, this being the accepted standard speed for the projection of all silent “sub-standard” sizes.

Although I am dealing primarily with the use of a tape recorder to add sound to film, I feel that I should mention the use of magnetic stripe. In this method, one edge of the film is coated with a stripe of magnetic material similar to that used on magnetic tape; the other edge of the film carries a narrower stripe for balancing purposes.

A special projector fitted with mag-

netic erase and record/playback heads is required, and such a machine will usually deal with optical sound tracks as well.

The point is that films carrying optical sound tracks are projected at 24 frames per second, and so, with these machines, you have a choice of two film speeds; one equivalent to 4.8 inches per second and the other 7.2 inches per second. As is the case with tape, the higher speed will give greater quality, but it will require 50 per cent more film to shoot at 24 frames per second—quite a consideration in cost.

One method used for timing the film

is to project it on to the screen and time each shot against a stop watch. Shots can vary from as little as two seconds to anything up to twenty-five seconds.

I am unable to see how one can hope to make a list of the shots and time them accurately as the film runs through. If you do try this method you must be sure that the projector is running precisely at 16 frames per second from beginning to end.

Actually you have to do two jobs; one is to make a list of every shot in

(Continued on page 14)

Shot No.	Description	No. of secs.	Total Film Time	
			mins.	secs.
138	Very small pony and cart	5	10	34
139	Open wagon—1 horse—by “Courage”	12½	10	46
140	2 horses drawing open cart “Worthington”	8½	10	54
141	4 horses drawing open cart “Gilby”	12	11	06
142	4 horses drawing removal van by Hamertons Padstow Hobby Horse Dance (6 mins 46½ secs.)	7½	11	13
143	Cross being fixed in decorations	5½	11	19
144	Boy at foot of ladder	1½	11	20
145	Cross being fixed and boy at foot of ladder	7	11	27
146	Davy with bunting	5	11	32
147	Greenery being brought up	7½	11	40
148	Raising archway across street	7½	11	47
149	Pan down Maypole to square and decorations	8½	11	55
150	Decorations in square	6	12	01
151	Children's Hobby Horse in street	8½	12	10
152	Children's C.U. of horse	4¾	12	15
153	Children's general view	7	12	21
154	Leader and Band (Big 'Oss) coming along street	7	12	28
155	C.U. accordion	1	12	29
156	Leader and Band coming along street	4½	12	34
157	C.U. Drums	3½	12	37
158	Dancers and 'Oss coming along street	10½	12	48

Table of film sequences

# TAPE AND CINE

By Richard A. Margoschis

(Continued from page 13)

its correct sequence and the other is to note down the exact timing of each shot. This can be done in comfort without the use of any projector or time-piece if we use the fact that the film must pass through the projector at 16 frames per second.

You will find it worthwhile to have a pair of rewinders, mounted on a board. Take a length of your film and mark out on this board the distance occupied by 4, 8, 12, 16, 32, and 48 frames, more if you have room for further multiples of 16. These divisions now represent  $\frac{1}{4}$  sec.,  $\frac{1}{2}$  sec.,  $\frac{3}{4}$  sec., 1 sec., 2 secs., 3 secs., and so on, at a film speed of 16 frames per second.

Mount a spool carrying the entire film on the left hand winder and thread across to the right; it is now a simple matter to slowly transfer the film from one spool to the other, timing each shot against the measure. As you do this you can note down on paper ruled for the purpose the length, in seconds, of each shot, odd portions of a second being allowed to mount up and be added in when they account for a whole second.

The time is entered against a brief description of each shot, which will greatly assist preparation of the sound track without frequent references to the film.

Reference to the accompanying table will illustrate this procedure. It will be seen that both the actual time of each shot and the running time of the film to any particular point is readily available. From this it is a simple matter to determine the running time of any sequence containing a number of shots.

One other advantage of this method is that it greatly reduces the handling of the film which can easily receive physical damage.

In the next issue I shall consider various types of sound track.

AS previously mentioned this equipment is capable of providing either AM or FM picture information. Both the AM and FM modulator circuits are contained on the optical unit (see Fig. 4) and in point of fact, share a common sub-carrier oscillator.

The circuitry described under this heading enables pictures to be produced which are fully compatible with the American "upside-down" format, i.e., the synchronising pulses are positive and allow between 30 and 50 per cent higher sub-carrier level than peak picture content. The picture is positive going black and, therefore, the synchronising pulses may still be referred to as "blackier than black," as with the British system. Advantages claimed for this system are that precipitation interference is less apparent and it avoids the formation of large de-focused spots superimposed on the picture.

Large positive mixed sync pulses from the synchronising generator are fed into the right-hand grid of V1 (see Fig. 4). The picture information, also positive-going (corresponding to white), is fed into the left-hand grid. The valve is connected as a cathode follower and mixed video and synchronising pulses appear in the cathode.

The relationship between these two amplitudes can be adjusted independently by means of the two controls available as trimmers on the front panel. The output from the picture/sync mixer appears at low impedance, and is connected across a twin diode half-wave modulator. As both the sync and picture information is uni-polar with respect to earth it is not necessary to resort to a ring bridge modulator. The circuit shown has proved entirely satisfactory, modulation is done at high level and the long-term stability is extremely good in respect of "zero" drift.

The setting up is simplicity itself. With neither sync nor picture information present, the standing potential of the cathode of V1 is backed off by means of the pre-set control marked "AM Mod. Balance." Under these conditions the output from the sub-carrier oscillator V11, looks into a very low impedance, whether positive or negative going.

The reason for this is plain to see, for should the excursions become positive the left-hand half of V2 conducts and presents the low cathode impedance of the two halves of V1 in parallel. On negative going excursions the right-hand half of V2 conducts and any sub-carrier is shunted to ground by the .5 by-pass capacitor connected between the trim junction and ground.

Should the cathode of V1 rise positively due to either sync or picture information being present on the respective grids, the left-hand half of V2 cathode is carried out with it. This opens the "gate" between the two diodes and the amplitude of the sub-carrier oscillator appears at the connector marked "AM Out" at an amplitude corresponding to the picture or sync information applied to V1.

## SECOND ARTICLE IN ONE OF THE MOST IMPORTANT SERIES OF ARTICLES ON RECORDING EVER PUBLISHED

J. A. PLOWMAN

tells you how to  
record and reproduce  
a TV picture with  
a domestic tape  
recorder

The 100K series resistor inserted between the twin diode modulator and the sub-carrier oscillator is to ensure that the output of the oscillator is not shorted out when the modulator is operating. The frequency of the sub-carrier oscillator when no FM signals are present is set by the 1K resistor in the cathode of V10. This is marked "Set Black Level" (FM), but, in point of fact, exercises control over the frequency of the AM sub-carrier, as V11 shares duty for both systems.

### Frequency Modulation

The circuitry for frequency modulation is certainly no more complex than the AM counterpart but the insertion of synchronising requires two extra valves. The FM modulator accepts uni-polar negative going video signals at the connector marked "Neg. Vid. Input" (FM). The amplitude of these signals is controlled by the 1 meg. pre-set pot. As described in the AM system, black level frequency is set by the 1K resistor and in this connection the majority of experiments have taken place with black level set at 3.5Kc.

The negative going video appears inverted in the anode of V10, and is direct coupled to the second half of this valve, which is used as a cathode follower. The grid returns of V11, which is free running, are both connected to the cathode of V10 and it follows, therefore, that the frequency of the sub-carrier oscillator will depend to a great extent upon the potential of V10 cathode.



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# ENSURING GOOD SPEECH BALANCE

PROBLEMS OF BALANCE - 4 - BY ALEC NISBETT



A GOOD speech balance, one might think, ought to be the easiest thing in the field of sound recording. But is not always so easy as all that. There are so many things which can go wrong that making a really good recording of speech can be quite a struggle—and in fact there will be many circumstances in which a good recording will be impossible, and it will be a matter of effecting the most satisfactory compromise.

In a good balance the voice should be clear and natural sounding, reinforced and brightened a little by the acoustics of the room that is being used as a studio. And the listener should not be distracted by extraneous effects.

The three factors upon which speech balance depends are the voice itself, the microphone and the surrounding acoustic conditions. Any of these can cause trouble. For example: the microphone should introduce no harsh edginess; there should be no excessive bass (due to working too close to a directional

microphone) or boom (due to working too far away in unsatisfactory acoustics), and so on.

But let us assume for the moment that we have chosen a microphone, and are familiar with the ways in which it may be used. Working under "studio" conditions this may well be a bi-directional (i.e., a figure-of-eight) microphone—usually a ribbon. When the acoustics are fairly good, this is the microphone that offers most promise of using them to advantage, so most of what follows has been written with the ribbon in mind—but much applies equally to omni or cardioid types.

The microphone chosen, we are left with just two main factors: on the one hand the level and quality of the voice itself, due to the way in which the speaker is talking; and on the other hand reflections from the walls and the various types of intermittent and background noise which may also be reaching the microphone.

The first thing to think about is: how quiet a speech level can you take? This is important because many speakers prefer to talk fairly quietly and will only give their best in other ways if they don't have to worry about voice level too much. Also, faced with a microphone which seems very close—closer, certainly, than most people



## The right—and wrong—ways

1. **WRONG:** Top picture shows BBC Studio Manager Peter Flemington demonstrating several common faults in microphone balance when using a ribbon microphone. He is too close; working less than two feet from the microphone there will be a marked bass tip-up on his voice. His head is down, so that speech reflected from his script will interfere with that taking a direct path. (The table itself is acoustically transparent.) There may be no alternative to a table stand, but a slung microphone would save worries about microphone bumps due to the table being knocked. And that tapping pencil! 2. **BETTER:** In the centre picture the distance is satisfactory, provided there is some bass correction in the circuit (female

voices might well be satisfactory without). But is the script shielding the microphone? It would be better held a little to the side of the microphone.

3. **GOOD:** In the picture on the left the microphone is being set up for Ken Sykora during a rehearsal of "Thursday Roundabout." Ken is holding his script up and is speaking towards the microphone. There will be no trouble with bass tip-up.

Incidentally, this picture also shows (on the table) a reverse talkback microphone and key, which are independent of the programme circuits so that the compere can speak to the producer during transmission. By means of a further independent circuit, "transmission talkback," the producer can also speak to the compere. If the studio loudspeaker is switched off (as happens automatically when the microphone is faded up) the compere can still hear talkback on headphone—and on some programmes ("Sports Report" for example) this can be used to feed a continuous stream of information and instructions to the compere, even while he is talking.

(BBC PHOTOGRAPHS)



# ENSURING GOOD SPEECH BALANCE

PROBLEMS OF BALANCE - 4 - BY ALEC NISBETT

**There are two distinct problems when recording speech: how to balance for a pleasant combination of direct and reflected sound, and how to avoid unwanted noise and noises. You can't start work on the first of these two until your main problems with noise have been solved.**

would stand for an ordinary conversation—many people tend to drop their voice to a confidential murmur. (Of course, when an omnidirectional microphone is used only a few inches from the speaker's mouth, this tendency will be taken to an extreme—but as close working means we should still be getting adequate recorded level it does not matter quite so much in this case.)

Speakers can, and should in many cases, be encouraged to talk not to the microphone itself but to some other person sitting or standing at a normal conversational distance on the other side of it, and who may or may not be taking part in the recording. Even this does not always work—and there are cases where for the good of the programme as a whole it is undesirable to press the matter. But it is always worth giving a little thought to the problem.

Bear in mind that, in extreme cases, the speech may be at such low level that considerable amplifier gain has to be used and noise from the first stage becomes apparent. Or there may be noise from the microphone itself, or hum due to induction from stray fields—or alternatively, there may be tape hiss due to setting the gain too low. Any of these can seriously mar a programme.

A measure of this problem of noise (of all varieties) is given by a comparison of relative gain settings used for speech and, say, piano—using the same microphone in the same studio. The difference may easily be about 20dBs; so, if a piano stool squeak can spoil a piano recording, just think how much more difficulty we may expect with speech.

Whether "background" noises are acceptable or not depends on the purpose of the recording, but for many purposes (e.g., studio narration, "straight" talks, plays, etc) they are not. The answer is to make a trial recording to see the problems that have to be faced—and from then on, just watch as critically as possible for sounds which could cause trouble.

The trial recording should show up whether or not room "atmosphere" itself is obtrusive. By "atmosphere," by the way, we mean the ambient noise level which pervades even the quietest of rooms; and some check is needed to see whether voice-level or

balance will have to be changed to discriminate against this.

If a directional microphone is being used this may boil down to choosing the lesser evil, as closer working will introduce bass tip-up, and more voice may be against the best interests of the programme. (The sort of voice quality which stands out really effectively against background noise is more suitable for a commercial than most other types of work—so beware!)

Troublesome noises may find their way into your studio from outside. Even in BBC studios, built to discriminate against these things, difficulties can occur; ventilation systems may carry noise from other parts of the building, or when full on may sound surprisingly noisy when quiet speech is being recorded—simply due to the flow of air. Structure-borne noises are almost impossible to eliminate (again, in BBC studios rebuilding work is complicated by the necessity for avoiding all noisy work when nearby studios are recording or on the air; workmen have to check with a list of times before knocking in a nail).

But however much care is used, there will still be the odd "one that got away." And if such difficulties are encountered in the studios of radio stations, how much more tricky will be the problem in a domestic living-room!

The recordist must always watch for noises which may be produced by the speaker himself. A lightly tapping pencil may sound like rifle-fire when picked up on a ribbon microphone. A slightly creaky chair or table may sound as if it is about to fall to pieces. If they are not noticed at the time of recording, finding the source of these sounds can prove to be a very puzzling business. Many people have small nervous habits which come to light when they are being recorded. For example, retractable ball point pens can be a menace—people will fiddle with them, and when the tape is played back there will be a sharp unidentified click every ten or fifteen seconds.

I was recently concerned to find the source of a loud plop which was ruining a recording—every now and again it came over loudly, peaking on my programme meter as heavily as speech. It turned out eventually

to be coming from a panel in the table, which made a slight noise as the speaker leaned against it, but was practically inaudible in the studio.

Lighting a cigarette is not quite so bad because it is at least identifiable—although a match lit carelessly close to the microphone can be quite alarming. A few smokers involved in a discussion programme can create a sound picture which is more like an opium den or bonfire night than that of a group of sober and respectable people in conversation—and I know one producer who for this sort of programme likes to provide a candle on the table (taking particular care with fire risks, of course). But even then, stubbing a cigarette out can make a very vicious noise.

There are several things which make these noises so irritating. The first is that most people listen to broadcast or recorded speech at a level which is much louder than real life; and a quiet talker is allowed much the same volume at the loudspeaker as someone who almost shouts. So the extraneous noises come up loud as well.

And not only are the noises actually louder than they would be if heard live, but also, heard monophonically they appear to come from the same point in space as the speech. This is important because it is part of the process of aural perception to be able to discriminate against unwanted sound that is coming from a direction different from the main sound on which the listener is concentrating. This is called the "cocktail party effect" (whereby the ear can selectively listen to one voice in a crowd).

A third reason for a noise being irritating is that whereas a visually identified sound slips immediately into place in the mind and is accepted, the unidentified one does not. Many practised broadcasters realise this and take it into account. The comper of a programme like "Today" or "Woman's Hour" will notice that a speaker's movements are not absolutely silent and say, "And now, just coming to sit opposite me, is . . ." and the noise is given a reason and thereby reduced to its proper proportions—so that it will not be consciously noticed by the listener.

# How to tell a recorder

By FRANK HOLLAND

I AM puzzled by the number of visitors to my home recently who, coming suddenly upon my tape recorder, cry, "Oh, is that a tape recorder you have there?" I confess I have no difficulty myself in recognizing my recorder for what it is, but perhaps I have acquired a trained eye over the years.

However, this prompts me, for the benefit of others, to give a few hints on tape recorder recognition which will enable anyone to distinguish a tape recorder from common objects with which it might apparently be confused.

## How to tell a tape recorder from a London bus

Most recorders have a single deck whilst most buses are double-decked. Thus, if you observe a single-decked object travelling along the road, it is probably a tape recorder; conversely, if you discover a double-decked object in your lounge, it may be a bus. Buses cannot be used to record or playback.

## How to tell a recorder from a bicycle

This may prove more difficult than the last test if both your recorder and bike have three speeds. Perhaps the best course is to cease keeping your bike in the lounge overnight and thus avoid further confusion. The presence or absence of a saddle-bag is an additional guide.

## How to tell a recorder from a cherry cake

Prepare two cake tins. Into one, place your recorder. Sieve 8 oz. fr., salt and  $\frac{1}{2}$  tsp. bkg. pdr. into a basin. Cut 4 oz. chrss. into halves and add to the fr. Cream 6 oz. btr. or marge and 6 oz. cstr. sgr; beat in 2 eggs. Add to the fr. etc. Stir, adding some mlk. and vlla. essee. . . . Pour into the second tin and place both tins in the oven. Set to Regulo 12 and bake for 24 hours.

Finally, remove both tins from the oven and study them carefully. The contents of one will be edible. This was your tape recorder.

Once an object has been positively identified as a tape recorder, it should be suitably marked. Some people may find it an advantage to number each object in the room with white paint, e.g., No. 1—Tape Recorder; No. 2—Armchair; No. 3—Dog Kennel, and so on. An index kept in a handy notebook will provide a quick means of reference.

## A SIMPLE DO-IT-YOURSELF PROJECT

SOME months ago I bought a tape recorder and soon my collection of tapes numbered ten. They were an assortment of 3 and 7 inch tapes and, even though each one had its own box, storage soon became a problem.

It was inconvenient to keep them in a cupboard because when one tape was required the whole stack had to be sorted through, and besides this the boxes looked untidy just stacked near the recorder.

So I designed and made a simple rack to hold them. I decided to use polished timber and chose teak, though any hardwood could be used. It is necessary to estimate how many tapes you will eventually want to store. A case 18 inches long will hold about twenty-eight and, as I am not likely to have many tapes, I decided that this size would be quite big enough for my purpose.

### CLEAN SAW CUTS

The rack is made of  $\frac{1}{2}$  x 6 inch timber and if this can be obtained in solid hardwood rather than faced plywood the need for facing edges is avoided. I bought a piece 3 feet 6 inches long. The actual thickness of the timber when planed will be just over  $\frac{3}{8}$  inches.

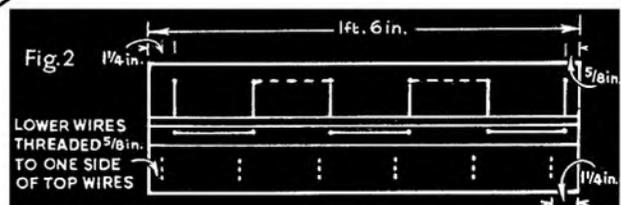
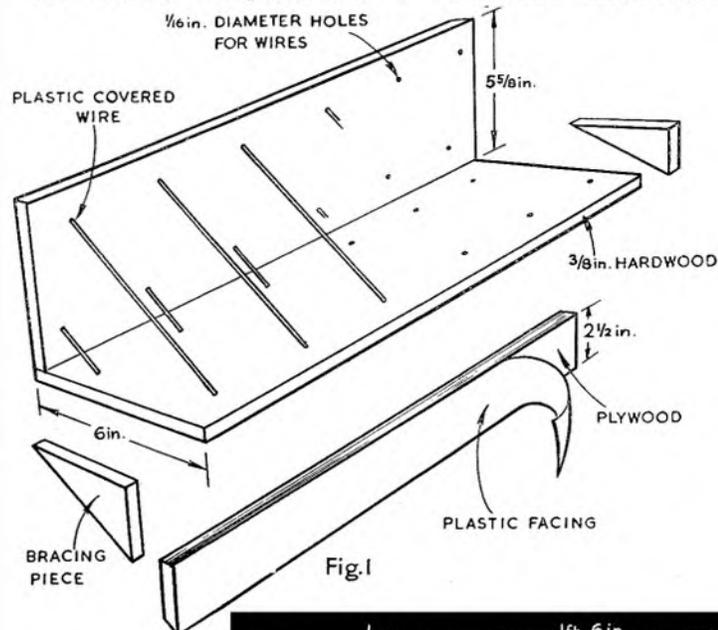
Now cut off two pieces each 18

inches, leaving a 6 inch offcut. This offcut is used to make the two triangular bracing pieces that fit underneath the rack. (Incidentally, since we are working with hardwood which is to be polished, it is essential to use a fine-toothed saw to avoid snagging the timber and to provide a clean cut.)

Cut off from one of the 18 inch lengths a strip  $\frac{3}{8}$  inches wide, or the corresponding thickness of the adjoining piece. When these two lengths are joined together they will now provide two surfaces each  $5\frac{5}{8}$  inches wide. Before joining the pieces, however, mark out carefully the  $\frac{1}{16}$  inch diameter holes, as shown in Fig. 1.

Starting with the holes for the upper wires, make a mark  $\frac{5}{8}$  inches from one end and  $1\frac{1}{4}$  inches from the other and divide the space between into five equal parts. The line of holes should be about  $\frac{7}{8}$  inches down from the top. This set of drillings can be repeated in the other 18 inch length by laying the drilled piece on the other and marking through.

Mark out the next row of holes for the lower wires but reverse the  $\frac{5}{8}$  inch and  $1\frac{1}{4}$  inch measurements to stagger the second set of holes  $\frac{5}{8}$  inches to one side of the first set. Repeat this in the second piece of timber and smooth them down with glasspaper.



# A rack for reels

BY B. POPLAND

Now cut the front upright from ordinary plywood. Keep this  $\frac{1}{8}$  inches shorter than the other two lengths to allow for turning the facing round the back. This facing should be of flexible self-adhesive plastic material and I would recommend a plain colour with no pattern but with a textured surface. The facing I used was grey with a rough surface. Do not stick on the facing until the plywood is fixed in position.

Cut the two triangular bracing pieces and smooth them and the plywood upright with glasspaper. Plane the lower edge of the plywood to the correct splay and begin the assembly.

First glue and pin the two 18 inch lengths together, using 1 inch panel pins. Then fix the plywood upright, pinning into the edge of this through the teak base. Insert the two bracing pieces and pin these through the teak base and the plywood upright. Stick the plastic facing to the plywood upright.

If the two bracing pieces are set back about 1 inch from each end of the case, this allows the plastic facing to be turned round the edge of the upright and secured at the back with two or three short tacks to prevent the ends curling. Punch down all nail heads and stop the holes with a suitably coloured filler. White filler can be tinted with coffee to obtain the right shade.

When the filling is dry, rub down with fine glasspaper and wax polish or varnish the whole case. You are now ready to thread the wire. Choose a plastic-covered wire that matches the plastic facing on the plywood upright. It should not be difficult to get.

## THREADING THE WIRE

Start at the upper holes and thread the wire from left to right, as shown in the sketch. Take the wire down to the lower holes and thread it in the

same way, but from right to left. Finish by knotting the two ends securely together at the back.

File the tape boxes in the rack by placing them between the upper and lower wires. Let them lean on the upper wire and the lower one will stop them from sliding down. The closer the tapes are stacked, the more upright they will stand. Any size of tape box

will fit in the rack, as can be seen in the accompanying picture.

If your tape recorder is covered in plastic, a matching plastic facing could be used on the rack, and wood could be chosen to blend with your furniture. By writing the contents of each tape on the edge of the box you can pick out at a glance any particular tape you want.



## Tale of a tape

BY DIANA SABATINI

"Will you do it once more," I asked, "and please, do try to sound serious—don't giggle like you did last time."

I was attempting to record my friend, John, reading a mistranslation of the six o'clock news in a foreign accent, and we were both finding it difficult not to laugh. He stood in front of the microphone which I had hung on a bird-cage stand and turned to the beginning of his script. I started the tape and grabbed a pair of cymbals.

*Clash!*

"This is the B.B.C. Foreign Service. Here are the news. This afternoon an embankment was robbed, the stealers getting away with it and £14,000 in useless notes."

His voice faltered, and with a questioning glance he shrugged his shoulders and dropped the script on a chair. "What on earth is that noise?"

I stopped the tape angrily and strode to the window to investigate the din.

"It seems to be coming from there," said John, pointing to the garage next door.

The creaking and splintering stopped. "Thank heavens," I began; but the uproar started again, accompanied this time by hammering.

"What shall we do? Presumably it's an amateur carpenter at work. But he's

only just moved in—I don't want to start our acquaintance with a complaint."

John laughed. "I've got an idea. Let's record the row and then play it back through the window. It will frighten the life out of the poor little man—Voices from Outer Space and all that!"

We needed an extension lead to operate the recorder near enough to the window. We rummaged among an assortment of plugs, wire and screws and did a little untangling.

When I had moved the machine and switched on, we sat down to listen. The racket died away.

"Oh really, this is maddening," I groaned. But it soon started up again, and we made the desired recording. I was just stretching out my hand to turn off when there was a yell from the garage and the hammering stopped abruptly. The door burst open and out came my neighbour with a handkerchief wrapped round his thumb, making remarks that caused the "magic eye" to flicker.

So we never got the chance to play the recording back to him—it is hardly fair to remind a man of the language he uses under stress.

We couldn't even play it at the Tape Club, because he turned up at the next meeting (with his hand bandaged) and said he wanted to join. I asked him how he had hurt his hand.

"Oh," he replied, with a sheepish grin, "the hammer slipped while I was doing the sound effects for one of my tapes."

# Spacing for stereo

BY PETER MILTON

IT is a well-known fact that as the frequency of the sound radiated by a loudspeaker is raised, it tends to be concentrated along the axis in a narrow "beam." This is not as serious as one would think in a single channel system because a listener sitting in one particular position soon becomes accustomed to the quality of the sound at that point, mentally adjusting for (or ignoring) any deviation from the axial response of the loudspeaker.

Usually, the only time one notices any difference is when passing in front of the cone.

In the case of stereophonic reproduction, the question of the directional properties of a loudspeaker cannot always be ignored because two entirely different versions of the sound can be heard at one position, quite apart from any time differences. This is due to the fact that they are spaced and the angle of reception is different for each loudspeaker.

The effect is still further accentuated when the fundamental tones of an instrument occur in the frequency range where the loudspeaker becomes directional. One of the clues which indicate the position of a sound is its intensity and it follows that unequal frequency response within the band containing the stereo information can modify the stability of the stereo image, causing an instrument to change its position according to the note being played—in certain circumstances the image can even be reversed. When the temporal information is contradicted by the modified intensity information, unsatisfactory stereo is the result.

I would like readers to note that I am not beating the gong for any particular type of loudspeaker mounting, column or otherwise, but simply pointing out that in order to avoid the joke about listening "line astern," it is advisable to have a uniform response from both loudspeakers over the listening area.

It is worthwhile to consider the

causes of the directional effect. We can simplify the problem by confining our attention to two small areas on a cone, so small that their actual size can be neglected. Their position is unimportant since we are only concerned with their distance apart. In fact, since it is a general case, they could be regarded as two separate small loudspeakers, or for the television minded, as two aeriels radiating into free space.

Taking only one of these small units, the sound field could be plotted at various points and if the points having equal intensities were joined, the result would be a series of concentric circles, the intensity decreasing as the distance away from the source increases.

The next step is to place the second exactly similar source overlapping the first and to repeat the measurement.

wavelength is about a foot and at 30 cps the wavelength is about 33 feet.

Let us take a simple case where the radiators are separated by a half-wavelength. With this spacing the phase of the radiation at point B will have changed by 180 degrees during the time that it takes the radiation to travel from A to B.

Reference to Fig. 1 will indicate that the wavelength is divided into 360 degrees and at 180 degrees separation the levels are identical but the sign has been reversed. This means that to an observer situated along the line joining the sources, their outputs cancel exactly. At right-angles to this line the waves arrive at the same time and so their effect is combined (Fig. 2).

The question is simply one of time difference. As the angle of observation is changed, the difference in the time

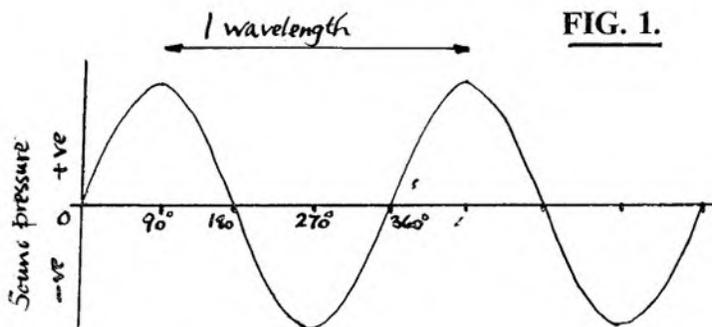


FIG. 1.

As would be expected, the only change is that the effects are added. The difficulty arises when the two sources do not overlap exactly.

In order to simplify the arithmetic, the spacing is reckoned in terms of the wavelength of the sound radiated. This varies with frequency according to the relationship:—

$$\text{Wavelength} = \frac{\text{Sound velocity}}{\text{Frequency}}$$

It is useful to have a few check points in order to visualise the distances involved and as a very rough guide we can say that at 1,000 cps the

between the reception of the signal is changed, altering the phase angle between them. The signals cannot be added directly but must be added vectorially. Fig. 3 shows two sine waves of equal amplitude but differing in phase by 45 degrees. Those who are not completely familiar with the term "phase" should read "step." Thus "in step" is the same as "in phase," "antiphase" means "right out of step" and the phrase "random phase and amplitudes" conjures up visions of a troop of Boy Scouts breaking step over Waterloo Bridge.

On the left hand side of Fig. 3 are

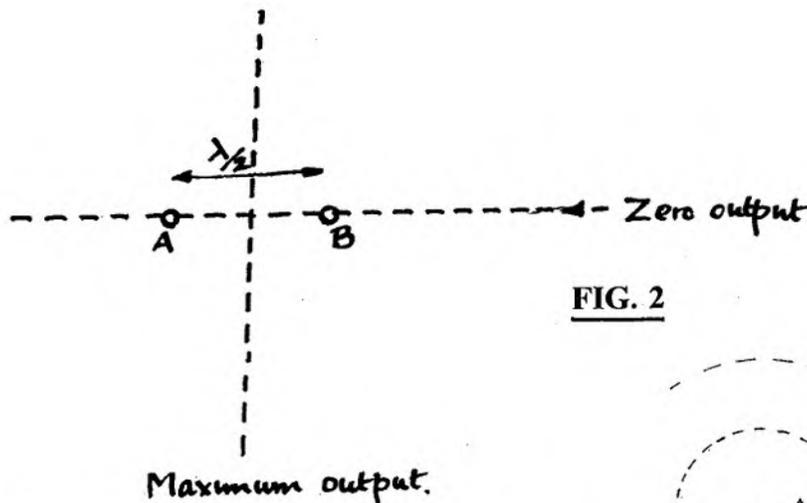


FIG. 2

three arrows of lengths corresponding to the amplitudes of the sine waves on the right. The sine waves can be seen to be graphs of the vertical heights of the vectors against the degree of rotation.

If the vectors are considered to be rotating at a fixed frequency, the sine wave becomes a graph of instantaneous amplitude against time. The dotted curve is obtained by adding the full line curves vertically at each point and the result is a third sine wave of intermediate phase and amplitude slightly less than the direct sum. This is represented by the third arrow.

This gives us all the information about the resultant wave that we require and it can be obtained with far less work by simply completing the rhombus either graphically or mathe-

matically. This method is valid if the vectors are of the same frequency, as is the case under the particular conditions which we are discussing.

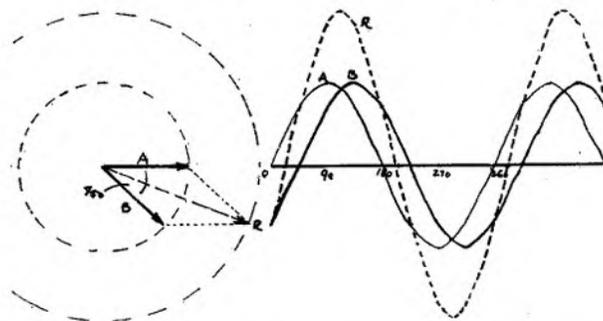
A chart can now be constructed showing the effect which two spaced but similar sound sources have on each other, taking the field strength on the centre line as unity and plotting the relative strength at various angles off this axis. Such a chart is known as a *polar diagram*.

The spacing between the sources determines the maximum phase

difference and this occurs at 90 degrees to the centre line. This is modified by the angle from which the radiators are observed since the phase relationship is simply due to the extra distance which the sound has to travel.

Fig. 4 shows the effect on the distribution pattern of varying the spacing between the radiators. Note that on the axis the pressure is always at a maximum and that as the spacing is increased the front "lobe" narrows appear in increasing quantities all

FIG. 3



being equal in amplitude to the main lobe.

So far we have only considered two isolated portions of the loudspeaker cone and in the next article we will discuss directional properties of the complete loudspeaker.

**CORRECTION**

Readers will doubtless have noted an obvious error that crept into Mr. Milton's article in our July 26 issue. The formula rendered:

$$\text{Circuit} = \frac{\text{voltage}}{\text{impedance}}$$

should, of course, have read:

$$\text{Current} = \frac{\text{voltage}}{\text{impedance}}$$

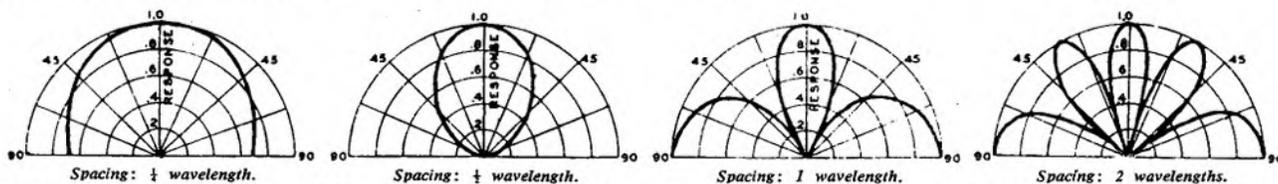
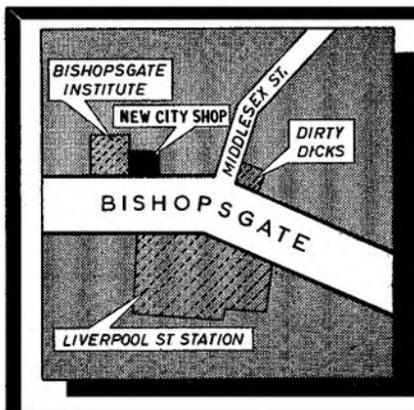


FIG. 4. The field strength pattern of two small radiators, equal in strength, vibrating in phase, spaced by various distances.



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# Equipment Under Test

## THE DOMINUS COMBINED RECORDER AND PROJECTOR

**T**HERE are currently available numerous attachments and devices for synchronising a tape recorder to an 8 mm or 16 mm projector, all of which involves setting up and connecting together several items of equipment. The obvious answer to keeping a reel of tape in sync with a reel of film is to run both on the same machine using the same driving motor. Such a machine is the Mark 2 Dominus Combined Recorder and Projector, the only one of its kind.

The complete mechanism has been mounted on a large open frame and fitted into a cabinet only 11 x 11½ x 15½ inches. Beneath the front lid of the Dominus is an 8 mm Projector with the spools running flat against the

**BY JOHN ALDRED**

mechanism plate and feeding the film into the gate at right angles.

Removing another lid at the rear reveals a conventional two-speed tape deck, both units being driven by the same induction motor. The various drives to recorder and projector, including two separate rewinds, are engaged on to the motor shaft by rubber covered rollers.

On both front and back panels are function selector switches, each one having a forward, off, and rewind position. The projector switch has one further contact which illuminates the projector lamp, and the recorder has

a switch position for fast wind on. The recorder switch is also the master motor control and over-rides the projector switch. Both have a fair amount of mechanical linkage attached to them for operating brakes and engaging motor drives, in addition to electrical connections.

Detailed operating instructions giving the correct procedure are enclosed, and these should be read first before attempting to operate the Dominus itself.

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This is a half-track machine taking 7-inch spools and having two tape speeds shown as 3.8 and 7.6 ips. For

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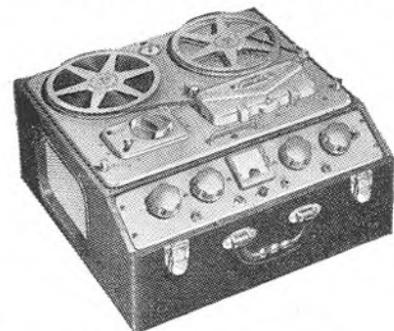
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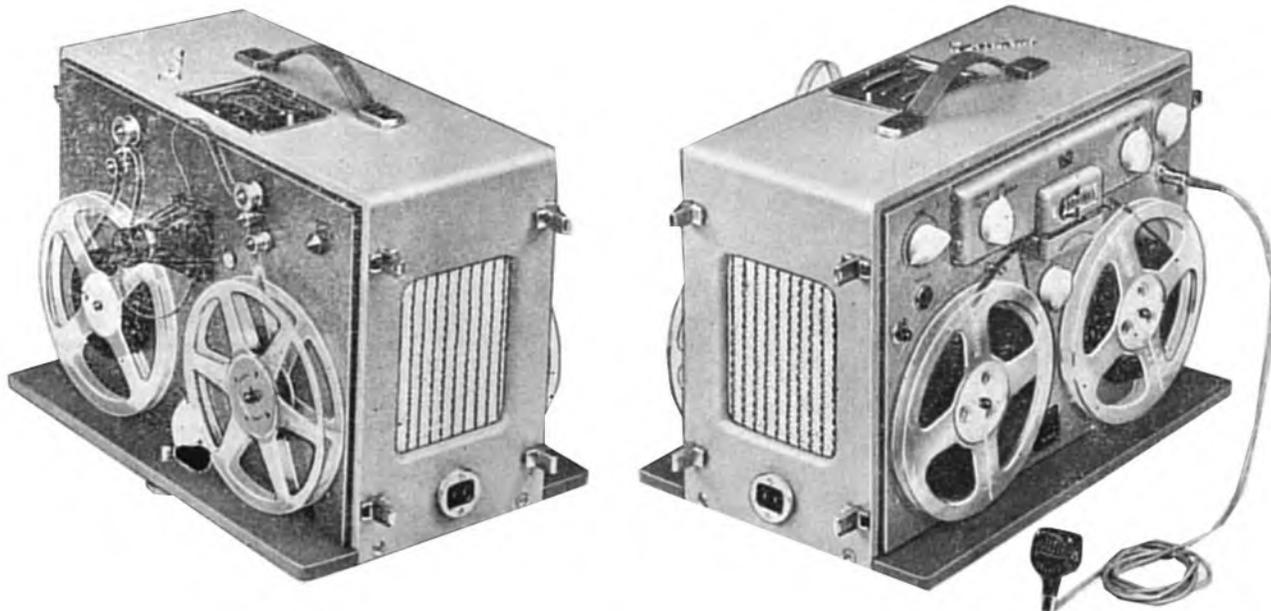
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all practical purposes these can be taken as  $3\frac{1}{2}$  and  $7\frac{1}{2}$  ips, especially as the speed of the recorder drops slightly when the projector mechanism is engaged as well.

Current models of the Dominus record in the old continental track position, that is bottom track running left to right. This is no doubt due to its French design, and it is a point which is being rectified on future models.

The recorder is easy to load, the tape being merely passed over two tape guides and into a slot. The function selector switch must be at "stop" to lift the pressure pads and pinch roller.

The speed change switch in the centre of the recorder must only be turned in a clockwise direction to avoid upsetting the various mechanical drives, and this point is made clear in the instructions. There is an "Off" position between each speed to enable the projector to run by itself when required.

Although the amplifier is of modern printed circuit design, it is not hum free when a microphone is connected unless properly earthed. There are three amplifier controls, volume, tone and a record play switch. This latter switch is locked so that it is impossible to rewind the tape in the "Record" position—a feature not always found on some domestic tape recorders. Two separate inputs are incorporated for microphone and gram both at high impedance, but only one volume control. This means that an

extra control must be wired into the gram lead.

The Dominus Projector runs at a speaker socket, but since this is not in circuit on "Record" there is no form of monitoring. An 8 x 4 inch elliptical speaker is built-in for playing back, and the amplifier output is approximately four watts.

Good quality recordings are possible at  $7\frac{1}{2}$  ips, although the frequency response is in the region of 100-11,000 cycles. No manufacturer's figures are published for wow and flutter, or signal-to-noise ratio. But listening tests showed the Dominus to be quite steady and flutter free, with about average signal-to-noise ratio. An Acos Crystal lapel microphone is included.

### PROJECTOR

The Dominus Projector runs at a fixed speed of 16 frames per second and takes 400 ft. reels which are the same diameter as the tape spools. This length of film is sufficient for a half hour show.

The projector lamp is an 8 volt, 50 watt Philips, which is internally silvered and needs no mirror or condenser system. An inching button is fitted alongside the film gate which, as its name implies, is for inching the film through slowly to check the threading.

Two sprockets are fitted above and below the gate to allow the film to feed smoothly through the claw mechanism. The film path is shown on the mechanism plate and loading

should present no problem.

For accurately framing the picture a small knob moves the claw in relation to the gate, which means that the picture stays on the screen and the projector tilt does not have to be altered. The projection lens fitted is a 20 mm f 1.5 of French manufacture.

### CONCLUSIONS

The tape will keep very good synchronism even throughout a film lasting half an hour, but it would be expecting too much to maintain dialogue in lip-sync over this period of time. Start marks should be made at some convenient point on both tape and film before the start of a recording, white jointing tape being quite convenient for this.

The operation manual deals with the recording process and should be read after the operating instructions have been digested. In my view, it is not emphasised enough that the recorder speed drops when the projector is running as well. Therefore any recordings of music which are for use with a film should be made with the complete machine running.

The projector lamp can be easily replaced through a sliding trap on top of the machine, but to gain access to the mechanism and amplifier the outside cover must be removed by undoing four wood screws in the base. The mains input socket must also be removed and disconnected. A 2 amp. fuse is fitted to the bottom of the projector panel.

*(Continued on page 26)*

## THE EXPERIENCE OF AN ENTHUSIAST

**R**EADERS may be interested in my exploits in the tape recording field which has covered quite a few machines.

My first effort was a home made machine which I built to run in conjunction with home movies, the enclosed photograph shows what it looked like. That was in 1952, since then I have become a tape recorder addict, I've really got the bug and have had no less than 23 machines.

Yes, I am afraid I really have caught the bug, but every machine was a thrill to handle and I have learned quite a lot especially about recorder transport systems. The machines I have handled (not all new models) include a Philips, Grundig TK9, TK5, two TK30, and a TK20, three Telefunken KL 75 and one 76, two Korting stereo models, one Harting stereo, two Stuzzi Magnettes, Stuzzi Tricorder, two Clarion portables, Phono-

### Equipment under test

## DOMINUS

(Continued from page 25)

Most of the shafts run in oilite bearings and require no lubrication, but a smear of grease on the chain drives to the spool shafts is advisable about every 12 months.

Although the Dominus does its job quite well it costs rather more than a similar quality recorder and projector purchased separately. This is probably because the mechanism is largely hand made and production costs fairly high.

### MANUFACTURER'S SPECIFICATIONS

Operating voltage: 200 to 240 AC, 50 cycles.

Power: 80 watts.

Lamp: 8 volt, 50 watts.

Lens: 20 mm. f 1.5.

Max. spool size: 7 inch.

Recorder speeds: 3.8 and 7.6 ips.

Projector speed: 16 frames per second.

Amplifier inputs: Microphone—1 Megohm at 10mV, Gramophone—1 Megohm at 500mV.

Amplifier output: 3 ohms, 3½ watts.

Valve line up: EF86, EF86, 6AU6, EZ80.

Volume indicator: EM84.

Frequency response: 100 to 7,500 cycles at 3.8 ips, 100 to 11,000 cycles at 7.6 ips.

Dimensions: 11 x 11½ x 15¼ inches.

Weight: 40 lb.

Price: £120 (with crystal microphone but no tape).

Manufactured by:—Dominus (England) Ltd., 29, Cromwell Road, South Kensington, London, S.W.7.

## LETTERS TO THE EDITOR



trix, another Philips and a Stella family four-track and a Grundig TK25.

Most of these machines were obtained on a part-exchange basis and over a period of nearly nine years I have gained quite a lot of knowledge. My present machine is the Grundig TK24. After listening to four-track for quite a time I did not realise what quality I was missing until I played this model. I have had my share of stereo, too, the four-track variety, but I still believe that a good mono recording is just as good. I use two speakers placed either side of my room.

Tape recording is a fascinating hobby and goes so well with my main hobby which is making home movies. But to explore tape recording to the full as suggested in many of your articles it is absolutely essential to have a portable machine. Indeed to record many of the sounds required to make any interesting tape, it also requires nerve on the part of the recordist. Not everyone has the necessary initiative to obtain say a candid recording in the "local," or to record a play, etc., and it is these qualities that all help to go to make a good and interesting recording.

Technical knowledge on the part of the recordist is also necessary to a larger degree than is generally thought. Alignment of heads and pressure pads being one of the most critical and often most abused factors. I have found misalignment of heads on a lot of my machines, and this has caused quite a disturbance with uneven wear on the head, and poor contact of the tape.

Correct lubrication is another must. Ignorance of the right grade and the right amount can lead to "gumming up the works" or complete evaporation leaving the bearings dry.

Tape editing also provides difficulties, and I am surprised to find many people still use ordinary cellulose sticky tape. This is fatal to the tape and heads, as most of us know. Incidentally, why do the manufacturers always make jointing tape white and not the same colour as the magnetic tape.

Cleaning. I find metal polish is excellent for cleaning the plastic deck plates on many models, and usually finish the job off with wax polish.

Head cleaning. No one has yet pro-

duced a sensible bristle brush for cleaning the heads. We need something flat and narrow, and the nearest I have got is a projector gate brush.

G. C. PHILLIPS.

Castle Bromwich, Warks.

## Head cover on the TK1

**A**S a regular reader of your excellent journal, I was very pleased to read the review of the Grundig TK1 in the July 26 issue, but I must correct one point mentioned in the article.

I have the pleasure of owning a TK1 and I read that the cover over the recording/replay head is an integral part of the deck and cannot be removed, I beg to point out that this is not so, the head cover *can* be removed as follows: The two sloping sides at the rear of the cover should be pressed towards the front of the machine until the plastic protrusions are clear of their slots.

The cover should now be tilted towards the rear of the machine and lifted clear of the slots in the top panel. A great deal of care is necessary to avoid the fracture of the protrusions.

The above information was supplied to me by Messrs. Grundig Ltd., and I assure you that the cover is *fully removable*.

With all good wishes to *Tape Recording Fortnightly*.

A. R. HUNT,

Wootton, Isle of Wight.

## Indignant rejoinder

**O**BJECT most strongly to being referred to as an "old" contributor (*Editorial: August 9 issue*).

Am 32 and can prove it. Born: May 1929. Fact that Wall Street Crash and Great Depression followed few months later, pure coincidence.

A. EDWARD BEEBY,  
(Master-at-Arms, Bachelor-of-Legs and Antidisestablishmentarianistic-at-Large).

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*Sunderland.* R. BLACKLOCK.

# TAPE TALK

SOMEONE remarked recently: "You're tape recorder-mad, aren't you! Why?" Come to think of it, I don't honestly know. Perhaps, because it's the one pursuit in an otherwise chequered career that's landed me in less trouble than any other! Viewed in retrospect, it presents a singularly uninspiring chronicle.

At the age of ten, I was slung out of the church choir for introducing a tame rat—George, by name—into the vestry. At fourteen, I was drummed out of the Boy Scouts for fighting. Sixteen saw me sacked from my first job, in a shoe factory, for operating a floor-to-floor taxi-service with the firm's goods lift for the exclusive benefit of three attractive office-girls. Two years later, I lost my second job, in a local garage, for riding the boss's brand-new motor-cycle round the yard.

For the next eight years, I worked at the most unlikely assortment of trades—not, I might add, with any great measure of distinction! The manager of a paint-and-wallpaper shop took offence at my lace-edged method of wallpaper trimming. A firm of household-fitters handed me my "cards" after I'd done irreparable damage while out on my first "solo" job: fixing a simple curtain-runner in a large house in the "better" quarter of the town. A television rental firm said: "OUT!" after I dropped a 21 inch Murphy in the middle of the road, and a four-year stint with a laundry ended equally ignominiously with a 10cwt. delivery-van upside-down in the ditch and a month in hospital!

So, I took up tape recording for a living, and—touch wood—I've had a fair amount of success with it. Oh, I don't know, though. . . . Did I ever tell you about the time I got fined for parking a Vortexion on the wrong side of the road?

\* \* \*

I am often asked to give advice on the choice of background-music for use in amateur tape and cine productions. So, I thought it might be good idea to devote a small space in "Tape Talk" each month to a short recommendation of some of the various discs available from the recorded-music libraries. Please note, however, that these notes should be taken only as a very general guide, and are based solely on my own knowledge and judgment of the record concerned. OK? Right, here's the first one:

ENGLISH COUNTRYSIDE SCENES: "St. Boniface Down" (Pts. 1 and 2) by Trevor Duncan. Soft, calm and restrained pastoral with a hint of the religious. ("IMPRESS" Record IA/190). Obtain-

able from Inter-Art Music Publishers, 33 Crawford Street, London, W.1.

If you have any background-music problems, send them to me c/o *Tape Recording Fortnightly* and I'll be pleased to give any help I can.

\* \* \*

IF anyone asks me that stupid question: "Is it hi-fi?" any more, I shall scream the place down! Playing one of my latest LP discs to a friend the other day, I mentioned that I was now using a new 15-in. speaker. "Is it hi-fi?" he asked. A few weeks before, someone else came round to listen to the Vortexion being put through its paces with the aid of a demonstration-tape. Once more: "Is that hi-fi?" The same thing two evenings ago when a neighbour dropped in while I was messing about with a new radio-timer and amplifier. "Is that high fidelity?" he wanted to know.

Now, once and for all, let me make my feelings on this thing quite clear. Our next-door neighbour thinks his ten-year-old radiogram is the be-all-and-end-all of sound systems. Another colleague swears by the standard of his super, 1961-model stereo record-player. I'm quite happy with the performance of the Vortexion WVA, while the old lady of 82 who lives on the opposite side of us is convinced *she* has the last word with her ancient, horn-type HMV gramophone.

Which all goes to prove what? Namely, that high-fidelity sound-reproduction is simply a matter of personal acceptance. In other words, if *you* think it's hi-fi, then it *is* hi-fi! (Thinks: "Mustn't walk down any dark streets alone till this little lot's blown over!")

\* \* \*

REMEMBER all that hoo-hah last year about the ban on the taping of Royal speeches by amateur recordists? One unfortunate soul had his machine confiscated for making a recording of a speech given by the Queen Mother in Bristol.

Now, although we were able to report, later, that Palace Ruling on this practice was not as strict as had originally been supposed, I have recently come up against a further example of official "stonewalling" on the subject of tape-recording. It came about in this way.

Talking to a group of enthusiasts a week or so ago, I was asked if I knew anything about the use of recorders in Buckingham Palace itself. I said I didn't,

but promised to investigate and to report my findings in "Tape Talk."

My initial approach—to the Palace Press Office—brought a reply from the Assistant Press Secretary to the Queen, Miss Anne Hawkins. She told me: "There are a number of recorders in use in the various offices, but I have no information as to whether the Queen or other members of her family use them, either privately or for entertainment." I asked her if there was anyone else I could contact who might be able to help. Her answer was short and to the point: "No further information on this subject is available."

As I seemed to be getting nowhere fast, I decided to pitch the query at a higher level—to the Queen's Private Secretary, Sir Michael Adeane. This didn't work, either. Sir Michael did not answer my letter, but passed it once more to the redoubtable Miss Hawkins who put me firmly in my place by stating that *all* such enquiries were dealt with solely by the Press Office. She ended: "As I have already explained, we do not have information about the use, private or otherwise, of tape recorders by the Royal Family, so I am afraid it is not possible to help you over this matter."

Now, the point I want to make is this: Before the start of practically every Royal Tour, we are deluged with press-reports of where the Queen is going, how she will travel, who she will meet, where she will stay, what she will wear, what she will eat, and so on. One woman's magazine, not so long ago, gave an illustrated lay-out of the Royal Yacht, Britannia, including details of Her Majesty's bedroom and a drawn plan showing the exact positioning of the bathrooms and toilets! Surely, in comparison with this pandering to the curiosity-seekers by releasing material of—to my mind, at least—purely personal concern, an enquiry dealing simply with the use of recording equipment at the Queen's home cannot be regarded as unreasonable or undesirable.

Again, is it not inconceivable that, in a Royal Palace staffed with a veritable army of servants, press-secretaries, private secretaries, etc., there is *not one person* who can tell us whether or not the Royal Family have an active interest in tape recording? If there is, then why all the secrecy?

*When writing to manufacturers for information about new products, please mention that you saw it in "Tape Recording Fortnightly."*

## Hi-Fi Harry at the Radio Show



"Oh, please, Harry, no more leaflets"

## CRIPPLED COMPOSER USES TAPE

**N**OW lying crippled at her home with rheumatoid arthritis after having been thrown by her pony in the East Neuk of Fife over 11 years ago, Elma Alexander—now 26—composes sentimental songs which her father sets to music; plays over on the violin and records for her on her tape recorder.

Previous to having been given the tape machine by a friend, Elma's father made her a two-foot long penholder with which she wrote down the words of her song with a flick of the wrist, and corresponded with her many friends all over the world. But now that she has got the recorder, Elma gets her father to send the tapes to many countries overseas—New Zealand, Norway, Belgium and Ireland and many others.

She also sends tape letters to blind people in this country. A blind boy in Birmingham—about her own age—Tony Barnet, looks forward to listening to her cheerful messages and hearing her latest songs. Tony has a collection of 2,000

records from which he sends back tapes of songs Elma asks to hear.

"My Heart is Yours," "Out of Sight But Not Out of Mind," and "The True Meaning of Christmas," are three songs Elma has written.

## 5,000 TAPES IN TALENT CONTEST

**O**VER 5,000 two-and-a-half-minute tapes from all over the country were entered in the nation-wide talent show organised by Currys Limited on Radio Luxembourg. The show, said to have attracted a weekly two million audience, was the second in the *Make a Tape* series by the multiple television and radio retailers.

Two Birmingham Grammar School boys eventually won the seven days trip to New York via Aer Lingus Boeing jetliner, plus an audition with Capitol Records in Radio City.

The boys, Ken Hardwick and Colin Buckley, produced their tape with the assistance of their uncle, Harold Hardwick, who used a Bradmatic tape recorder and Emitape.

### Healthy increase

Mr. Geoff Horne, Currys' buyer, talking to the trade press regarding the national sales of tape recorders being hard hit by H.P. restrictions, said: "Our sales since *Make a Tape* began, show a healthy increase on last year. At present we are selling a remarkable number of tape recorders off season, and our sales of tape have increased considerably. There is no doubt that this promotion has caught the imagination of both our branch managers and the public."

Sales representatives of the Emitape Division of E.M.I. at their half-yearly Marketing Convention at Shillingford Bridge Hotel, near Wallingford



# New Products

## NEW-LOOK SIMON SP/5 CONVERTIBLE FOR DISCS

**T**HE latest addition to the Simon Equipment range is the SP/5 which was illustrated in our last issue. Shown for the first time to the public at the Radio Show, this new model (price 93 guineas) has been designed to a new and attractive shape; with the lid removed it resembles a low-slung deck-chair.

Two speeds are provided,  $7\frac{1}{2}$  and  $3\frac{3}{4}$  ips, and the quoted frequency responses are respectively 30-20,000 cps and 30-10,000 cps, both  $\pm 3$ dB. Wow and flutter is given as better than 0.15 per cent at the top speed, and better than 0.2 per cent at  $3\frac{3}{4}$  ips.

The output is rated at 5-6 watts, through the internal speaker, which is housed in the upper part of the acoustically designed cabinet. The speaker section consists of a  $10 \times 6\frac{1}{4}$  inch bass unit, and a 4 inch tweeter.

Maximum spool size is 7 inches, providing a playing time of just over two hours per track using a double-play tape. Rewind is given as 75 seconds for a 1,200 ft. reel.

The SP/5 incorporates printed circuits and a combination of transistors and valves, permitting the use of high impedance microphones. It is ready wired, with controls twin-ganged and matched, for conversion to stereo if required. Another outstanding feature is the provision for conversion to play  $33\frac{1}{3}$  and 45 rpm discs, although this latter facility is only

available for export at present.

The stereo conversion is achieved by the use of the Simon plug-in unit, or it is sold as a complete stereophonic record and playback recorder.

The record controls are placed together on the right hand side of the instruments with record track and public address switches, and two "presets" for meter zeroing. Replay controls are on the left, comprising record and replay-sound, treble and bass, as well as playtrack switching. The right hand plug panel contains all input sockets, together with a "press-to-read" bias switch, and two "presets" to adjust bias. On the left hand plug panel are output connections—low level output on two channels, stereo low level output, and outputs to an external loudspeaker with or without the internal loudspeaker connected.

A  $2\frac{1}{2}$  inch rectangular meter recording indicator is also calibrated to read bias in conjunction with the "press-to-read" switch and the presets.

The SP/5 offers a wide range of facilities including loudspeaker or headphone monitoring, mixing, and dubbing from one track to another with simultaneous mixing from one microphone or radio input.

It measures  $22\frac{1}{2} \times 19\frac{1}{2} \times 9\frac{1}{2}$  inches, and the weight is approximately 50 lb.

Simon Equipment Limited, 48, George Street, London, W.1.



## Smallest recorder in the world

**W**HAT is described as the smallest tape recorder in the world has recently been introduced by Recording Devices Limited. The comparison with a cigarette is shown above.

The new model is a transistorised model weighing 11 ounces, and measuring only  $4\frac{1}{2} \times 3\frac{3}{4} \times 1\frac{1}{2}$  inches. It is designated the Stuzzi Memocord, and is described as for the journalist, or busy executive.

A total one hour's playing time is available on the four tracks of a specially designed tape reel with a special running speed. It has a built-in microphone which also acts as a loudspeaker, and operates on a PP3 transistor battery and a D15 penlight cell.

Two operational controls, record and playback, are incorporated, plus a gear-type track change lever. Tape location is achieved by numbers printed on the back of the tape which are viewed through a window.

The price is 25 guineas.  
Recording Devices Limited, 44, Southern Row, Kensington, London, W.10.

## SOUNDCRAFT TAPE

**A** NEW company, Soundcraft Magnetics, has been formed to introduce US Soundcraft recording tape to the UK market.

Soundcraft tape is made by Reeves Soundcraft Corporation of Connecticut, and has been used in the Tiros 1 and 2 space satellites.

Soundcraft Magnetics began selling the tape during the last two weeks of August, and supplies should be reaching the dealers in mid-September.

Other products by the American firm that will be available in this country include audio tape, video and magnetic striped and coated film.

Soundcraft Magnetics Limited, Had-denham, Buckinghamshire.

## NEWS FROM THE TRADE

**F**OLLOWING the closing down of Walter Instruments Limited, the firm of Sound Equipment Servicing Co. Ltd., 129, Lower Richmond Road, Putney, London, S.W.15, have undertaken to continue as official service engineers for all Walter tape recorders. Their telephone number is Putney 1960 and 1021.

**J**ASON Electronic Designs Limited (formerly Jason Motor and Electronic Co.), manufacturers of high-fidelity audio and electronic test equipment, have moved from Great Chapel Street, Oxford Street, to larger and more decentralised premises at Kimberley Gds., Harringay, London, N.4 (Stamford Hill 5477).

**P**OLITECHNA (London) Limited, sole agents for A.K.G. Vienna in the United Kingdom and Commonwealth, have appointed Mr. F. Thistlethwaite, Excel Services, 49, Bradford Road, Shipley, Yorks, to be an appointed dealer in Yorkshire for the sales and servicing of

microphones and accessories as manufactured by A.K.G. Vienna.

**A** TAPE record bar and disc browserie has been opened at Reekie's, radio and television dealers, of 10, Bridge Street, Stafford. As from June 19 their record shop in Crabbery Street, Stafford, has been transferred to the Bridge Street premises.

**A** UNIQUE service for exhibitors and visitors will be offered by Grundig (Great Britain) Limited at the Packaging Exhibition, Olympia, from September 5-15. Grundig are providing a complete comprehensive secretarial service by making their Stenorettes available for all correspondence, orders and reports. Four expert audio-typists will be in attendance.

In addition, incoming telephone messages can be taken and recorded on request, and either played back at a convenient time, or transcribed and passed on as directed.



**YOUR LOCAL  
DEALER**

*In this feature you can check your nearest dealer who is a hi-fi specialist giving expert attention to tape equipment.*

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Leonard G. Francis presents—

**SHEEN**

**TAPE RECORDER CENTRE LTD.**

*Specialists in Tape Recorders and Accessories etc.*

—THE CENTRE FOR—

FRIENDLY HELP — SALES — SERVICE  
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—MODELS FROM 19 GNS.—

PRE-RECORDED TAPE: LANGUAGES,  
DANCE CLASSICS JAZZ

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London S.W.14. (next to Mortlake station, S.R.)  
Showrooms: PROSPECT 0985 10 a.m.—7 p.m.

- \* TAPE RECORDER HIRE
- \* TAPE TO DISC 78 & LP
- \* RECORDING STUDIO
- \* TAPE RECORDER REPAIRS
- \* SALES—EXCHANGES

**MAGNEGRAPH**

1, Hanway Place, London, W.1.  
Tel.: LANgham 2156

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**PORTSMOUTH and  
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Mobile Unit available for Weddings, Receptions  
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■ If you can hear it—We can record it! ■

**RAPID  
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78's and L.P.'s from your own tapes

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Recording Studio  
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Practising studios  
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21 Bishop's Close, Walthamstow, E.17. COP 3889

*When writing to  
manufacturers for in-  
formation about new  
products, please men-  
tion that you saw it in  
"Tape Recording Fort-  
nightly".*

**NEWS from the TRADE**

(Continued from page 29)

AS a result of the acquisition last year of Morphy-Richards Limited, the United Kingdom domestic appliance activities of the E.M.I. Group have been reorganised. A single division has now been formed under Mr. W. Roxburgh, the Managing Director of Morphy-Richards Limited.

The marketing and distribution of hi-fi components is being undertaken by an associate of E.M.I., The Clarke & Smith Manufacturing Company Limited. That company has also acquired the business of Home Maintenance Limited, the service company of E.M.I.

The marketing of sound equipment (stereo, record reproducers, and tape recorders) will continue, as hitherto, to be done by The Gramophone Company Limited, under its Managing Director, Major J. F. E. Clarke.

The Recording and Relay Division of The Gramophone Company Limited has now been transferred to E.M.I. Electronics Limited.

COSSOR RADIO & TELEVISION LIMITED have moved from their Endell Street address to 233, Tottenham Court Road, London, W.1. Their telephone number remains the same—Gerrard 2831-5. Administration offices and the showroom will now be housed in the same building, and the existing Cossor showroom in Kingsway is now closed.

Warehouse and service facilities will continue to be operated from the existing addresses in Croydon.

With this change of address, the company also announce that as from September, their tape recorders will be available in England and Wales from appointed Cossor dealers only. The selection of retail outlets will proceed on a territorial basis.

THE first of two live-action films in Kodacolor made for WyndSOR Recording Co. Ltd., is now showing in certain cinemas in Central London, Manchester and Birmingham at every performance.

The film features the WyndSOR "Heron" tape recorder in a girl-meets-boy theme with the WyndSOR "Heron" playing Cupid. The sound commentary ties in with the current WyndSOR publicity campaign on the "Heron" tape recorder.

The films are being made for WyndSOR Recording Co. Ltd., by Twentieth Century Publicity Services Ltd.

REDUCTIONS in the price of video tape is announced by E.M.I. Sales and Service Limited, following a considerable increase in production.

The increasing demand for Emitape, both in the UK and overseas markets, particularly the North American Continent, have enabled these reductions, full details of which are available from their Emitape Division, Hayes, Middlesex.

# News from the Clubs

ACCORDING to the information cards recently returned to the office from clubs, the regularity and number of meetings per club is on the increase.

During a similar club census last year the members averaged two meetings per month. Now meetings are being held weekly in many cases, and twice weekly in a few, and the previous monthly meetings have now been doubled. The trend shows that the club member is now becoming further addicted to his hobby than ever before.

The formation of clubs, although not as frequent as before, again shows that the initial "we have a recorder, let's form a club" attitude is no longer present. Quite a number of clubs were formed with the idea that they would run themselves, and in many cases, purely for the reason that others were doing it. It appears that the inauguration of a club is no longer the light-hearted matter it once was, that the members are really seeking a means of extending their knowledge of the hobby in the best practical manner.

In nearly every newsletter we read of secretaries asking us to point out that their club is open to anyone, technically minded or not. By opening their doors in this way, the clubs are receiving the novice who, during his learning apprenticeship, provides further practical experience to the "experts." It is amazing how little one knows when trying to pass on information.

The social services section of the clubs are also on the increase. Here again a little help to others provides further experience. One of the most popular activities along these lines is the quiz. Both the producer and those entertained in this manner learn from the programme, and of course the competitive spirit is there once again.

A practical competition with a difference was held at the July 7 meeting of the LEEDS club. The whole evening had been given over to a quiz night, and for one session, the members listened to a speech recording. The object was to guess how far away the speaker stood from the microphone, and whereabouts, in a relative circle, was the microphone placed during the recording. Everyday sound effects, and guess the tune recordings, were other tapes heard during the evening.

At their previous meeting, the members received a demonstration of the production of a disc record when they paid a

visit to the studios of Sound Recording and Equipment Hire. To follow, the professional demonstrators showed members the use of a parabolic reflector.

Another recent meeting was as varied again, for on this occasion they were given a demonstration of battery portable recorders.

Their August 4 meeting was scheduled to be a film show, and for the event they had invited members of other tape clubs. Also lined up for recent meetings were a visit to the BBC studio at Leeds (September 1), and an assessment of members' recordings (August 18). For the future they plan a stereophonic demonstration on September 29, and a social evening on October 13. These meetings will be sandwiched between their second monthly meetings, when they will be continuing their practical demonstrations.

A seldom heard of practice has been brought to the forefront again by the GLASGOW members who write following our "We take the view" column in the June 28 issue. The subject was tape magazines, and we hear from secretary J. Malcolm that the Scottish club has been distributing a six-weekly "Glasgow Newstape" which keeps all members up-to-date on club activities both past and proposed.

Their magazine also contains any interesting tapes recorded by members, and a regular item by the "Club's characters" Hughie Bunnett and Fairly O'Flynn. Their latest contribution professes to be an account of their first trip into space, a feat they claim attempted before Major Gagarin's.

The members have recently started a second sound magazine, this time for the blind. The first issue was on a three-inch reel, but subsequent programmes are to be recorded on a five-inch reel. The first of these is currently going the rounds.

Prior to the tennis tournament at Wimbledon, the stars of the courts are usually to be found at the Beckenham Lawn Tennis Club—the "Little Wimbledon." Such a procedure was brought to the attention of the BECKENHAM club members, and armed with a Grundig TK1 loaned for the week by the manufacturers, Alex Green and Brian Rees quickly organised a trip to record interviews with the players.

Recordings were obtained with Christine Truman, Ann Hayden, Gardner Mulloy and others, and Alf Chave of Australian Broadcasting gave the tape enthusiasts a short commentary on the last game of the Kent County Mens' Singles Championship. The members later edited the whole programme, and now propose to make it available to some of their world wide contacts.

Other recent activities have included the starting up of a hospital service covering six hospitals in the area. One

of these, the Sydenham Children's Hospital, had asked the members for assistance in recording stories on tape for the little patients.

Two other documentaries are currently in production. The first tackles special education with material being collected from the school of which the club chairman is headmaster.

The second feature tape is entitled "The Hamlet on the River Beck," and is to be a sound picture of Beckenham past and present.

Interviews with personalities seems to be taking up quite a bit of the EASTBOURNE members' time also. During the summer months they have successfully interviewed Anna Neagle, Andree Melly, Sarah Churchill, Raymond Francis, and Norman Paul. The interviews were gathered as part of the material for their hospital service, and they obtained special messages from the stars to the patients.

They still find time to continue their regular practices, and during one recent meeting entertained members of the Friern Barnet club.

The chairman Dee Harris obtained a slice of publicity for the club recently when the local paper published a story and photograph of an interview on tape she recently obtained with Carole Mowlam currently making her acting debut at London's Duchess Theatre.

The July 28 meeting of the SOUTH WEST LONDON club took the form of their A.G.M. The presiding officers were re-elected with the exception of Richard King, the drama secretary. New member Ronald McCallum takes his place.

Membership has increased to over thirty now, and a temporary plan to meet fortnightly instead of weekly has been put into force, so that holidaying members would not have to miss too many meetings.

An exhilarating meeting was held on July 12 when Peter Lewis took along his cine camera. One of the members was persuaded to be heavily made-up, and then proceeded to show how not to thread tape or make a recording. At the following meeting it was intended to continue the film and dub in the sound.

Their out-of-doors activities recently included a visit to the "Bluebell Railway" at East Grinstead. Minibus transport was laid on, and members later travelled along the line interviewing passengers and staff. At the end of August they proposed a social picnic and sound hunt competition.

The STEVENAGE members, now numbering 17, have also been leaving their clubrooms for wider fields. In conjunction with the local cine club they recently played a part in the proceedings of the Stevenage Day Festivities. Centre piece of their static show of equipment and accessories was a puppet show with tape. This featured Mr. K. Crawford and his Walford puppets.

Another popular item was the oscilloscope which enabled visitors to see and hear their voices at the "Record your voice" stand. The members also provided sound effects, recorded on a Fi-Cord, for the cine club exhibitors film show.

(Continued on page 33)

## Classified advertisements

Rate—Sixpence per word (minimum 5s.); Trade, ninepence per word (minimum 10s.); box numbers, one shilling extra. Payment with copy. Copy should be sent to Advertisement Department, "Tape Recording Fortnightly," 1, Crane Court, Fleet Street, London, E.C.4.

### FOR SALE

WONDERFUL SELECTION OF BARGAIN SECONDHAND RECORDERS completely overhauled and fully guaranteed from £12 always on display at all showrooms of Britain's Leading Tape Recorder Specialists. City & Essex Tape Recorder Centres. See page 23.

VERITONE Venus de Luxe tape recorder as new. Superimposing echo effects, etc. £40, cost £70. Carpenter, 58, Newport Road, Newbury.

BUTOBA battery and mains portable recorder, four months old. New price £102. Complete with all equipment £70 o.n.o. Box 426, *Tape Recording Fortnightly*, 1, Crane Court, Fleet Street, London, E.C.4.

40 per cent below usual prices! Brand new boxed highest grade tape. 7 inch reels, 1,800 ft. LP, 29s. 6d.; 7 inch, 1,200 ft., Std., 20s.; 5½ in LP, 20s.; 5½ Std., 16s.; 5 inch LP, 16s.; 5 inch Std., 12s. 6d. Post and packing 1s. per reel—4 reels or more free. Satisfaction guaranteed. W. S. L. (Tape Dept.), 106, Greyhound Lane, London, S.W.16.

### WANTED

FERROGRAPH Stereo 808 wanted. £75/80 cash for recorder in mint condition. Box 427, *Tape Recording Fortnightly*, 1, Crane Court, Fleet Street, London, E.C.4.

### TAPE-TO-DISC

J & B RECORDINGS. Prompt Tape to Disc and Sound Effects Service. 14, Willows Avenue, Morden, Surrey.

**Something to sell?—equipment for exchange?—looking for a job in the hi-fi tape field?—seeking a tape contact abroad?—tape-to-disc services to offer?—expert staff needed? A classified advertisement in *Tape Recording Fortnightly* will bring you quick results—cheaply.**

JOHN HASSELL RECORDINGS. Tape/Discs. All speeds. CCIR Studio, 21, Nassau Road, London, S.W.13. Riverside 7150.

**TAPE TO DISC RECORDING**  
Reduced prices. Finest professional quality. 10-in. L.P.—30s. (32 mins.), 12-in. LP—35s. (45 mins.). 7-in. EP 17s. 6d.

**48-HOUR POSTAL SERVICE**  
S.a.e. for leaflet to Deroy Sound Service, 52, Hest Bank Lane, Hest Bank, Lancaster. Tel.: H.B. 2444.

**PRE-RECORDED TAPES**  
Unique 40-page catalogue listing all makes, Mono, Stereo, 7½ and 3¼ ips. Send 2s. 6d., refundable on first tape record purchased. Dept. 6, Teletape Ltd., 33, Edgware Road, W.2. PAD 1942.

### SERVICES

GRUNDIG sales/service in your area: High Wycombe phone 457, Newbury phone Thatcham 3327, Wallingford phone 3083, Orpington, Kent, phone Orpington 23816, New Malden phone Malden 6448, Watford phone Garston 3367.

### MISCELLANEOUS

BANISH "STICKING"—keep all your tapes in TAPE PROTECTORS, shaped polythene bags which repel dampness and atmospheric change. Per dozen, 3 in., 1s. 6d.; 4 in., 1s. 8d.; 5 in., 1s. 9d.; 5½ in., 2s.; 7 in., 2s. 4d.; 8½ in., 2s. 8d. From your dealer, or from SWAINS Papercraft Ltd., Dept. 6, Buckhurst Hill, Essex.

FRIENDLY FOLK ASSOCIATION, 87, Terrace, Torquay. Leading International Correspondence Hobby Club since 1943. Now included, facilities for Tapesponding. Details free.

WAL GAIN transistorised pre-amplifiers. Many applications, extra gain for Mics, Tape Heads, P-U's, etc. Mono version, £5. Stereo, £7 10s. WAL BULK TAPE ERASER, both tracks 8-in. reel erased 30 sec., £7 18s. 6d. WAL TRAK transistorised oscillator, 1,000 cps, indispensable for Service, £6 10s. Full technical literature sent, supplied through all leading dealers, Wellington Acoustic Laboratories Ltd., TRC Dept., Farnham, Surrey.

Recording Tape. Save up to 30 per cent. Send for list. Also 50 secondhand Recorders in stock. E. C. Kingsley & Co., 132, Tottenham Court Road, London, W.1. EUS 6500.

## TAPE EXCHANGES

**T**APE recorder owners who would like to make contact with others of similar interests to exchange news and views by tape are invited to send their name, address, sex, age and special hobby.

It will be assumed that all tape contacts will be made using a speed of 3¾ ips, on half-track tape. Maximum spool size only is given.

Allison, Clifford. 3, Robertson Avenue, Edinburgh, 11. Music. Seven-inch spools 3¼ ips. Contacts anywhere welcome.

Brown, Charles A. (33). 23, Edwards Close, Wigmore, Rainham, Kent. Motoring. Seven-inch spools, 7½, 3¼, 1¾. Contacts anywhere welcome.

Kerridge, Mike (31). 73, Ampleforth Grove, Willerby Road, Hull, Yorkshire. Country, Western and Folk music. Seven-inch spools, 1¾ to 15 ips, two- or four-track. Contacts anywhere, particularly battery portable owners.

Milling, Peter J. (30). 74, Amhurst Park, London, N.16. Politics, philosophy and psychology. Wishes to contact enthusiasts in England, France and Israel.

Pender, Jes. (17). Flat 1, 12, Carlton Terrace, Portslade, Sussex. Rhythm 'n blues, sport, occultism. 5½-inch spools, 3¼ ips. Contacts anywhere.

Canadian Schools, c/o T. H. W. Martinn, Superintendent of Public Schools, The Board of Education for the City of Toronto, 155, College Street, Toronto 2B, Canada.

## Subscription Order Form

TAPE RECORDING FORTNIGHTLY,  
7, TUDOR STREET, LONDON, E.C.4

I enclose my subscription of 45 shillings for one year, post free (Subscription to USA and Canada \$7) beginning with the issue dated.....

(BLOCK CAPITALS)

Mr., Mrs., Miss.....

Address .....

.....

"Tape Recording Fortnightly" is published on alternate Wednesdays, and is obtainable at newsagents, bookstalls, and music and radio dealers.

# News from the Clubs

(Continued from page 31)

A local drama group recently approached the members asking for sound effects for one of their open air productions. The play—"The Sunken Bell"—includes a thunder storm, and the sound of a bell tolling under water. No news of their success has been received yet.

The **HINCKLEY** club members are avidly searching their Constitution for legal means to raise funds. In the past they have not bothered about subscriptions as the proceeds of their raffles have covered any minor expenses. However, they are now contemplating outings and the building of a tape library, and the members are having to dig deep. Perhaps there is a moral here somewhere.

One of the first outings was to the club at **Coventry** where, on July 15, they were scheduled to join their neighbours for a Treasure Hunt. Keith Smith (secretary) and Brian Braidley (treasurer) were joined on this occasion by Edgar Hurley who took along his Grundig TK1.

Earlier on that day these members were joined by June Oran, Alan Pickering, and Harry Clark when they organised a *Record-your-Voice* stand at a garden fête arranged by the Mancetter Darby and Joan Club. They charged sixpence per head for the privilege, the proceeds going to the old folks of Mancetter.

Their latest reported meeting was held on June 21 when the subject was editing and splicing, with a questions and answers session to follow. The secretary also reported a letter, received from a Mr. Webb of Morayshire who had in his possession a tape of the Hinckley Amateur Operatic Society. The letter promised to let the members have this tape for their library, or for their "chosen use." Either way the members cannot lose, and thanks duly went to Mr. Webb.

The **BATH** members have also been out-and-about in recent weeks. First of their assignments was to complete a cine film and sound recording of the Bath Carnival Ball, Beauty Contest, Procession and Barbecue. The procession proved the greatest problem for them, but the task was soon achieved using a Ferrograph Grampian parabolic reflector and a Grundig, situated twenty feet above the route on a scaffolding.

Within the procession itself, the members had a car decked with club posters and a mock-up recorder complete with reels of tape and a loudspeaker from which they broadcast music.

A number of members were also weaving through the procession with Grundig TK1s and a cine camera. This task completed, the members then organised a *Record-your-Voice* stand at the Barbecue. Over a hundred visitors paid their sixpence, and the total received went into a collection for the Cheshire Homes.

A few days following this exacting weekend saw members recording part of a concert given during the Bath Festival of Arts. John Ireland, the composer, who was unable to be present for the concert had asked the club to tape his music

being played by Yehudi Menuhin, Louis Kentnor, and Gaspar Cassdo. The members willingly obliged, and were later able to record a message from the famous violinist to the composer.

At another of their June meetings Mr. Frank Parrington of BASF Chemicals Ltd. presented the film *The Magic Tape*. A practical demonstration was also the

main subject of one of the latest meetings of the **REDDITCH** society. Several members of the local cine club had been invited along for the evening to hear Cyril Price explain and demonstrate the art of tape and cine synchronisation. He also played a tape of sound effects he had produced for the local dramatic society.

## CLUB MEETING DIARY

Is your club included in this list? If not, send details, on a postcard please, including date of the next meeting.

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

**ACTON:** Alternate Fridays at the King's Head, Acton High Street. (Sept. 15.)

**BARNSELY:** Every Tuesday at YMCA, Eldon Street.

**BATH:** Alternate Wednesdays at St. Mary's Church Hall, Grove Street. (Sept. 6.)

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

**BETHNAL GREEN:** Every Friday at Shoreditch Tabernacle, Hackney Road.

**BIRMINGHAM:** Every Monday at the White Horse Cellars, Constitution Hill.

**BIRMINGHAM (SOUTH):** Alternate Mondays at Stinchley Institute, Hazlewell Street, Stinchley. (Sept. 11.)

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

**BLACKPOOL:** Every Wednesday at "Habonim," Lonsdale Road, off Lytham Road.

**BOURNEMOUTH:** Alternate Tuesdays at the Queen's Hotel, Queen's Road, Bournemouth West (Sept. 19.)

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

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

**BRISTOL:** Alternate Wednesdays at Redcliffe Church Hall, Guinea Street, Redcliffe. (Sept. 6.)

**BRIXTON:** Every Tuesday at The White Horse, Brixton Hill, S.W.9.

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

**CARDIFF:** 1st and 3rd Tuesdays at 46, Caroline Street.

**CATFORD:** Every Friday at St. Mary's C.E. School, Lewisham, S.E.13.

**CHESTERFIELD:** Every 3rd Monday at the Yellow Lion Inn, Saltergate. (Sept. 25.)

**COTSWOLD:** Fortnightly, alternating Monday and Thursday at Bayshill Hall, Royal Well Lane, Cheltenham. (Sept. 7.)

**COVENTRY:** Alternate Wednesdays at Holyhead Hotel, Coventry. (Sept. 13.)

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

**DARTFORD:** Every Thursday at 41, Winsor Drive.

**DERBY:** Alternate Wednesdays at Osmaston Park Hotel. (Sept. 13.)

**DONCASTER:** Alternate Thursdays at Lancaster House, Westgate Gate. (Sept. 14.)

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

**DUNDEE:** Alternate Mondays at The Salvation Army Hostel, 31, Ward Road. (Sept. 11.)

**EASTBOURNE:** Alternate Saturdays at Hartington Hall, Bolton Road. (Sept. 16.)

**EDINBURGH:** 1st and 3rd Fridays at 22, Forth Street, Edinburgh 1.

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

**GRANTHAM:** Weekly, 1st week in month Wednesday; 2nd, Monday; 3rd, Thursday; 4th, Friday at Grantham Technical College, Avenue Road.

**GRIMSBY:** 1st Monday at 21, Langton Drive, Nunsthorpe, Grimsby.

**GLASGOW:** Fortnightly, alternating Tuesday and Thursday at the Christian Institute. (Sept. 14.)

**HARROGATE:** Every Wednesday at 4, Belford Road.

**HARROW:** Alternate Thursdays at St. George's Hall, Pinner View, North Harrow. (Sept. 7.)

**HINCKLEY:** Alternate Wednesdays at The Wharf Inn, Coventry Road. (Sept. 13.)

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

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

**HULL:** Alternate Tuesdays at 281, Hessle Road. (Sept. 12.)

**ILFORD:** Every Tuesday at the RAFA Rooms, Cranbrook Road.

**IPSWICH:** Alternate Thursdays at the Art Gallery, High Street. (Sept. 14.)

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

**KEIGHLEY:** Alternate Wednesdays at the Spencer Street School Rooms. (Sept. 6.)

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

**LEEDS:** Alternate Fridays at 21, Wade Lane, Leeds 1. (Sept. 15.)

**LEICESTER:** Alternate Fridays at the Newark Girls' School, Imperial Avenue. (Sept. 8.)

**LONDON:** 2nd and 4th Thursdays at the Abbey Community Centre, Marsham Street, S.W.1.

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

**MAIDSTONE:** Every Thursday at the Ex-Services Club, King Street.

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

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

**NORTHAMPTON:** Tuesdays and Thursdays at 36, Spring Gardens.

**NORTH LONDON:** Alternate Wednesdays from 1st Wednesday in month, at Bush Hill Park School, Main Avenue, Enfield.

**NOTTINGHAM:** Alternate Thursdays at the Co-operative Educational Centre, Heathcote Street. (Sept. 7.)

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

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

**PLYMOUTH:** Alternate Wednesdays at Virginia House, Plymouth. (Sept. 6.)

**READING:** Every Monday at Abbey Gateway.

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

**RUGBY:** Alternate Thursdays at the Red Lion, Sheep Street. (Sept. 15.)

**SHEERNESS:** Alternate Fridays at 136, High Street. (Sept. 15.)

**SOUTH DEVON:** Alternate Wednesdays at the Y.M.C.A., Castle Circus, Torquay. (Sept. 13.)

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

**STAFFORD:** Alternate Tuesdays at The Grapes, Bridge Street. (Sept. 19.)

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

**STOCKPORT:** 1st Friday at the Unity Hall, Greek Street.

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

**SWANSEA:** Every Monday at 65, Wind Street.

**URMSTON:** Alternate Thursdays at Davyhulme Scout Hut, Barton Road. (Sept. 14.)

**WAKEFIELD:** Alternate Mondays at York Street Hotel. (Sept. 11.)

**WALSALL:** Every Wednesday at Bluecoats School, Springhill Road.

**WALTHAMSTOW:** Alternate Fridays at 22, Orford Road, E.17. (Sept. 15.)

**WARE:** 2nd Tuesday at the Old Brewery Tap, High Street.

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

**WEST HERTS:** Fortnightly alternating at the Cookery Nook, High Street, Watford (Sept. 27) and Heath Park Hotel, Hemel Hempstead. (Sept. 6.)

**WEST MIDDLESEX:** 2nd Thursday at the Railway Hotel, Station Road, Hampton, and 4th Thursday at Southall Community Centre, Bridge Road, Southall.

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

**WEYMOUTH:** Alternate Wednesdays at The Waverley Hotel, Abbotbury Road. (Sept. 6.)

**WINDSOR:** Every Thursday at The Royal Adelaide Hotel.

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

**WOOLWICH:** Alternate Mondays at the North Kent Tavern, Spray Street, Woolwich. (Sept. 11.)

**YORK:** Every Thursday at 62, Micklegate.

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

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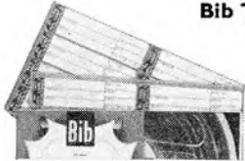
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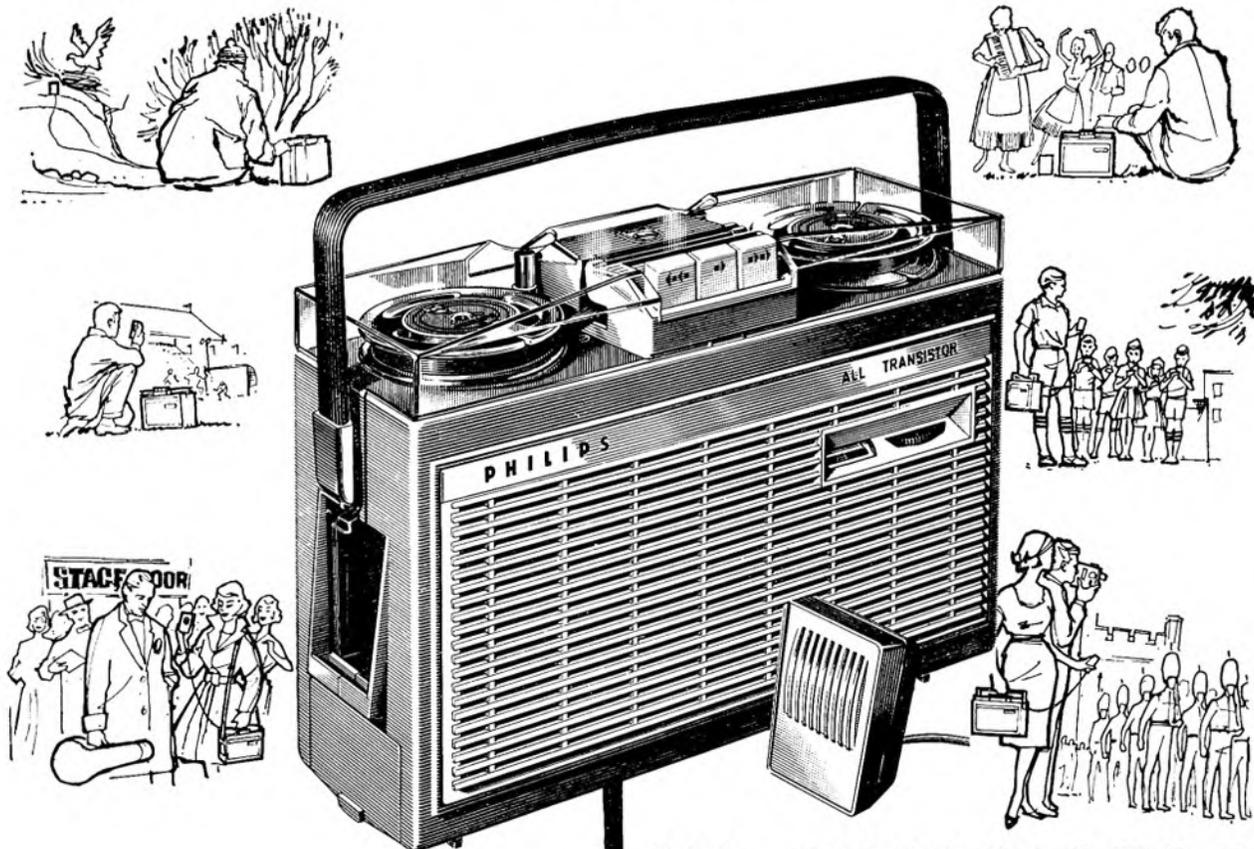
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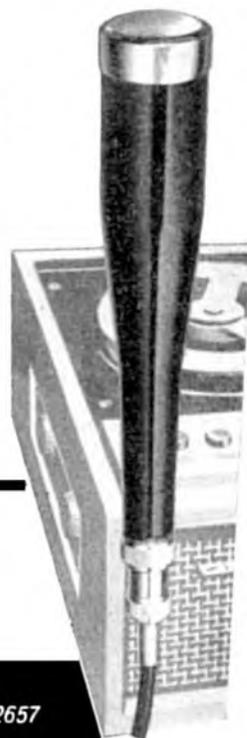
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**TAPE**  
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FORTNIGHTLY

Vol. 5 No. 19 20th September, 1961

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# We take the view . . .

## A DIGEST OF NEWS, COMMENT AND EDITORIAL OPINION

AT last—the tape record business looks like getting off the ground. It has been distressing, these past few years, to see so many attempts made, and so little lasting success achieved.

One of the principal reasons, of course, has been the disparity in price between taped and the comparable discs. This is now being removed, in a quite dramatic way, by the World Record Club's announcement that it will henceforth release all its issues in both tape and disc versions—and at the same price.

With a guaranteed 70 or 80 tape records each year at a basic price of 29s. each, plus postage (there are certain concessions that can reduce the average price over a year to considerably less than 29s. per tape), enthusiasts have their first real opportunity to build up a good library of music on tape.

Simultaneously with the World Record Club announcement comes news of another similar venture—the Tape of the Month Club launched by the firm which has already produced a number of specialised tapes under the name of "Esoteric". These new tapes are promised at prices varying between 12s. 6d.—35s. (mono) and 15s. 6d.—25s. 6d. (stereo).

It will now be interesting to see the

effect of these tape record clubs on the firms that have hitherto produced or promised tape issues. We are still awaiting the United Stereo Tapes which were at one time looked to as the stimulant that was needed to get the new tape trend under way in Britain.

E.M.I., the only one of the big disc recording concerns to have shown interest in tape records, has not produced a new issue in this medium for a long time. Now, I understand, E.M.I. has undertaken the production of the tapes to be marketed by World Record Clubs.

There are, of course, an increasing number of smaller concerns producing tape records of a specialised kind. A new series of language courses on tape, for example, has just been announced by a concern known as Magnetophone and we may expect a continuing large-scale expansion of this type of effort.

### I.A.T.R.C.

THE programme for the fifth Congress of FICS — the International Federation of Sound Hunters—and the judging of the tenth CIMES—the International Recording

Contest—has now been drawn up and circulated. A number of propositions of special interest to recording amateurs are due to be discussed at the Congress.

Britain, I feel sure, will be well represented in the Contest by the tapes which won the prizes in the British event. Mr. Terry Devereux, who produced this year's "Tape of the Year" will be travelling with the British delegation to the international event, as a guest of E.M.I. Sales and Service Ltd.

The only doubt in my mind as I prepare for the journey is concerned with politics rather than tape recording. The international meets this year in the number one crisis spot—Berlin. None of those concerned with its organisation, however, betrays the slightest concern and it is reassuring that friends in the industry have just made uneventful trips to Berlin for the German Radio, TV and Photographic Industries Exhibition. This was the first radio and TV exhibition staged in Berlin since 1939 and its sponsors claimed it as the largest of its kind ever held anywhere.

### TV on tape

WE have long foreseen, and looked forward to, the day when photography, as we know it, will be revolutionised, if not outmoded, by video-tape developments. We hope that the series of articles, concluded in this issue, by James A. Plowman, will have stimulated interest in the immediate possibilities open to amateurs.

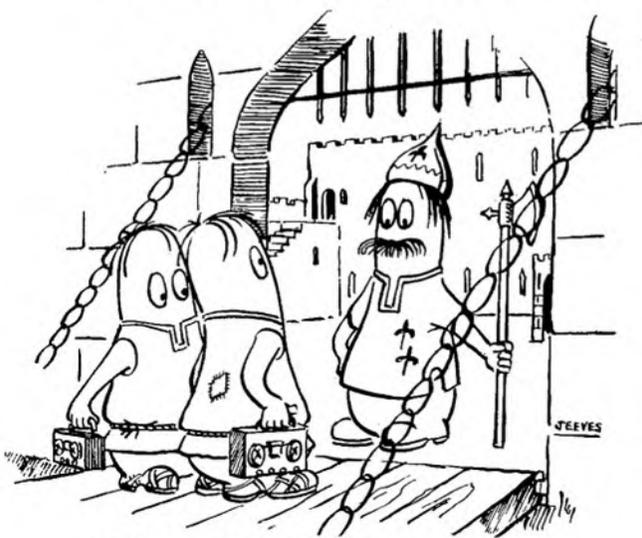
Now I hear that the professionals believe they are approaching a big break-through.

The aim is to produce a recorder and tape with which it will be possible to record home movies which can be immediately "played back" on an ordinary television screen.

Now I hear it suggested that, if progress can be maintained at the present pace, this should be possible within five years. The pioneers are thinking in terms of equipment that would not cost more than £250.

Their only reservation—that it may take longer to solve the problems of doing the same thing in colour!

### LAUGH WITH JEEVES



"We wondered if you'd let us record in your torture chamber."

## Collecting the Trophies



## BRITISH AMATEUR TAPE RECORDING CONTEST 1961

# Prize Presentation

### Lunch and party for winners

**P**RIZE-WINNERS in the fifth British Amateur Tape Recording Contest received their awards at two special gatherings in London on Saturday, August 26.

First, they assembled at the Savoy Hotel, where they were the guests of E.M.I. Sales and Service Ltd. at the traditional Emitape lunch.

There, Mr. T. Devereux, of the London Tape Recording Club, was presented with the Emitape Cup, awarded for "The Tape of the Year." He also received a miniature, which he retains when the big trophy is handed back for presentation to next year's winner.

The presentation was made by Mrs. J. E. Wall, wife of the Managing Director of Electric and Musical Industries Ltd.

Afterwards, the cup was filled with champagne and passed around the table.

Mr. Wall presided and congratulated the winners and Mr. Stephen McCormack, of Anglia Television, who was one of the judges, also spoke.

Later, winners and leading figures in the industry met at a party at the Cafe Royal, given by the sponsors of the Contest, *Tape Recording Fortnightly*. There, the main presentation of awards was made by Mrs. Carol Makings, the wife of a director of the magazine.

The three silver cups, silver trophy, gold medal and club shield made a glittering display. The winners also received their cheques and certificates.

D. J. Garrett, winner in the Composition Section, and one of his collaborators of The Mutleyphonic Workshop, were featured in the "Day by Day" programme on Southern Television two days later and part of their tape, "Pum Thirty-one" was played.

It is hoped that other entries may be heard later in the year by listeners to the BBC Network Three programme, "Sound."

The best tapes in the British Contest will now go forward as Britain's entries in the 10th International Amateur Recording Contest, to be judged in Berlin in mid-October. As there is a limit of six entries from any one country, it has been decided that the tapes made by T. Devereux, D. J. Garrett, R. A. Margoschis, Albert Pengelly, Miss A. Goodwin and Pennington Junior Mixed School shall be submitted.

Mr. Devereux will travel to Berlin with the British judges; he will be the guest of E.M.I. Sales and Service Ltd.

**Left:** Mrs. Carole Makings presents the prizes at the "Tape Recording Fortnightly" party. **Top to bottom** receiving their prizes are: R. B. Cruse (Schools), the Grundig Cup; D. J. Garrett (Compositions), the Acos Cup; R. A. Margoschis (Documentary and Reportage), the Irish Trophy; and A. Pengelly (Music or Speech), the Wyndors Gold Medal

## The first lady



Miss A. M. Goodwin receives the "Tape Recording Fortnightly" Certificate and 10 guineas for her actuality tape "Blackbird with Chaffinch, in Storm"

**T**APE RECORDING FORTNIGHTLY wishes to express its gratitude to the following firms for their generous support of the 1961 Contest: E.M.I. Sales and Service Ltd. (the *Emitape Cup*); Grundig (Great Britain Ltd.) (the *Grundig Challenge Cup*); Cosmocord Ltd. (the *Acos Cup*); Wilmex Ltd. (the *Irish Trophy*); and the Wyndors Recording Co. (the *Wyndors Gold Medal*).



★  
Left: Mr. Dennis B. Affleck, whose tape "Experiment with Reversed Speech" gained first prize in the Technical Section  
★

# HOW WE MADE THE "Tape of the Year"

**T**HE London Tape Recording Club presents . . .

That was the beginning of the tape we were to enter in the British Amateur Tape Recording Contest. We had the two pieces of bread for the sandwich, but we had no meat filling.

At a meeting of the Club, we decided to let the members choose for themselves, and we threw the whole question open to discussion. "What shall we enter for the Contest?"

Some of the answers were unprintable—but we did discuss various stories, and we issued a Newsletter to the effect that all ideas for a subject should be submitted to our next meeting.

A fortnight passed, and four ideas were presented for consideration; two of these were based on fact, and two on fiction. After an evening of talk and argument, a vote was taken, and my idea for a play was chosen. A further vote elected me to produce sufficient copies of the proposed play, so that we could hold a rehearsal.

Over four days, I worked out a rough pencil draft, then with two index fingers poised over the typewriter, I started my task. There were a number of items to consider:

1. The Story.—This had to be self-explanatory, using dialogue and sound effects.
2. The Time.—How many pages of script did we need to carry the story, and would these run for the required fifteen minutes, or under?
3. Characters.—How many characters could be safely introduced without straining the acting resources of the Club?

Bearing all these in mind, I started typing. The main worry was number three, for none of us could claim to be budding actors. This I knew for an absolute fact, for I had written two other plays for the use of the Club, and we had (for want of a better word) acted them. The first play had been a comedy, and, when we had finished it, it was uproarious. The other play had been a murder mys-

tery, and, when this had been finished, it, too, was uproarious. They say that a bad workman blames his tools . . . and I blamed the acting; unfortunately I had taken the part of the murderer.

Carefully nursing two sore index fingers, I turned up for rehearsal with five copies of the play, and we went into the characterisation of the parts. Basically, the meeting was intended to give members the opportunity of hearing the play, and to give me the chance of choosing those members whose voices appeared to fit the action. After the meeting I found that I was up against a real snag, for no one who had "acted" in the rehearsal had the right type of voice.

I went home, and spent the next few days worrying about where we could obtain suitable actors. On the basis that this was to be all our own work, I dusted off our Membership List, and went through it, choosing members I thought would be able to do the parts. Then I notified them that they had "volunteered."

Before I attempted to record, I split the play into seven sections, and worked out a list of the equipment that would be needed. It was now possible to start anywhere, at any section, subject to the "actors" being available.

The recordings were done in my living room, and the equipment consisted of a Baird tape recorder, and a Reslo ribbon microphone. This was used throughout for all the main recording, while among the equipment for the effects, members supplied a Vortexion and a Ferrograph.

The first section I attempted to record contained a "battle" in the background of the main action. This effect was recorded first, by filling a toy balloon with one hundred ball bearings and inflating it; this was then shaken or tapped, thereby creating a barrage of heavy guns. To this pre-recorded "gun-fire" we added the dialogue, putting some more vigorous balloon effects towards the end of the sequence. This last group of "guns" was sometimes as close as two inches to the microphone.

By

## TERRY DEVEREUX

Secretary of the London  
Tape Recording Club

The next session was a telephone conversation between two of the characters. To get the distorted effect, the whole of the conversation was pre-recorded, leaving pauses for the other character, and this was then fed to a pair of earphones placed close to the microphone.

One major difficulty here was created by the pauses in the pre-recorded section, as the answers were either of a too fast tempo, or too slow. In some cases there would be long pauses, where the voice should have answered sharply, and in others we had obliterated the 'phone voice. The machine playing the effect did not have a Pause Control and we overcame this difficulty by stopping the reel by hand. After four attempts we managed to do this sequence to our satisfaction.

At subsequent recordings, we started by reading the scene in a dry run. During this preliminary reading the previous action of the play was explained, and each participant's place around the microphone was worked out. We found that in some cases, movement to and from the microphone added to the atmosphere and gave aural perspective to the action. Then, when everything had been worked out to everyone's satisfaction, we started recording.

During this first recording there was frequent disagreement over the characterisation and dialogue, and alterations to the script were done on the spot. When we had decided that the play read right, we did two recordings, and, when it came to editing, I was sometimes able to use a part of each. In one instance we were unable to fill one of the parts, and I overcame this obstacle by rewriting a page of the script, so that those present were able to do the sequence.

I have written three plays and in each case I had extreme difficulty in getting a suitable ending; this play was no exception. My first attempt was so weak that it even included an explanation of all the previous action. When we came to record this last section we decided to leave the listeners up in the air and let them form their



Mr. Terry Devereux, Secretary of the London Tape Recording Club receives the Amphlett Trophy for the best tape in the Club Section. On the table is the Emitape Cup, awarded to the Club for producing "The Tape of the Year"

own opinions. This greatly improved the ending; while listening to it one can almost gain the impression of a large hovering question mark. I would like to express my deep appreciation to those members present at the time who successfully induced me to change my script.

### IN THE NEXT ISSUE How we made "Life in 1801"

By

R. B. Cruse of Pennington  
Junior Mixed School

Some of the finished sections were played at Club meetings, and much of the criticism and comment proved very useful. A point was brought up after the playing of the "Battle Sequence"; one member said that it "didn't sound like a battle." In an attempt to overcome this, one member went to the ranges at Bisley with a portable recorder, and returned with some Sten gun bursts. These were re-recorded, and dubbed into the battle; now at least some of the guns were real!

When all the play had been recorded the various sections were edited and spliced together for con-

tinuity. Over a further period, this master tape was edited, entailing the removal of unwanted dialogue and the addition of some small sound effects. After all this, it still wasn't finished, as we had to make a copy on virgin tape, adding still more effects.

The basic sound that had to be added was a "heartbeat." This was needed to link the sections and to add a more dramatic atmosphere, as well as to form part of the story. This effect was achieved by placing the microphone inside a briefcase, and tapping the side. On the Baird it is possible to add bass and treble, and for the heartbeat a certain amount of bass was added. When I had arrived at a suitable deep and resonant heartbeat, it was made into a tape loop, and successfully added to the master.

Eventually, all was completed, and the tape was played to the Club members, whose reactions proved very favourable.

This was our first attempt at an entry, and it demonstrates what a Club can accomplish when all the members pitch in and pull together.

Now I shall have to dust off the typewriter, massage my index fingers, and see if I can write something for entry in next year's Contest. At least I know that our next entry will not be "Just by Accident."

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# stereo

SPECIAL

SUPPLEMENT

SEPTEMBER 1961

## FOOTSTEPS IN THE DARK

**A** YEAR ago I had little or no interest in stereo. When it began growing in popularity I heard demonstrations at the Radio Show, and I listened to one or two of the stereophonic broadcasts by the BBC on Saturday mornings—mainly out of curiosity.

I was never very impressed with the Radio Show demonstrations, mainly, I think, because of the environment. Either I was the last person to enter the demonstration room, and thereby was planted within six inches of one speaker and six yards of the other, or else the ever-present cacophony at Earls Court, despite the alleged sound-proofing of the demonstration booths, waged battle with the harassed demonstrator—and invariably won. The demonstrator had probably been at it all day anyway, and was more than a little exhausted with the whole business.

With regard to the BBC broadcasts, these were perhaps a little more successful, as far as I was concerned, but it involved a minor upheaval in the living room. Carefully following instructions, which said that you must use your radio as your left-hand channel, and your TV as your right-hand channel, meant that everything in my room was in the wrong place—and the only solution was a grand general post, with myself finishing up rammed against the mantelpiece, listening to express trains and bouncing ping-pong balls.

**NORMAN PAUL'S** stereo entry in the 1961 British Amateur Tape Recording Contest was highly commended by the judges. In this article he describes his conversion to the stereophonic medium, and the production of his first stereo tape.

Usually I only had about five minutes listening time, partly because I always started late in "getting the room ready," partly because cramp prevented a continuation, and, invariably, because five minutes is the maximum time my radio and television will work together in harmony before the former emits an ear-piercing yell, denoting that time is up. Some say it is the district in which I live, others that it is a nearby factory—but I know that it's resentment on the part of the radio at having to share a *sound* programme with the telly.

You will see, therefore, that my first introduction to the new dimension in sound was not all that successful. In fact, I came to regard the whole thing as a bit of a bore—a gimmick that would soon go the way of all gimmicks. Mono for me and no nonsense was the order of the day.

And then I won a stereo tape recorder in the 1960 Tape Recording Contest.

I was, of course, tremendously proud and honoured that my entry should have won the Grand Prize. What wonderful things I should be able to do with this fabulous machine

—in *mono*! Oh yes, I was still thinking in terms of mono!

The day the machine was delivered I experimented into the small hours (I have very patient neighbours!), playing all my old tapes, recording through the microphone, dubbing from my existing recorder, and so on. Yes, it was a mighty good machine!

Then casually, and almost as an afterthought, I turned the switch to "Stereo" and circled round the microphone, talking to it. Then, haphazardly (D. W. Gardner will be crying out in agony by now), I placed the second speaker a few feet from the recorder and switched to playback.

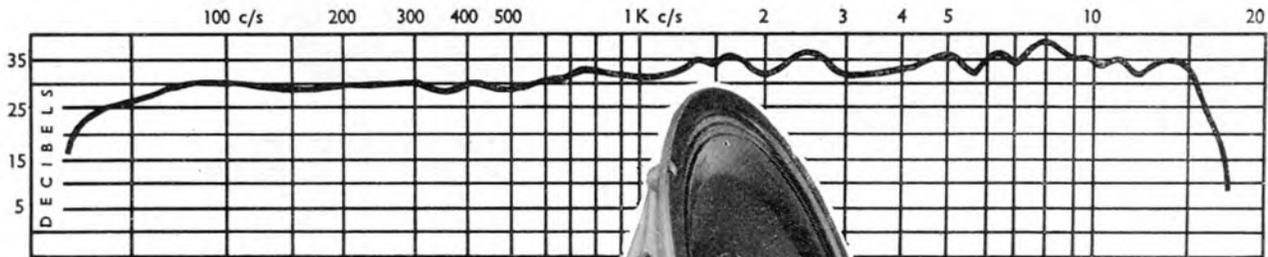
Immediately my attention was riveted. The meaningless jumble I had recorded came back to me with a new depth. Quite frankly, I was amazed at the transformation, under such makeshift conditions.

Thus was my conversion!

There began a new and permanent "transplanting" of the furniture in my room. Everything took second place to "stereo". The second speaker was placed "at least six feet from the recorder" and set at just the right angle. Furniture was so arranged

(Continued on page 17)

# HEAR AXIOM LEADERSHIP



## AXIOM 300 by **GOODMANS**



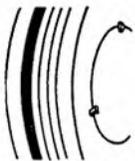
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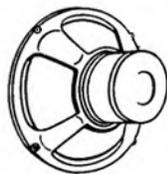
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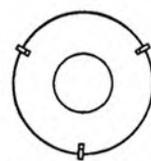
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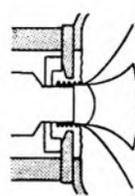
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## Footsteps in the dark

(Continued from page 15)

that the placing of chairs between the two speakers did not involve a major removal job. Pre-recorded tapes were bought and marvelled at by self and friends.

Then, inevitably, of course, came the desire to do some serious stereo recording myself. The problem was—what to record? This, I think, is something which probably faces all stereo addicts. You can hardly tape-spond in stereo, or record your favourite radio programmes in stereo. Baby's gurgles sound very much the same in stereo or mono, while impromptu recordings of fabulous



The author

parties sound less hideous in mono than they do in stereo.

All that you're really left with, apart, of course, from ping-pong and allied "gimmickry", is a musical item or a short play.

Quite apart from surmounting the complexities of the copyright ogre, you have to find performers. Few people, I imagine, have a tame orchestra at their disposal, with a repertoire of original compositions. There are, of course, amateur rock'n'roll groups, some of whom write their own numbers and would, no doubt, be only too willing to co-operate with the stereo recordist.

Speaking personally, I am interested in the amateur stage and am able to call upon experienced amateur actors to take part in tape plays. I decided, therefore, to "do" a tape play in stereo. I chose the Ghost Scene from Hamlet as my first venture.

I realised, right at the outset, that

the whole technique of the production was going to be vastly different from all previous recording work I had done. Whereas, before, I had planted the actors in their appropriate places before the microphone, and there they had remained—except for the occasional recede and approach, now movement was called for on what one might term a "grand scale".

It became much more akin to producing actors on the stage, except that, instead of moving about in the normal manner, they were obliged to keep their faces turned towards the stereo microphone and to execute a somewhat peculiar circular movement around it, in shoeless feet. In addition, they had to keep their eyes

microphone as and when the action of the play demanded. Inevitably, of course, there was a loss of quality.

Nevertheless, it was all great fun and taught me much about the complexities of stereo recording—so vastly different from the technique of mono.

I need hardly add that I am now a stereo addict and ideas for future "epics" are whirling through my mind.

Quite apart from the adventure of stereo recording, there is, of course, the thrill of listening to professionally-produced works. Two large extension speakers have been bought and now form part of my living room's permanent furnishings, after having

## ***"The adventure of stereo recording is well worth the extra money"***

on script, cue lights and, to avoid collisions, each other.

To add to the chaos (*organised*, of course!), a technician trundled around behind them carrying a cumbersome speaker, through which echoed pre-recorded footsteps on stone played back by a second recorder. Thunder and fanfares were fed straight in, direct to the stereo recorder's right and left inputs.

The finished production was not unpleasing and, at its first public performance at the Mountview Theatre, when it was included in a tape show I presented, was given an enthusiastic reception.

My next effort was a sound picture of Victorian London. There were few voices in this piece, which consisted mostly of sound effects, such as hansom cabs, footsteps, barking dogs, striking clocks, puffing trains, and so on.

Obviously many of the effects had to be pre-recorded (it's difficult to accommodate trains and hansom cabs in a sitting room!). The procedure adopted was to play the monaural effects tape on a second recorder through an extension speaker. The latter was then moved across the

been carefully placed to obtain the most satisfactory results. And this is very important! It's quite easy really, once the positions have been decided upon, to fit the rest of your furniture around the speakers.

Pre-recorded stereo tapes are the order of the day and, if you haven't yet experienced the immense satisfaction of listening to stereo, I would urge you, if you are on the point of buying a new recorder, to sample a stereo demonstration—*under ideal conditions*. I think you will find this new dimension in sound worth the extra money.

### **B.B.C. "Sound" Programme**

A magazine for radio and recording enthusiasts

**2.40 p.m. October 1**

#### **COMPETITION TAPES**

The Editor reports on the 1961 British Amateur Tape Recording Contest, and plays extracts from the winning tapes

"Sound" is broadcast on alternate Sundays on Network Three

**The next programme is on  
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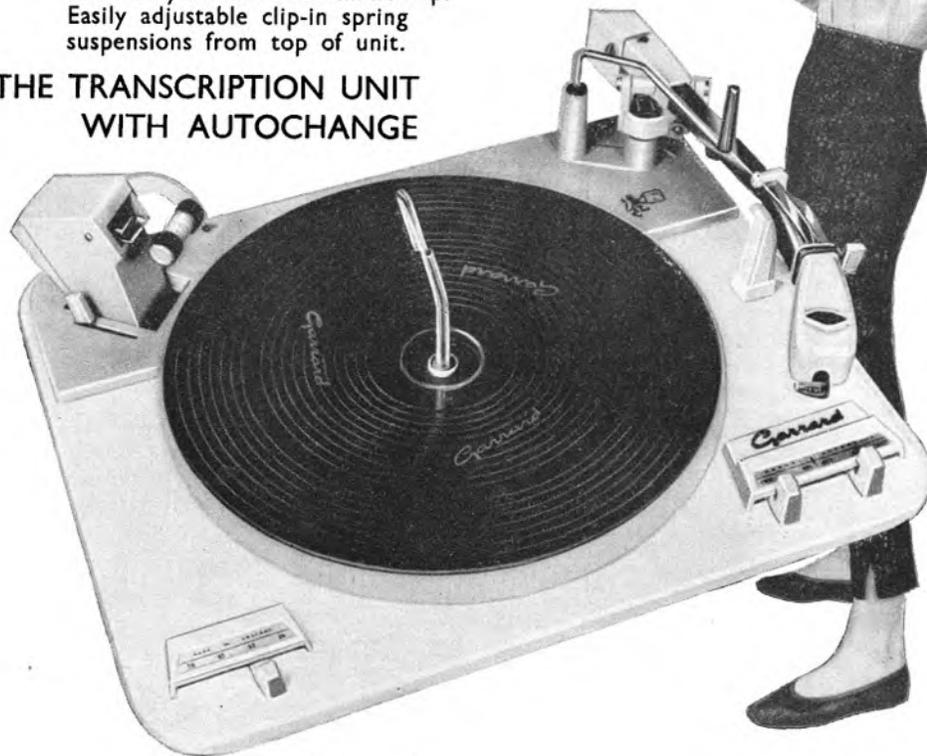
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12" diameter loaded and balanced turntable suitable for use with all types of pickups including sensitive magnetic types.

Extremely sensitive automatic trip.

Easily adjustable clip-in spring suspensions from top of unit.

## THE TRANSCRIPTION UNIT WITH AUTOCHANGE



by\*

**Garrard**  
of course



THE GARRARD ENGINEERING  
AND MANUFACTURING CO LTD  
SWINDON · WILTSHIRE

## THE CLASSICS

By EDWARD GREENFIELD



**Beethoven: "Pathétique," "Moonlight" and "Appassionata" Sonatas, Wilhelm Kempff, D.G.G., SLP EM 136227.**

*Kempff far outshines rivals (recent one including Sviatoslav Richter and Arrau) in expounding Beethoven's musical arguments with the clearest, magical cogency.*

**Strauss: Ein Heldenleben, Beecham and Royal Philharmonic Orchestra, H.M.V., ASD 421.**

*This, the last of Beecham's major recordings, shows him at his richest and ripest, an account*

*of the Hero's Life which is uniquely gripping and moving.*

**Mendelssohn: Symphony No. 4 ("Italian"), and Schumann: Symphony No. 4, Klemperer and Philharmonia Orchestra, Columbia, SAX 2398.**

*Klemperer's beautifully phrased, unrushed account of the "Italian" makes almost every other version sound perfunctory; in the Schumann, too, he provides the true breadth which makes one appreciate the work anew.*

# STEREO DISCS STAR SELECTION

The experts make their Autumn choice



## JAZZ

By ROBERT GOWER

**The Ballad Artistry of Milt Jackson, London, SAH-K 6163.**

*Beautifully conceived and executed vibraphone solos, lushly accompanied by a string orchestra under Quincy Jones. Smooth, but far from superficial.*

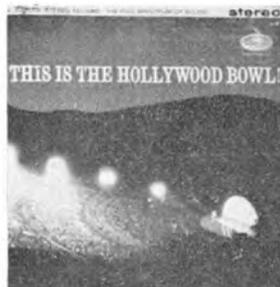
**Rock Me Gently: Harry Carney and The Duke's Men, Columbia, SCX 3378.**

*The Ellington Orchestra's baritone saxist, with*

*some of his colleagues, plays lively small band arrangements by Briton Kenny Graham. A successful Anglo-American jazz collaboration.*

**Jimmy Giuffre and his Music Men play The Music Man, London, SAH-K 6150.**

*Heavily arranged but zestful jazz versions of 11 Meredith Willson show tunes. Occasionally exciting, always musically intelligent.*



## LIGHT ORCHESTRAL

By IVAN MARCH

**This is the Hollywood Bowl, Volume 1, Hollywood Bowl Symphony Orch., Carmen Dragon: Felix Slatkin, Capitol SP-1-8496.**

*A brilliant compendium of some of the best of the Hollywood Bowl Recordings. The recording glitters and the programme is nicely varied.*

**Concert Marches:** played by the Regimental Band of the Scots Guards, cond. Lieutenant-Col. S. Rhodes, Columbia, SCX 3374.

*The recording here is superb, as near perfection as one could imagine. The playing is fine and the Grand March from Tann-*

*hauser will be my No. 1 stereo demonstration disc henceforth, both for richness of sonority and stereo definition.*

**Virtuosi, USA.** A concert of virtuoso pieces for solo violin by Paganini, Wieniawski and Bach, played by a full string complement of virtuosi, Brunswick, SXA 4002.

*The playing here is incredible and the Paganini pieces would surely astonish their composer. The recording is warm, yet brilliant, and the whole disc surprisingly enjoyable. Any string player will gasp!*

## Equipment Under Test

I HAD hoped that stereo reproduction had graduated from the "gimmick" stage, but the demonstration tape provided with the Sony Model 521 "Sterecorder" takes us back to the same old stunts of railway trains rushing madly about and horses clip-clopping from side to side—referring to channels, not inebriated quadrupeds. Add to these, a dance orchestra executing—how appropriate—the Grieg piano concerto and a female announcer with a condescending voice, and you may correctly assume that this reviewer was not amused, or entertained, by most of the recorded material, although there was an outstanding choral item sandwiched between the mediocre bits, and, to be fair, the recording, as such, is excellent.

But, even if the contents of the tape were unimpressive, the same cannot be said of the recorder. It is a two-speed, two-track/four-track, mono/stereo device, solidly and compactly made, of smart appearance, with convenient and uncomplicated controls. It is supplied with a comprehensive collection of accessories and a well-written handbook, which contains, as well as all the usual information, a complete circuit diagram, lubrication and simple fault-finding charts, and, for the non-technical, a very clear pictorial diagram of all the connections necessary for using external amplifying equipment.

The recorder contains a replay amplifier and loudspeaker for each channel and can, therefore, be used, if preferred, with no external equipment whatever.

It appears, in fact, to be all that one could desire, but, in the light of experience, there are some criticisms which can be made of the mechanical design—but more about those later.

The machine is housed in a wooden case covered with plastic imitation leatherette in two-tone grey, and fitted with a strong plastic carrying handle on the front. A removable lid gives access to the deck and controls. Two removable side flaps, hinged at the rear (which are securely held against the ends of the case when the lid is closed), can be swung outwards to form reflecting baffles for the two 6 x 4 ins. elliptical, permanent-magnet

# SONY MODEL 521 "Sterecorder"

loudspeakers mounted in the ends of the case.

The lid contains a zip-fastened plastic bag for the mains and other leads and stowage clips for two spools and two microphones, the remainder of the accessories being carried separately. The overall weight is 42 lbs. and the dimensions are 19-ins. wide, 15 ins. deep and 10 ins. high, with the lid in place.

\* \* \*

## SUPPLIES and CONNECTIONS

The recorder is designed for AC mains only and can be obtained for nominal voltages of 100, 110, 117 and 220, 50 or 60 cps, and the consumption is 95 watts. As supplied in this country, it is set for 220/230 volts, 50 cps operation and has the appropriate capstan sleeve and pinch wheel fitted.

The microphone input sockets are

## ACCESSORIES SUPPLIED

The following items are supplied with the recorder:—

1. One 5-inch reel of tape (600 ft.—about two-thirds pre-recorded).
2. Two high-impedance output dynamic (moving coil) microphones, in grey plastic cases, with pivoted plastic stands on the back, each with a 9 feet 6 inches long screened lead, fitted with a miniature jack plug.
3. A 10 feet long mains lead, fitted with a two-pin socket to match the recorder plug, and a two-pin flat-bladed plug, of the American pattern, both of which are moulded on to the cable.
4. Two spare screened leads, each 3 feet long, terminated with a small, co-axial screened plug at one end and insulated miniature crocodile clips at the other.
5. Two spare spools, one 5 inch and one 7 inch.
6. A plastic tool-case, containing scissors, a Phillips screwdriver and a plain screwdriver.
7. Capstan sleeve and pinch wheel for 60 cps supplies.
8. A roll of splicing tape, a cleaning cloth, and two bags of silica-gel for protection against damp.

located in the centre of the control panel (top front), and a "binaural monitor" socket (not shown on the circuit diagram) is mounted on the right-hand side of the case. Headphones, having earpieces with separate connections, can be plugged into this socket to enable both channels to be monitored simultaneously.

A non-removable hinged flap on the rear of the case covers a panel which carries the mains fuse and the rest of the connections, which are as follows:—

(a) Mains input plug.

(b) A mains output socket (flat-blade American type), supplied direct from (a).

(c) A second mains output socket (same type), supplied from (a) via the automatic cut-off switch on the deck.

(d) Two co-axial auxiliary input sockets, impedance approximately 500 Kilohms, for radio tuners, etc., requiring input signal levels of about 150 millivolts.

(e) Two co-axial line-output sockets for playback via external amplifiers, impedance 600 ohms. Connection to higher impedances is permissible, as this will not reduce the signal voltage available or spoil the quality in any way. (Although the handbook says that these sockets bypass the internal amplifiers, the circuit diagram shows them fed from separate secondary windings on the output transformers.)

(f) Two monitor jack sockets for external loudspeakers or headphones (impedance 8 ohms) which, when plugged in, disconnect the internal loudspeakers.

The hinged flap can be a nuisance, as it must be raised whenever a connection is to be made or broken, so that a space of at least 4½ inches must be left behind the recorder. Even if the connections are to be permanent, the mains plug holds it out at an angle, increasing the overall depth by about 2 inches.

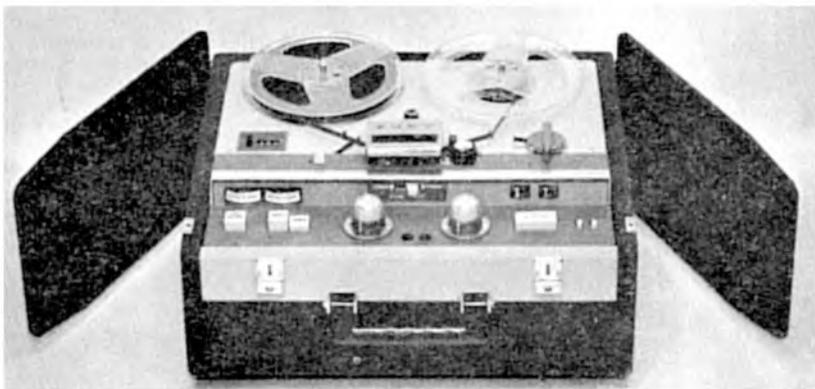
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## TAPE DECK OPERATION

Two speeds are provided, 3½ and 7½ ips, shown on the deck as 9.5 and 19 (cms.ps), respectively, speed change being effected by a small, spring-loaded knob in the middle of the deck, which is depressed and rotated clockwise for 7½ ips and rotated anti-clockwise and released for 3½ ips.

To the right of the deck is a master control, operated by a lever-type knob,

By  
**Alan Beaument**



which has three positions: Forward, Stop and (fast) Rewind. Concentric with this knob is a chromium-plated ring with a lever on the side, for changing normal forward to fast forward. To operate, one selects forward on the master control and, when the tape is moving, the chrome lever is pushed towards the rear of the deck and released, causing the speed to rise. All controls are positive and braking is firm but not violent.

Fast winding is not particularly speedy, a 5-inch reel taking 2½ minutes to rewind.

To the left of the head cover, which is pushed into place on two split pins mounted on the deck cover plate, is the digital tape position indicator, an instant-stop knob (push left to operate), and a small arm which rises through a slot in the cover plate when either Forward or Rewind is selected. This arm operates a cut-off switch if the end of the tape runs off the feed spool, switching off the motor and the mains socket previously mentioned.

There are two twin-track heads, erase and record/playback, which are on a spring-mounted plate whose height, relative to the fixed tape guides, is moved by the Head Shift lever for 2- or 4-track operation (see Fig. 1).

On position 2, twin-track stereo requires one forward run only, twin-track mono being effected in the usual way, inverting the reels when track 1 is completed, to finish on track 2. Four-track

stereo has the heads in position 1, the tape being inverted when tracks 1 and 3 are completed.

Four-track mono is not so straightforward, the procedure, briefly, being as follows:—

Select "stereo" (yes, stereo!) input to channel 2—channel 1 gain controls to zero—record track 3—invert reels—record track 2—select mono, (switching off the channel 2 heads, to prevent erasure of tracks 2 and 3)—change input to channel 1—channel 2 gain controls to zero—record track 1—invert reels—record track 4. Phew!

Note that tracks 2 and 3 can only be erased in the stereo position, which will automatically erase tracks 1 and 4 also.

I might mention here that the recorder cannot be used with the lid in place, as the larger tape spools (max. size, 7 inches) overlap the rear of the case; nor can the lid be closed, with the microphones stowed, when spools are in place on the deck, as they meet before the lid is down. The spools do not lock onto the spindles in any way, so the recorder

can only be used in a horizontal position.

A single 100 volt motor, of generous dimensions, operates the whole deck through a system of rubber idler pulleys, whose positions are controlled by the setting of the master switch. The motor is permanently connected to the 100-volt tap on the mains transformer primary and is thus independent of the mains voltage used. A switch on the rear panel, marked "∞ (cycles) 50-60," changes the value of motor capacitor for the different supply frequencies in order to maintain the correct speeds. A fan on the bottom end of the motor spindle provides cooling for the whole assembly.

Wow and flutter of less than 0.15 per cent at 7½ ips and 0.25 per cent at 3¼ ips is claimed for this arrangement, and, although all pulleys are moved out of contact with each other in the Stop position, having had some experience of idler pulleys developing "flats" on record players, one can't help wondering how long these figures will hold good.

\* \* \*

**AMPLIFIERS  
 AND CONTROLS**

As the two amplifiers are identical, the following remarks apply to both.

The amplifier chain consists of a twin-triode, type 12AD7 (or 12 AX7), with the two halves in cascade, feeding a 6AU6 pentode stage which drives the 6AQ5 output valve, the whole being used for playback and recording from microphone, the auxiliary input sockets being mixed into the grid of the 6AU6. For mono operation, the last two stages of the channel 2 amplifier are driven from channel 1, providing output from both loudspeakers. Peak output from each channel is 6 watts (American rating—about 3 watts, British rating). Hum-balancing controls on the heaters are mounted on the rear panel to obtain minimum hum after valve changes, etc.

65 Kc/s bias for both channels is provided by a 12BH7 twin-triode push-pull oscillator and power is supplied to all stages by a transformer/full-wave valve rectifier combination, using a 6CA4, through resistance-capacity smoothing. The mains transformer is full-shrouded, plus a copper hum-shielding band round the core.

The signal-to-hum/noise ratio is better than 50dB and the quoted frequency response is 50-15,000 cps ±2dB at 7½ ips, and 50-10,000 cps ±2dB at 3¼ ips, with

(Continued on page 22)

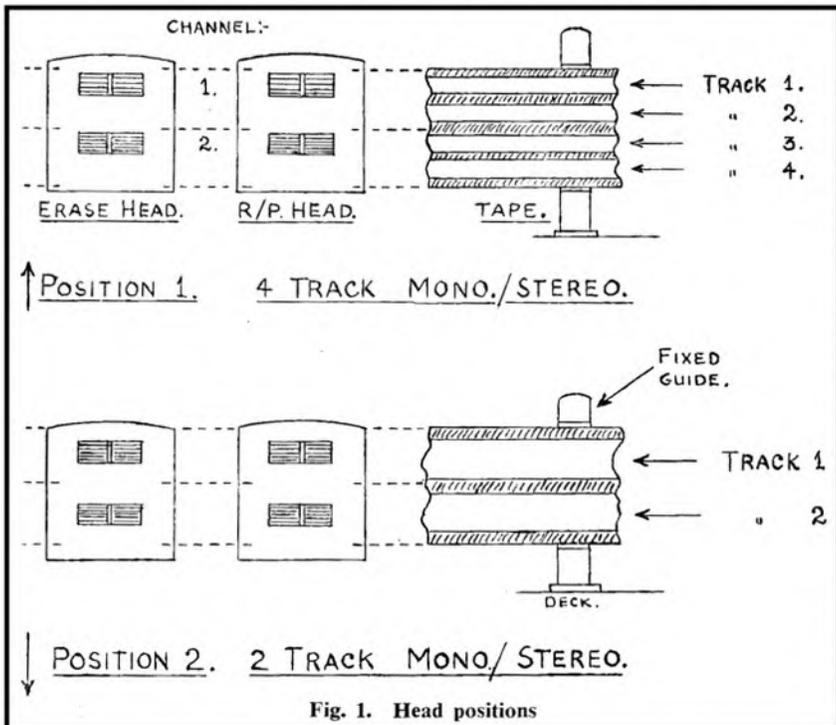


Fig. 1. Head positions

## Equipment under test

# Sony Sterecorder

(Continued from page 21)

harmonic distortion of less than 2 per cent overall at half rated output.

Two edgewise-scale meters on the control panel, fed from the 600 ohm windings on the output transformers, indicate the signal level in each channel on both record and playback, and are calibrated in decibels and percentage tape modulation. (0dB = 100 per cent mod., which is 20dB below tape saturation level.)

Push-button controls operate the mains on/off switch, the mono/stereo selection and record, the latter having to be depressed until the master switch is set to forward, when it is locked in position. Red indicator lamps, on each channel, show when recording is in progress.

Concentrically-mounted gain controls, for microphone and auxiliary inputs, are next to the microphone sockets, the controls being clearly marked by raised lettering on the diecast control panel. (The gain control knobs have nylon bushes and just pull off, as the nylon grips without screws.)

A push-button switch, to the right of the recording lamps, selects either C.C.I.R. or N.A.R.T.B. equalising characteristics, the latter being generally used for stereo and the former for mono. A slide-switch marked "Contour-Bass/Flat" gives 8dB of lift in the bass position, to improve reproduction when using the internal loudspeakers, which can be disconnected by the "Monitor On/Off" switch, next to it, when using external amplifiers.

## PERFORMANCE and COMMENTS

One of the major advantages of tape stereo over disc is the improvement in channel separation, and this recorder—as one would expect at the price—performs very well in this direction. There was no sign whatever of track breakthrough, although this was carefully listened for, and results all round were highly satisfactory.

The quality of reproduction is not strained; even using the internal loudspeakers it is outstanding for such small amplifiers, due to a great extent, possibly, to the fact that the output transformers are far larger than one would expect for these low powers. Using external speakers, of better quality, the results are so good that, for average domestic listening conditions, the cost of external amplifiers would probably be unjustified. The only complaint which could be made about the model reviewed was that one of the metal speaker grilles rattled at high volume levels; otherwise its performance is at top marks for the circuitry used.

Mechanically, there are several points to ponder. First, those silly little co-axial plugs for the auxiliary inputs, etc. How DOES one pull them out without damaging the lead, when they taper outwards and, in this case, have loose plastic sleeves on them? They always spell potential trouble to me—horrible little things!

Second, accessibility for lubrication and maintenance. I speak with authority about this, as the erase head was loose on the model supplied—it had obviously been well tried—and erase was erratic, so something had to be done. The fun began when attempting to remove the deck cover plate. This is overlapped by the control panel casting, which is fastened from underneath, so the recorder had to be removed from its case. Freeing it is easy; remove two front feet and two screws at rear. But how to lift it out? There's nothing to grip, so careful tipping out is necessary. (Not much fear of damage to the works—it's built like a battleship!) Then disconnect the loudspeakers. Simple. Two-pin miniature plugs and sockets in the leads. (Very good—other manufacturers please copy.)

Now the control panel can be removed—yes?

No—not until the cover is removed from the amplifier, then the back-tracking sequence can begin. All this, mark you, just to remove the deck cover plate, caused by a small overlap between it and the control panel. The comment, I feel, is justified, because the manufacturers recommend lubrication once a month, and that is the rigmarole necessary to gain access to the points requiring it.

Otherwise, the general assembly and workmanship is first class, so reliability should be pretty high.

So there you are, that's the full strength, as my learned colleagues might say. An attractive recorder, very well made, giving excellent results—within its limits; yet with its drawbacks, and how significant they might be, only you, the user, will be able to say in time to come.

## MANUFACTURER'S SPECIFICATIONS

Supplies: AC mains, 100, 110, 117 and 220 volts, at 50 or 60 cps.

Consumption: 95 watts.

Speeds: 3½ and 7½ ips.

Recording modes: 2 or 4 track, mono or stereo.

Frequency response: 3½ ips 50-10,000 cps ±2dB. 7½ ips 50-15,000 cps ±2dB.

Signal/noise ratio: Better than 50dB.

Harmonic distortion: Less than 2 per cent at half rated output.

Wow and flutter: 3½ ips. Less than 0.25 per cent. 7½ ips. Less than 0.15 per cent.

Bias frequency: 65 kc/s.

Inputs: Microphone (2). Impedance 5 Megohms, approx. Auxiliaries (2). Impedance 0.5 Megohms, approx., signal level required = 150mV.

Outputs: 2 at 600 ohms, to external amplifiers, etc. 2 at 8 ohms, for external loudspeakers, etc. 1 binaural, for monitoring.

Audio output: 6w. (peak 3w. British) per channel.

Loudspeakers: 2—6 x 4 inches elliptical p.m.

Microphones: 2 dynamic—high impedance output.

Valves: 2—12AD7 (or 12AX7). 2—6AU6. 2—6AQ5. 1—12BH7. 1—6CA4.

Dimensions: Width—19 inches. Height—10 inches. Depth—15 inches.

Weight: 42 lbs.

Price: 124 guineas.

Makers: Tellux Ltd., 44, Brunel Road, London, W.3.

Recently an Australian enthusiast appealed for readers' advice on creating an ideal stereo setup. He envisages a new home with a room "tailor-made" for stereo reproduction.

"I will go to great expense to get the most genuine 'ultimate sound' in stereo," he said. "I would like some guidance on the size of room required, the material and the equipment to use."

We award a 5-inch reel of tape to Mr. John Hone, of London, for the best reader's letter received.

It is published on the opposite page, with two other letters, and below our regular stereo commentator, D. W. Gardner, adds his view.

\* \* \*

WE all dream from time to time of the day when we shall be able to acquire all the equipment we desire—and there is something especially alluring about the happy condition represented by Mr. Con of North Queensland, of being able to design a home with "ultimate sound" in mind.

I have seen some of the replies his appeal for assistance provoked, and I am sure that many other readers were stimulated by it to speculate on what they would do if they had more or less an unlimited choice.

However, the first thing we should have the courage to admit is that if we had acquired everything our heart desired two years ago we should now be thinking about making a number of changes. There is, in fact, no ultimate—and there never will be. On the other hand I would be prepared to name a dozen different set-ups that I should be content to install permanently knowing that future developments could produce only very slight improvements.

My advice to Mr. Con is to obtain the early help of first-class audio-engineers concerned primarily with studios and loudspeakers, for the very best results can only be obtained if every detail is taken care of. Many of the finer points can be ironed out only by a process of trial and error; it might be necessary, for example, to shift acoustic tiles about to find the best positions, even in a room that has been designed from the start to give "ideal" results.

I shuddered when I read one suggestion that the room might be made square for uneven dimensions are absolutely essential to avoid accentuation of certain frequencies. And I practically passed out when this suggestion was followed by a reference to loudspeakers built into all four walls, for nothing could be better calculated to destroy the stereo effect.

I would not advise building speakers into walls, in any case, until protracted tests had proved that the positioning was just right.

# What is the ideal stereo set-up?

Speakers, their housing and the room in which they are used are inter-related, and the planning should be based on these three elements considered as a whole. If this part of the work is well done then there is little else to worry about. Amplifiers, pick-ups, decks, heads and so on can be tried out subsequently to one's heart's content. Within reasonable limits they will adapt themselves to the speakers and the room.

I am certainly in favour of concealing the speakers with a proper curtain that does not interfere with the sound, and also suggest organising the lighting carefully so that the surroundings tend to be forgotten and the listener has no difficulty in imagining that the musicians and other people concerned are there behind the curtain.

## ONE MAN'S MEAT...

I WOULD venture to suggest that no problem exists for Mr. Con. In the world of sound, as everywhere else, it is a case of "one man's meat..." etc.

Of course, one could suggest a room 20 feet square, but maybe Mr. Con would prefer a room much larger—or smaller. One might also suggest a multi-valve set-up giving 10 or 20 watts per channel and loudspeakers built into all four walls, but whether your reader would be pleased with the results is another matter.

It would appear that money is no object, so my advice to Mr. Con is to build his home first then purchase the most costly stereophonic equipment available and just dump it in the living room.

No sir, there is no problem.  
E. BINNION

Wrexham, Denbighshire.

## STEREO LINGUISTS

STEREO International, in a new drive to link stereo enthusiasts throughout the world in a club movement, is seeking linguists and translators. Until now, the club's activities have been restricted to English-speaking members.

It is hoped now to work out a system whereby speech accompanying stereo items can be recorded in one language on the top track and in a second language below.

Those who are interested should contact R. V. Huddleston at 9, College Avenue, Melton Mowbray, Leicestershire.

## STAR LETTER

## A VERY PERSONAL MATTER

IT is interesting to note that Mr. Con of Australia (*July 12 issue*) is going to build his home and would like guidance on how to obtain *genuine ultimate* stereo sound.

On size of room—well—first of all it depends on how loud Mr. Con likes his music. For the average listener, and for realistic reproduction, I should say a room 18 x 12 x 11 feet is necessary. This should be fitted with acoustic tiles on the ceiling, and heavy curtains, designed to suit the decor, along various sections of the wall, to cut down reflected sound. Similarly, to deaden the acoustics, rugs would be fitted, not carpets, they would stifle the sound too much, and a nylon curtain across one end of the room about three feet from the end wall to conceal the loudspeakers which would stand in each corner about eight feet apart.

This last suggestion is only incidental, but most important if the stereo illusion is to be maintained to create realistic reproduction.

The equipment?

This would not be easy (for me!) because "what the final sound is like" is a tremendously personal thing; so choosing equipment, especially the loudspeakers, is also personal.

Although Mr. Con is a music-lover, if he is not careful he may choose high quality equipment which may become outdated by the time the following month's hi-fi magazine is published.

By this I mean that to keep up-to-date he should install a tape deck which is adaptable to take various and extra sound heads, But I suggest he starts with a two-track stereo head. This should be fed into a high quality control unit with its associated power amplifiers and these should be connected to two 15-inch dual concentric loudspeakers in special cabinets, such as is used for studio monitoring. (No make of equipment has been suggested—I think this is fair to one and all, apart from being a very personal choice as already stated.)

One final point, however, and the most important. Before any of this can be gone into—the financial situation has to be considered. How much is Mr. Con willing to lay out for his "ultimate stereo sound"?

JOHN HONE

London, W.12.



## A long drink and distant neighbours

MR. CON, of Queensland, has no

problem at all. I solved the problem while living in Africa some years ago. A lounge 30 ft. by 36 ft. with a 10 ft. ceiling; a double wood floor; not too much carpeting. I also had curtain runners around three of the four walls and drapes that can be drawn along them to provide acoustic adjustment; large french windows leading on to a stoep (verandah to you), comfortable lounge chairs, a long drink and neighbours no nearer than a quarter of a mile.

As to the equipment. Mr. Con has a choice of British or American. I settled for American and still have it. McIntosh Amplifier, Pickering Flux Valve and stereo head, two Electro-Voice Georgian loudspeakers (Klipschorn K type) 15 in. bass drivers, pressure type mid-range and tweeters, Electro-Voice Crossover, Pen-tron tape deck and a British Connoisseur turntable.

Of course you can get much the same result with a Fisher Amplifier and Bozak speakers. If you want to buy British there is the Lowther Amplifier and two T.P.L. loudspeakers, Quad, Leak and so on, all will give him the "ultimate in sound"—providing always that he is very very selective in the type of record or tape he buys. The lot should not cost him much more than £350.

Speaker placement is critical with Klipschorn K horns but the results are superb.

If Mr. Con would like to have the plans and specification of my set-up as it was, he's welcome. It's not so good now in a small house built around the time of the Great Plague!

The real problem for the Hi-Fi Stereo enthusiast comes when he has a slender purse, a small house and neighbours who are too close to appreciate the things he enjoys most.

A. CAMPBELL GIFFORD

Barnet, Herts.

# What does your cat think of stereo?

By THOMAS SUTTON

**D**O animals sense the reality of stereo recording? The results of experiments which I have carried out recently seem to suggest that they do.

Some weeks ago I purchased a stereo demonstration disc. Among the many and varied snatches of music and other sounds was a hectic cat-fight. The animals seemed to roll from one side of the room to the other; it was so realistic that one could almost see them.

We have a cat, an almost human animal, and quite one of the family. When I first tried my new recording, our cat wasn't in the room.

That evening, when she had settled down to sleep in her favourite chair, I put the disc on, but on one channel only.

When the cat-fight began, Fluffy lazily opened her eyes and stirred uneasily. She then lost interest, stretched, and went back to sleep.

I then switched to stereo. This time the fight brought very different results. Fluffy sprang to her feet, fur bristling, and tried to look at all sides of the room simultaneously.

She then jumped to the floor with a low growl and busily searched all corners of the room. Having evidently decided that her enemies were not lurking inside, she asked to be let out and, as we watched, she thoroughly searched the garden. It was some time before she settled down again.

This seemed to me to show that, to the cat's ears, stereo meant realism. To convince myself further, I decided to try it out on a dog.

Fortunately, one of my friends is the possessor of both a stereogram and a bull mastiff, the latter glorying in the name of Bully. With my friend's permission, I took the disc to his home and again used the same methods.

Bully lay stretched on the hearth, and when the mono cat-fight commenced he lifted his head sharply, ears erect. He seemed a little uneasy, but soon stretched out again and returned to dreamland.

Stereo once more brought markedly different results.

Bully shot to his feet, hearthrug flying, his barks and growls almost drowning the fight. A clumsy dog at the best of times, his rapid tour of the room caused chaos, furniture tumbling in all directions.

He then attacked the French window. Having first made sure that there were indeed no cats straying in the garden, we released him. Had we not done so, he would probably have taken the window with him.

His painstaking search of the garden proving fruitless, Bully returned ex-

hausted and lay down once more on the hearthrug.

For the remainder of the evening, however, he didn't really settle down, but lay there with a faintly puzzled expression on his face.

Now, to me at least, this seems to prove that animals, even with their acute senses, mistake stereo for the real thing.

This being so, surely changing over to stereo must be well worth the expense, whether our tastes lie in symphonies or pop music.

I wonder if any other readers have tried similar experiments?

## A Stereo Contest

### WANTED: NEW IDEAS FOR SPEAKER HOUSING SYSTEMS

**A**N award of ten guineas is offered to the reader who submits, by December 1, what the Editor considers to be the most interesting drawings of a stereo loudspeaker housing system.

Marks will be awarded for originality of design, economy, suitability for environment and for any special contributions made to the solution of the domestic problem. Photographs should be sent, if possible.

In reaching his decision, the Editor will consult authorities on loudspeaker design and furnishing design, as he considers necessary.

Entries should be addressed: Loudspeaker Competition, Tape Recording Fortnightly, 7, Tudor Street, London, E.C.4.

**D. W. GARDNER** writes: Sound enthusiasts have always included a large number who habitually make some of their equipment themselves; stereo provides such enthusiasts with special opportunities.

The reason why this is so is partly economic and partly domestic. Economy is important because of the need for two loudspeaker assemblies, instead of one. Most of us want two speakers of the highest possible efficiency, to bring the overall quality higher than ever before—in addition to the stereo effect.

This brings us up against the necessarily high cost of good speaker housing.

The only reasonable way out is the do-it-yourself way. Fortunately, the makers of the drive units are always ready to assist with plans and other relevant advice.

The domestic aspect of the matter also follows from the duplication of speaker assemblies. One speaker, even if it is not in complete harmony with the furnishing scheme, usually fits in somehow. But when there are two units to be absorbed, there is no alternative but to ensure that they are absolutely in harmony with the room and its furnishing—or else that they are practically invisible.

There is, for example, a definite relationship between the size and shape of a room and its furnishings and the size and shape of the speakers it will happily accommodate. A few inches one way or the other in height, width or depth can make a lot of difference.

Finish is another aspect of the same problem. On the whole, there is much more chance of successfully harmonising stereo speakers in a room if one is in a position to select all the materials oneself—and to leave out unwanted scoops, projections, bits of brass and other features.

There is yet another good reason for the do-it-yourself approach to loudspeakers and that is the scope for bold invention. There are many amateurs with sufficient technical knowledge to enable them to try out new ideas, spurred on by the specific problems they have to face in endeavouring to produce the ideal system for their own room and its furnishings.

# ATTENTION! ATTENTION!

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(Mail orders only, please)

## All tape recording enthusiasts are invited to the **WAKEFIELD AUDIO FAIR**

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YORKSHIRE.

# PLANNING A YEAR AHEAD!

Glyn Harris and Graham Jones, experienced Primary and Secondary school teachers, recently discussed their ideas on planning recorded activities for the new school year with the Editor of our "Tape in the Schools" feature. The first half of their recorded discussion was reported in the September 6 issue.

HODSON: So far, you have given us your basic philosophy on tape in schools, and some ideas for possible programmes in the autumn and spring terms. Before we go on to discuss the summer term—Graham, as an English and Drama teacher, do you use the tape recorder at all to link with other subjects?

JONES: Yes, as a matter of fact I hope to produce two programmes for the music staff this year—one on the Human Voice and the other on Musical Instruments. For the first programme, we shall use as much variety of human voice as we can find within the school. First, we shall have to find out what *is* the human voice, trace its development, and the variation of sound possible; and end with gramophone records of great singers and speakers to illustrate the human voice at its best. Musical Instruments—we want to get as many players within the school as possible, and to demonstrate quite simply the various kinds of musical instruments, classifying and linking them with charts and pictures drawn by boys involved in the programme. We are lucky, of course, in that we have developed tape work to the extent of having a separate studio and control room, which make the more complex programme possible.

HARRIS: Personally, I don't think there is the place for the studio situation in the Primary School, as in the Secondary School. The less obtrusive the tape recorder is, the better. The microphone is merely something that one takes to the children hoping to record, but without thinking in terms of "This is going to be a recording, and we must do it in this way, and notice all the technicalities involved."

JONES: Of course the technicalities in the studio in my school have resulted from the interest of groups of boys, who themselves are perhaps not so keen producing a programme or being in it, but who find tremendous satisfaction and fascination in putting together two wires and finding how the sound comes through.

HODSON: Can you both say something now about summer-term ideas, and the less glamorous day-to-day utilitarian uses of the tape recorder?

## ***Three experts on recording for education discuss their plans for the new school year.***

JONES: Obviously, when one has a lot of recording ideas for programmes, one has still to remember that the tape recorder is going to be used from day-to-day in reading aloud and speech training—although I hold strong views about the latter and think the machine should only be used a little and the playback handled very carefully. Incidentally, we are going to do regular French and Esperanto programmes next year—dictation and so on. Summer: we like to get the boys out and about as much as pos-

sible in their own time—weekends, half-term—and we want, if we can, to go back to an idea we had about five years ago, worked out on only a primitive scale. The idea is to explore Rochester, specifically thinking about the Dickens' associations within the city. This will be a senior group out-of-school activity.

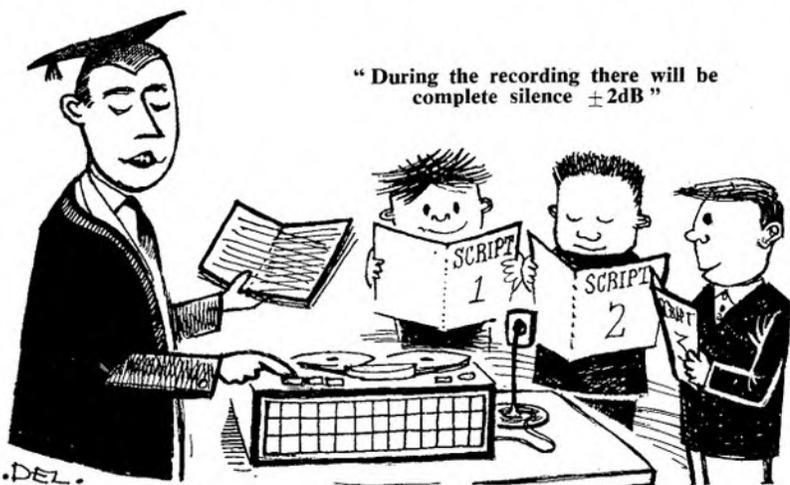
HARRIS: Ideas for Junior Schools in the summer term: Flower Service—appropriate readings of verse and so on. Where are we going for our holidays? Where would we *like to go* for our holidays? All sorts of dramatic situations spring to mind for this. This is obviously the time of visits—school journeys, taking children out on short trips. A visit to a nearby building site, for instance. Most of the workers are only too happy to talk about their work, and this method could be linked with written work. Swimming gala day; cricket; a service for leavers at the end of the year, linking perhaps with a programme called "The School Year"—the gathering together of some of the highlights on tape. Visits to a farm. Messages from children who have left the school the previous year, recording their impressions of their first year in a secondary school. So children who are about to leave can be prepared for the transfer from the primary to the secondary stage. Open Day—obviously much work could be used with the tape recorder. Whitsuntide. Summer Fair. Even just a Summer Magazine.

HODSON: Moving away from actual usage ideas, let me have your advice on two teaching technique points. First, some of us advocate that you hand over to the children as quickly as possible the actual manipulation of the tape recorder in the classroom. What do you think?

HARRIS: One will not get good recordings unless the relationship between the person who is operating the machine and the people who are going to do the actual recording is absolutely right. So, first of all, if the teacher is going to operate the machine the teacher must know everything about the machine, so that it can almost disappear into the background. If one lets the children do this, one must be quite certain that the children

(Continued on page 38)

## **TAPE IN THE SCHOOLS**



# New Products

## TRUVOX INCREASE THEIR RANGE WITH TWO MODELS

**A**N extension of their present range of tape recorders has been announced by Truvox Limited. The new recorders, series 80, similar in appearance to the Mark 6 model, are described as incorporating numerous modifications, resulting in improved mechanical performance. The method of operation has been simplified, frequency response improved, and additional facilities provided.

Two speeds are provided in the first model the 55 guinea two-track R82. These are  $7\frac{1}{2}$  and  $3\frac{3}{4}$  ips, for which the quoted frequency responses are 40-20,000 cps  $\pm 3$ dB, and 40-12,000 cps  $\pm 3$ dB. Wow and flutter is given as better than .15 per cent at the top speed and .20 per cent at  $3\frac{3}{4}$  ips, and signal-to-noise ratio as better than 45 dB.

Among the features are facilities for superimposition, and mixing for high and low impedance sound sources with independent volume controls.

Four watts output at 3 and 15 ohms, and twin-high impedance output at 10v at .25 M ohms, and 1v at 47 K ohms.

Mechanical disc brakes are fitted, and separate drive wheels for either speed are automatically disengaged when the machine is switched off. Speeds can be selected whether the deck is running or stationary. An efficient interlock system is employed to ensure that the record switch reverts to playback when the stop, forward wind or rewind buttons are pressed.

Other features include magic eye recording level indicator, pause control, relay operated automatic stop, push pull bias oscillator, and tone control. Straight-through amplification facilities are also provided.

The second new model the 59 guinea R84, is a four-track version of the R82. Additional features include a track selector switch, which also has a stereo replay position, and a socket for second tape amplifier.

Both machines have inputs as follows: Microphone (1mV, 2 M ohm), two diode (mV, 2 M ohms), and two radiogram (150mV, 100 K ohms).

Truvox Limited, Neasden Lane, London, N.W.10.



Right: The new series 80 Truvox tape recorder

## MAGNAVOX ANNOUNCE NEW RECORDERS

**T**WO tape recorders were shown by Magnavox Electronics Limited for the first time at a special exhibition held at London's Carlton Tower Hotel.

The first of the new models, the 49-guinea TM801, is an advanced version of the existing TM800. Additional features

include a second loudspeaker, and an improved magic eye circuit. Their second new machine, the TM840, is a four-track three-speed recorder selling at 57 guineas.

Three speeds,  $7\frac{1}{2}$ ,  $3\frac{3}{4}$  and  $1\frac{1}{2}$  ips, are incorporated in the TM801, and the maximum spool size is seven inches. Using double-play tape a total of 4½ hours playing time is available per track at the slowest speed.

Quoted frequency response is 40-14,000 cps at  $7\frac{1}{2}$  ips. Signal-to-noise ratio is rated at 40dB, and wow and flutter better than .15 per cent at  $7\frac{1}{2}$  ips.

Two 8 x 5 inches elliptical loudspeakers provide approximately 4 watts output. Other features include facilities for superimposition, separate treble and bass tone controls, magic eye recording level indicator, and a safety erase locking device.

Inputs are provided for microphone (sensitivity better than 1mV), and high-level for radio, loudspeaker, crystal pick-up or radio tuner (sensitivity 100mV). A monitor socket gives approximately 500mV from 47K ohms on maximum recording level, and 500mV on playback. The microphone supplied may also be used for monitoring. An extension loudspeaker socket is provided, with an internal loudspeaker cut-out switch.

The TM801 measures  $17\frac{1}{2}$  x  $17$  x  $11\frac{1}{2}$  inches.

The TM840 also employs three speeds, but only one 8 x 5-inch elliptical loudspeaker. Output is rated at  $3\frac{1}{2}$  watts.

Apart from the size,  $16\frac{1}{2}$  x  $16$  x  $8\frac{1}{2}$ , and the facilities for four-track operation, the specifications for this model are identical to the TM801.

Magnavox Electronics Limited, Magnavox House, Alfred's Way, Barking, Essex.

### New tape available

**A**RANGE of magnetic recording tape is announced by a company new to the British market. To be sold under the "Electronic World" label, the new tape will be available in standard, long-play and double-play on 7-inch spools to begin with, and later on 3, 5 and  $5\frac{1}{2}$ -inch spools.

Unconditionally guaranteed, and described as splice-free with a low print-through factor, Electronic World tape is said to cover the full frequency range. Background noise is surprisingly low, and drop-out is at a minimum.

The tapes are packed in strong boxes, and wound on non-warp spools which incorporate a special "D-slot" hub to ensure quick and simple threading.

The price for 1,200 ft. acetate based tape on a 7-inch spool is only 17s. 6d. On a similar spool, 1,800 ft. of polyester tape will cost 29s. Both these prices include UK postage, and have a guarantee of "money back plus postage if not satisfied."

The makers state that in order to achieve these low prices, every possible economy is practised, other than any which affect quality, even to the extent of omitting leaders and stop foils.

The tapes are available by mail order only.

A. Villiers, 12a, Horseferry Road Estate, London, S.W.1.

## BRITAIN'S LARGEST TAPE RECORDER REPAIR SPECIALISTS

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LET us consider four types of sound track that we might employ when we add sound to cine.

### 1. Plain musical background

For this type of sound track synchronisation need not be so critical, unless certain bars of music are to be used to emphasise certain shots. It is, perhaps, the most simple form of sound track to make but its success or failure depends upon the selection of the music.

If you intend to use music from disc or radio, remember the problems of copyright. Although copyright is still likely to apply it is much better, if you can, to record your own music, and you will certainly get more satisfaction in the end by doing so.

### 2. Plain commentary

Synchronisation presents rather more of a problem than in the previous case, though I suggest that this should be the first type of sound track you try. This and the following type are the ones that I shall discuss most fully.

### 3. Commentary with musical background

Success with this is much more satisfying than the previous type and, as I shall explain later, need not require any more recording equipment. In actual fact, a spoken sound track can, if you wish, have a musical background added at a later date.

### 4. Commentary with musical background and special sound effects

This is one step further. Synchronisation and timing are very important, but not beyond the scope of the stroboscope method. When timing the film, as previously described, note must be made of the exact time at which it is necessary for a sound effect to start and finish. Mark it on your timing script and then the commentary can be arranged to leave these times free, unless the effect is to be dubbed in as background.

If dubbing of effects is to be done then, of course, extra equipment is necessary, but by cutting in the previously recorded effects no more equipment need be used than for the previous types of sound track.

### WRITING THE COMMENTARY

We can now consider the final preparation of a commentary to be included in the sound script. Fig. 1 is an extract from the script of my 16 mm film *Customs and Festivals* which contains 357 shots, runs for 33 min. 33 secs., and covers nine items, excluding titles and credits.

# FROM RECORDING TO CINE

Continuing the new series by

## RICHARD A. MARGOSCHIS

After the editing of the film was complete and the shots timed and listed, the film was broken down into "acts." By doing this, each custom or festival became an act and could further be sub-divided, within itself, into "scenes."

The table published in the last article gave the last few shots of the act covering "The Van Horse Parade" and the first 16 shots of the next act, which deals with the "Padstow Hobby Horse Dance." The commentary for these shots is reproduced in Fig. 1.

In a film of this nature it is often difficult to lead smoothly from one "act" to the next, because of the wide variety of subjects. While the commentary can help, it is better not to rely upon it entirely; end and beginning shots containing a common or similar factor should be used, if possible.

In the case illustrated the commentary was relied upon to transfer the thought from the van horses to the hobby-horse, and this was greatly

assisted by the use of a mask of tape on the film as described earlier.

You will see that the shots listed under "Hobby Horse" in the table published in the last issue, can be broken down into three "scenes," each covering a specific part of the ceremony. To the audience it will be obvious that in Scene 1 decorations of some sort or another are being erected around and on houses, but the form of the decorations is unusual; the film does not give any indication of the location or date of the custom.

It is not necessary for the commentator to state that decorations are being erected—that is seen—but the nature of the decorations and something of their meaning does require explanation, together with a statement about where and when it is happening. I hope you will agree that this has been done in the second paragraph of the reproduced script, and that the following two paragraphs do likewise for the next two scenes.

It is obvious that the commentary for a scene must be such that it can be read within the time the scene is

It is an amazing fact, when you think about it, that in these days of intense mechanisation so many horses are at work daily, and doing such varied tasks, in the greatest city in the world. Music UP (10'30")

11'15" From this great city the camera takes us 300 miles south west to the little town of Padstow in Cornwall, from real live horses to a Hobby Horse, and, it seems, from the present to the past. May the first has always been a time for celebrations but Padstow's May Day Festival is unique in this country and its antiquity carries us back to pagan days. Even the decorations, which are as much of green leaves and flowers as they are of flags and bunting, are a link with the past, for it was a pagan belief that green leaves contained the good spirits of life, and so each year they were attached to the houses to drive away evil spirits and to welcome the warmth and fragrance of summer (12'01") Early in the morning the childrens Horse is seen parading the streets as a prelude to what is to come. MUSIC UP (12'07")

12'23" Soon after ten o'clock a rattle of drums tells us that the real 'Obby 'Oss has started his day long dancing through the streets and, accompanied by a party of dancers and musicians, is making his way to the quayside where the first complete sequence of the dance is performed (MUSIC UP).

Fig. 1. Part of the author's script for a 16 mm film "Customs and Festivals"

showing on the screen. For Scene 1, I had from 11 mins. 13 secs. to 12 mins. 1 sec., a period of 48 seconds, but a brief break was necessary between the two acts (shot 142 and shot 143): at the other end the commentary could run straight into Scene 2 (shot 153 and shot 154). By making a three seconds break at the beginning, the script had to be fitted into 45 seconds.

The speed at which commentaries are read must, I think, vary according to the mood, and here I was aiming at a fairly crisp commentary, as you will see if you try reading it in the time specified.

people will have made their way into the town to see the dances, and they will be lining the route solidly from one end to the other."

Now read it as it appears in the script: "During the morning hundreds of people come into the town to see the dances, and the route is lined from end to end." The sense is the same, but it is presented in a more compact form.

Similarly, in the sentence "The animals entered must be used for *nothing other than* trade purposes" I replaced the words in italic by "exclusively for." Again, the sentence is more compact and, if necessary, pre-

each section has been checked against time. You will by this time be fairly well acquainted with it, but read it through in its entirety several times in order to make sure that you can present it in the best way possible. Finally, read it through against a clock—I find a dark-room clock very useful for this purpose.

It is a good idea to mark at certain spots the time at which a certain sentence should be commenced; this can help in maintaining correct reading speed (see Fig. 1); it has a further use, as will be explained later.

By now you will know how your commentary sounds on its own; but what does it sound like against the film? Shut yourself away in a room with your projector, start the film running and speak the commentary aloud to yourself. After a couple of trial runs call in your wife (or husband) and present the film and spoken commentary, asking for criticisms; a second person will be able to judge the net result much better than you. I find that my wife is my most valued critic and I *usually* take her advice.

I have spoken mainly about the preparation of the documentary type of film and commentary, for the simple reason that it is the one in which I have had most experience. I think these methods can easily be applied to holiday films and can be adapted for use with other types.

In my next article I shall discuss the problems of recording the sound track.

### Part three

## TYPE OF SOUND TRACK

When writing commentary to fit into a specified time I prefer to first write down all the essentials, read it against a clock a couple of times, and then adjust it as necessary, either by cutting or adding. I find that rarely do I have to add any padding.

Compactness and precision are desirable and this can be obtained by writing first in a "loose" manner and subsequently tightening up by removal of any unnecessary words and, in some cases, replacement of several words by a single word.

As an example, consider this sentence: "Before the town clock has struck twelve many hundreds of

cious moments have been gained.

I have already mentioned that the tempo of the commentary should be in keeping with that of the film. If it is too fast it becomes difficult to follow and understand; it can even become distracting. On the other hand it can be just as annoying if it is too slow. If there is any danger of that, I think it better to keep the commentary to a reasonable pace and fill in breaks with background music.

### TESTING COMMENTARY AGAINST FILM

We have now reached the stage at which the commentary is written and

## TAPE RECORD BREAKTHROUGH

### New mono and stereo tapes or discs

TWO record clubs have announced that they will henceforth issue monthly choices on tape. Their decision heralds a new phase in tape as a medium for playing recorded music.

With a tremendous advertising campaign, the well-established World Record Club introduces, from next month, its "disc or tape" policy. Each month it will release five records—two pops or show-music type, two "middleweight" classics and one classical music for the highbrows.

During the year there will be, in addition, 20 "extras" which will usually be classical items.

All of these records will be available as disc or tape—and the price is the same for either—29s. each.

For the present, all the tape records will be monaural, recorded at 3½ ips and accommodated on five-inch reels. They have white leaders, with the name of the

work printed on them, and red trailers, at the end of side one. All the tapes are packed in boxes with the same colourful designs as the corresponding disc sleeves.

Professional-grade Emitape is used for all the tape records.

Although some of the discs are issued in stereo versions, all the tapes, at present, are monaural.

But World Record Club proposes to issue stereo tapes as a separate activity to its monthly club choices. These will be recorded at 7½ ips and will be on sale to anyone. The prices will be 50s., for a record playing 40 minutes, and 60s., for one of 48 minutes duration. The first 24 titles will be ready next month.

To introduce the new policy, the Club is making an initial offer of any three tape records drawn from a special list of 29 titles, for 30s. (plus 3s. postage, package and insurance). As this is, of course, less than the cost of the virgin tape, a deposit of £1 is also being charged, but this will be deducted when payment is due for the first of the subsequent tapes chosen.

Members are required to take a mini-

mum of four tapes out of the sixty Club choices offered during the year. If they buy more than the agreed four, they get a free tape for every additional three they purchase.

The average playing time of the choices is stated to be 41 minutes.

It will be clear that this development makes the purchase of tape records a more attractive proposition than it usually has been in the past; not simply on grounds of price, but because of the assurance that a comprehensive repertoire will become available within a year.

A somewhat similar scheme is announced by a firm which has already published some specialised tape records: Esoteric Productions Ltd.

They have now launched a Tape of the Month Club, with an initial list of eight titles—seven of them jazz or pop music and the eighth a "Sound Adventure," which explains audio technicalities.

All the tapes are available at 3½ and 7½ ips and four of them are available in stereo, as well as monaural, versions. Monaural prices vary from 12s. 6d. (3½ ips playing for 20 minutes) to 35s. (7½ ips playing for 45 minutes) and stereo prices from 15s. 6d. (3½ ips) to 25s. 6d. (7½ ips), playing for 20 or 25 minutes.

Members agree to take four issues per year.

## GEOFFREY HODSON, our "Tape in the Schools" Editor takes a closer look at the latest tape application—

### THE LANGUAGE LABORATORY

**L**ANGUAGE Laboratories can be said to have arrived now in Britain. Shell International Petroleum Company Limited announces a successful run of the one installed over twelve months ago with the co-operation of Interoffice Telephones Limited and Chisbury Distributors. In the educational field, Ealing Technical College has accepted the first permanent set-up in the country designed and installed by the Educational Foundation for Visual Aids Limited. Two Technical-Commercial Colleges in Scotland are having laboratories installed in September, a Middlesex Grammar School is having a trial run later in the year, and the British Council Education Centre in Oxford Street, London, is considering one.

This cautious introduction is in contrast with the crash programme in the United States some time ago, when Congress hurriedly voted through vast sums to enable American schools and colleges to keep up with the Muscovite Jones in foreign language instruction. Finance is still the key to future rapid development in this country, because Language Laboratories do appear costly at first sight.

But undoubtedly the language laboratory has brought about a great advance in language teaching methods. Enclosed in his own booth, each student can participate actively throughout the entire lesson period. The amount of time each student can spend in oral practice is thus much greater than with conventional classroom methods.

Each student has a tape recorder which works like two coupled together. Through his headphones he can hear the lesson recorded on track one by a native speaker or speakers. He cannot erase this. He can also hear his own recordings on track two. These can be erased as many times as wished.

By means of his switchboard the tutor may speak to the whole class or to individuals at will. He also controls the master recordings in the students' booths. Both recordings and erasings are operated simultaneously from the control console in front of the tutor.

Shell-International Petroleum introduced the scheme in June 1960 to

**Right: A general view of the Shell International system showing the Interoffice master control unit, and a Grundig Stenorette. This particular lay-out system has since been modified**

give four-week intensive courses to staff and families going out to Indonesia. They have proved that this system does give astonishingly quick results, and it also gives the students confidence through hearing themselves speak the language they are learning.

There are two complete commercial installations on the market at the moment. These are by the EFVA and the Linguadicta Laboratory marketed by Chisbury Distributors. They have many points in common in layout and facilities. They differ in that the EFVA has catered for what they consider to be the ultimate in customers' requirements. Chisbury Distributors start with a tape recorder.

#### Educational Foundation for Visual Aids

The students' booths are strongly made of timber, with sound insulated side panels, and glass front panels. Each booth is provided with complete record/playback equipment, headphones, and directional microphone. The complete recording unit can be quickly replaced if a fault develops and two spare units are provided.

The control console, from which the tutor operates control of the students' booths and filmstrip projection, consists of record/playback equipment, headphones, microphone, switching equipment and master controls.

The Visual Unit consists of an automatic filmstrip projector, stand and screen. The projector has a powerful light source, and can be operated either by hand or automatically from the control console. Single or double-frame filmstrip or slides can be projected.

The equipment, based on the Ferrograph tape deck is claimed to combine reliability and simplicity of operation with a high standard of sound reproduction.

#### Chisbury Distributors Limited

The basic item of the Chisbury Distributors Laboratory is the Linguadicta machine which can be used as an individual teaching unit on its own. From this modest start the laboratory can be expanded to cater for any number of students according to the circumstances.

An "average" laboratory would have an eight-way Master Control Unit, and eight booths containing control units and Linguadicta machines. The student's microphone for recording and talking with the tutor is incorporated in the control unit.

Sample quotations are misleading, and both organisations would prefer to assess individual inquiries directly.

Tape recorders and booths are supplied by the purchaser. This can be an economy, certainly so far as the booths are concerned if cost purchase



Additional information required about the three language laboratories described in this article may be obtained from:—

Educational Foundation for Visual Aids, Ltd., 33, Queen Anne Street, London, W.1. (Museum 5742/3.)

Interoffice Telephones Limited, 18-20, York Buildings, Adelphi, London, W.C.2. (Trafalgar 3824)

Linguadicta Language Laboratory, Chisbury Distributors Ltd., 8-13, Chiswell Street, London, E.C.1. (Monarch 4090.)

of materials and do-it-yourself labour is available.

It is different with the tape recorder. Experience has shown that a good quality machine is essential for foreign language instruction, and also a good pair of headphones. It is also necessary to have the machine adapted so that the two recording tracks can be operated independently of each other as described above. Interoffice Telephones offer advice, but the customer has to make the decision. EFVA and Chisbury Distributors do this for you.

These are still early days. Laboratories are being designed not only to provide all the facilities known to be

**Right: The EFVA system showing control console and booth unit, both using the Ferrograph tape deck**

needed, but also to provide maximum flexibility so that it can be used for the wide variety of teaching situations which may arise in the future.

One Further Education College in the South of England has been operating its own home-made laboratory during the last two terms. The booth construction, the wiring, and the control units have all been made up by local staff. The intention is to produce blue-prints for the use of other schools and colleges. This particular college has not yet found a tape recorder which answers its specifications of high quality of reproduction on headphones, and simplicity of operation. But one enterprising firm has offered, at its own cost, to produce a proto-



type machine to the College's orders. We hope to publish an article about this at a later stage of development.

#### **Interoffice Telephones Limited**

A third firm has assisted with the development of Language Laboratories in this country—Interoffice Telephones Limited. They supplied the original communications units to Shell International, that is, the master control unit and the sub-units (the switching apparatus in each students' booths).

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# TELEVISION PICTURES ON STANDARD TAPE PART 3

AS a number of amateurs will not be interested in taking the system of slow scan television further than the construction of a receiving unit or "reader," the scan adaptors described in this chapter will be dealt with in rather more detail than the remainder of the equipment.

During the evaluation period of slow scan television "on the air" it is inevitable that the AM system will be most widely employed. It is for this reason that the following descriptions are confined to an AM "reader" unit. More advanced followers will, of course, lean toward the more sophisticated FM system.

\* \* \*

## AN AM SYSTEM ELECTROSTATIC MONITOR

The unit described here was constructed almost entirely from Government surplus materials and, in consequence, can be built for little more than £5.

It represents the ultimate in simplicity, but suffers from a few awkward disadvantages, viz., a special isolating transformer for the brilliance electrode, and the demand of 1 milliamp into the bleeder chain for the 5 kV EHT rail.

The instrument is referred to as a prototype, as indeed it is, having been hurriedly constructed in a matter of ten days for the Radio Hobbies Exhibition, Autumn, 1959. The early stages of the equipment use rather unsophisticated techniques for synchronising separation by the use of biased diodes.

Some ingenuity can be exercised by amateurs who find conversion of Government surplus units a less formidable approach. In this respect attention is drawn to two units, which have a number of advantages to commend them, but possess a number of disadvantages which need careful evaluation.

The first of these is of British origin and is described as "indicator unit, type 101." This contains one CV1530 six-inch magnetic deflection, electrostatic focus CRT and a number of other components designed to provide a PPI read-out on polar co-ordinates. The neck of the tube is standard 35 mm; nevertheless, the screen, although classified as long afterglow, does not possess the qualities of the American P7 phosphor. It is doubtful whether the existing polar scan coils would be suitable for cartesian scanning.

Another unit worthy of mention is the indicator unit of the ID.11/APS4 search radar. This equipment is of American origin, and utilises a 3FP7 electrostatic/electrostatic cathode ray tube in a neat housing, connected to the main unit by means of a very large multi-way connector.

**You can record a television signal on your domestic tape recorder and "playback" a very acceptable picture. In this series of articles J. A. PLOWMAN, the first man in this country to build the necessary equipment, describes its construction.**

By using the connector supplied with the indicator to feed the services required into the unit, the remainder of the equipment can be remote, and thus kept off the operating bench—a decided advantage in certain circumstances.

\* \* \*

## DESCRIPTION

The unit depicted in the photographs was designed to fit an Imhof 1007 instrument case, the only alternative to Imlok, due to the unfortunate length of the CRT.

As the nominated cabinet is "blind," all services are brought out via the front panel. The chassis and panel were originally intended for a standard 405 line, line monitor, and, in consequence, contain a number of mechanical features which remain unused in this particular application.

Reference should be made to Fig. 6. The "15 ohm" input receptacle is fed directly to the primary of the push-pull input transformer shown as Wearite 207T. The choice of transformer here is not critical, and excellent results were obtained from a push-pull transformer removed from an interphone amplifier containing a 28D7, and matching an unknown load. The latter transformer is, of course, used backwards.

By a similar token the use of Ferranti silicon diodes, type ZS20A, was entirely a matter of convenience, and identical results were obtained for long periods with 6H6, EB91 and EA50, the latter diode abounding in plenty on almost every surplus vendor's counter.

Full wave rectification is accomplished across the two transformer legs, and video matter appears across the 1 meg. load resistor. The residue of carrier is at twice input frequency, and some proportion is by-passed by the 220 pf. capacitor. Greater values than this tend to integrate and spoil the rise time, essentially short for good triggering characteristics.

The video is negative going and thus the sync pulses, being "blacker than black," sit some 30 to 50 per cent above the maximum video signal. The "cold" end of the diode load is by-passed to ground via the .25mf capacitor, and set above earth by a variable positive potential adjusted by trimmer marked "set clip level."

The removal of the picture information from the composite demodulate leaves negative spikes of line and field sync. appearing at the grid of V1 which is unbiased and hence hard conducting.

Long positive needles of synchronising matter appear at the anode of V1, supplying, firstly, line trigger ("A") and field triggers to V2, via the 150K. .05mf integrating network.

The latter valve is a Schmitt trigger device to produce a suitable synchronising pulse from the slowly rising wavefront of the field trigger waveform. The line triggers contain so little energy that they produce little more than a slight step in amongst the field information. The criterion of separation is that the residue of line trigger is quite unable to "fire" the Schmitt trigger, an adjustment accomplished by setting the standing bias control (50K) marked "set field trig."

Sweep generation is obtained simply and cheaply; both line and field sawtooth generators are identical and will be described together.

The two respective capacities for line and field, viz., .01mf and 2mf are charged via triode cathode followers using the "bootstrap" connection. Here, the capacitor is charged at a constant grid-cathode voltage rate via the grid leak, the value of which is adjustable, to provide a range of charging speeds, hence PRF+.

The timing capacitor is discharged by tetrode thyatron valves, which are triggered via isolating capacitors from points "A" and "B". The cathode resistors in the thyatrons are very critical indeed, and materially affect sweep height. Some adjustment may be necessary, especially if the valves nominated for V6 and V5 are not adhered to.

The remainder of the circuit becomes extremely simple, valves V7 and V8, both double triodes behaving as long tailed pair push-pull amplifiers.

The "unused" grids of each pair are conveniently available for shift control, and perform this duty excellently, although the use of one potentiometer does result in a rather vicious control. A 100K pot. with pads top and bottom would prove much more tractable.

Amateurs duplicating the circuitry using B7G and B9A valves are cautioned

# TELEVISION PICTURES ON STANDARD TAPE PART 3

that 12AU7, 12AT7 types have a tendency to rebel at the 800 volt HT rail required for these two stages. The 12BH7 valve, however, does an excellent job for those interested in miniaturisation. Valve V9 supplies the picture information and picks off an AC signal from one side of the input transformer. This signal is amplified and appears across the primary of the video isolating transformer, feeding the "grid" of the CRT.

The transformer is specially made for this duty and has a primary to secondary insulation capable of withstanding about

10 kV. The necessity for this becomes apparent, as the load of 1 megohm is virtually between grid and cathode of the tube—a matter of 5kV (minimum) below earth.

The use of semi-conductor diodes for rectification is rather necessary, unless extra current capacity is made available on the CRT heater winding for thermionic rectifiers.

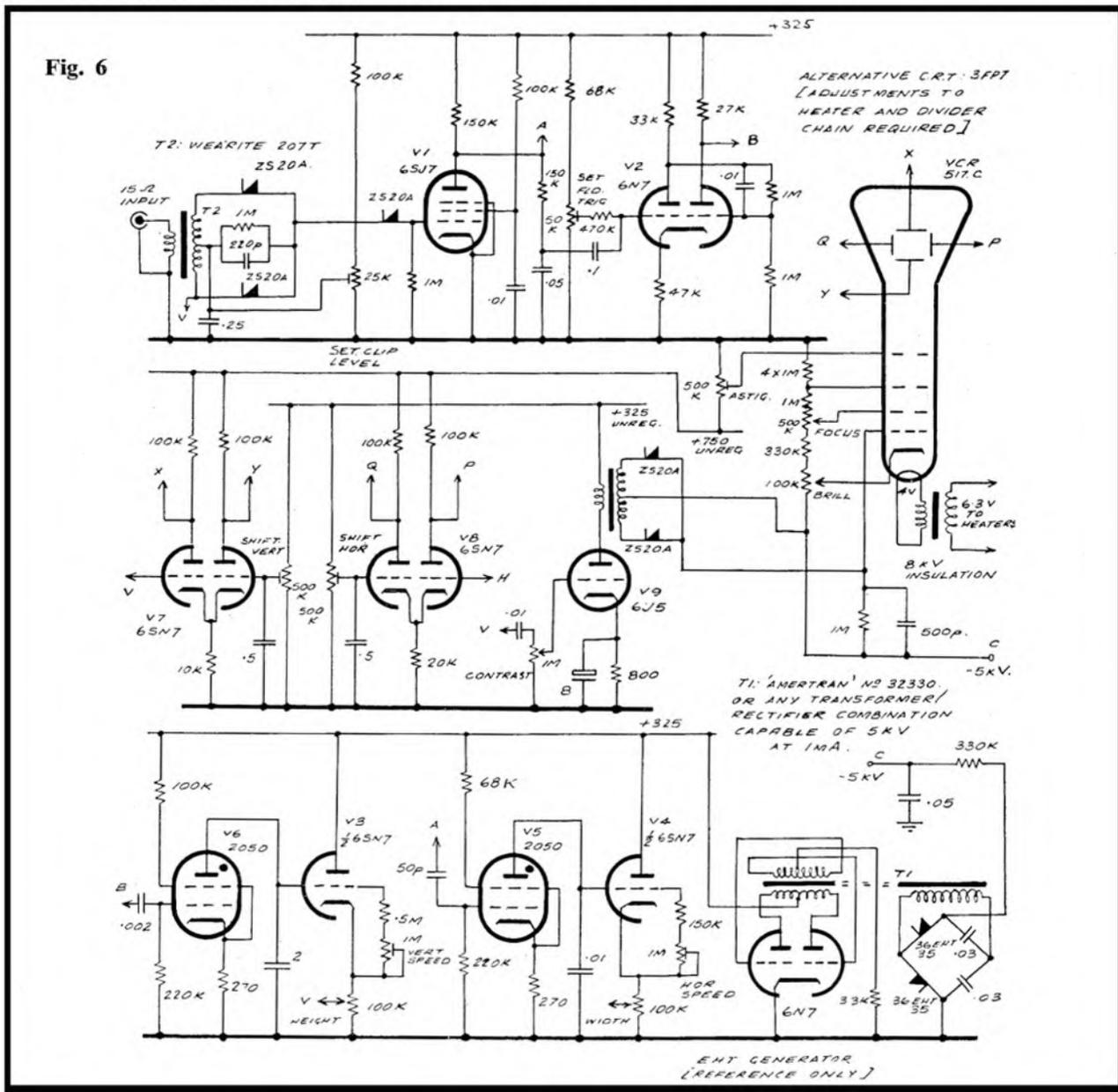
The transformer required for the latter duty is also a surplus item and is available for a few shillings. A standard 4-volt heater transformer will not stand the pressure of the negative HT rail.

Production of 5 kV at approximately 1 millamp poses a problem difficult to solve cheaply.

The EHT supply shown in Fig. 6 is very effective but the transformer utilised, although surplus, is very rare.

Extremely good results are obtainable by using the EHT transformer from radar "GEE" units. The latter item is designed for 115-volt 400-cycle operation; however, the primary is tapped for 80 volts and can, therefore, be used as a Hartley oscillator with, say, an 807 or VT501. Excellent results were obtained

(Continued on page 34)



# TELEVISION PICTURES ON STANDARD TAPE PART 3

(Continued from page 33)

with an 807, provided the load is never removed. In the latter eventuality the screen dissipation is usually exceeded and flashover ruins the valve.

The elegance of the EHT supply is really only limited by the constructor's ingenuity.

Neither the 325 or 800 volt HT rails are regulated and are of orthodox construction.

## \* \* \* SETTING UP

An oscilloscope is almost essential for this purpose, although the crudest of instruments is adequate, there being no requirement for "y" amplifiers.

A specimen tape containing sync. and picture information is also necessary.

Brighten up the CRT beam and check scans, adjusting vertical and horizontal shifts as required. Reduce scans by height and width controls until all four edges are visible.

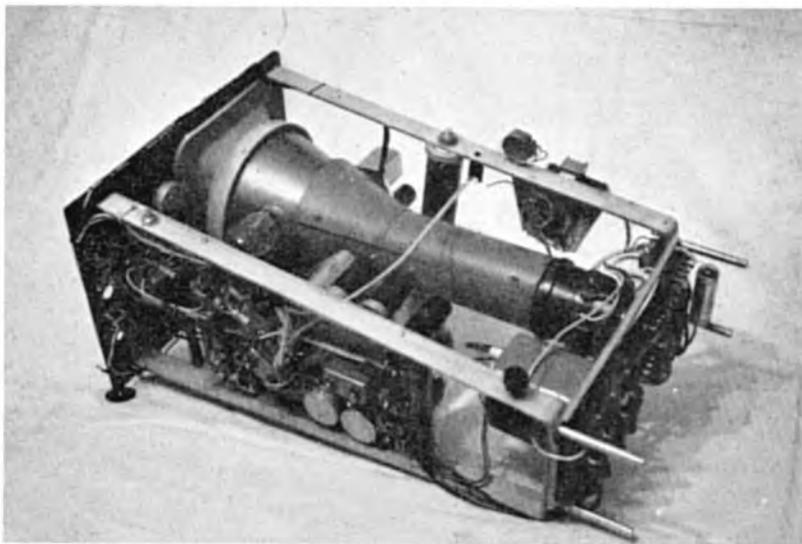
If tapes of American origin are used, adjust aspect ratio to the square 1:1 format.

Check vertical readout time by stop watch and adjust to 6-7 seconds.

Turn "sync. clip level" control fully positive, turn "set field trig" fully negative, and apply signal to input receptacle.

Apply oscilloscope to point "A" and slowly back off clip level bias until tall positive needles of line sync. appear. Continue turning until picture "clutter" appears amongst the sync. pulses, then retreat until the maximum sync. signal is available without picture intrusion. Lock control.

Apply scope to left-hand grid of V2 and check that line sync. pulses have re-



An inexpensive scan adaptor. Equipment shown employs UCR517c; superior results would be obtained with 3FP7

ceded to a slight local irregularity, whilst field pulses appear as a reasonably tall pulse yet rather indeterminate in shape.

Move scope to point "B" and advance "set field trig." control until pulses appear as tall, positive, clean sided rectangles at point "B". Continue advancing controls until the slight line residue also produces a requisite trigger. Back off control once again to mid-way between the onset of frame pulses and the illicit formation of line triggers.

Adjust horizontal and vertical speed pots until the edges of the raster are

clean and the vertical position is stable.

Some adjustment of height and width may be necessary. Back off brightness slightly, and advance the contrast control. A slow scan picture or pattern should now appear. The adjustment of brilliance and contrast now becomes empirical.

Focus and astigmatism require adjusting together in the first instance, however, after initial setting up, the astigmatism control is no longer moved, and is consequently not fitted on the front panel.

## APPENDIX:—

### Interim standard problems for narrow band image transmission

#### 1. SYNCHRONISING PULSES:

##### (a) Field Pulse:

The duration of a field pulse should not exceed two-fifths of the time taken to complete one line. The polarity of the pulse should be subject to negotiation but can be either positive or negative. There is a tendency at the present time to associate positive going polarity with the AM system and the negative form with the FM system. At the moment 20 milliseconds seems to be most prevalently used.

##### (b) Line Pulse:

The duration of the line pulse should be not less than ten times shorter than the field pulse to allow adequate discrimination. The question of polarity falls into the same category as the field pulse.

#### 2. ASPECT RATIO:

Two aspect ratios are currently being employed, a 1:1 (square format) being popular in the USA whereas there is a tendency in the UK to adopt the usual 4:3, which is also standardised for telecine work.

#### 3. SUB-CARRIER FREQUENCY:

Early experiments have used a sub-carrier of 2kc in connection with the AM system, whereas black level with the FM system would lie at 3kc. Rationalisation of the sub-carrier frequencies between the two systems should provide considerable simplification of compatible receiver techni-

ques. The adoption of an AM carrier frequency which coincides with the centre frequency in the FM system would require an AM carrier in the region of 5kc and an FM black level of 3kc which corresponds to the nominal FM centre frequency less 40 per cent. The use of such frequencies would allow the adoption of a 200 or 250 line system without further modification.

#### 4. READ-OUT TIME: (one frame)

The duration of the time required to synthesise one complete picture should be well within the compass of a P7 double layer phosphor and, bearing in mind band width requirements, should lie between two and eight seconds.

#### 5. NUMBER OF LINES:

Initial experiments with 125, 120 or even 100 lines have resulted in a picture of passable quality. With the adoption of a 5kc sub-carrier, however, a 250 line system is quite within the compass of the band width. Using a line frequency of 50 cycles the time for vertical read-out for the picture would, therefore, be 5 seconds. This would probably represent the ultimate quality one could anticipate from the slow scan system.

#### 6. PICTURE/SYNC RATIO:

As explained in the next, with the FM system, synchronising pulses correspond to periods of zero frequency which result, therefore, in zero carrier. By these means the whole carrier amplitude is available as synchronising pulse. With the AM system, however, experience has shown that a peak sync amplitude equal to approximately twice black level (peak picture information) is the most effective and enables better discrimination to be accomplished in an environment of heavy interference.

# News from the Clubs

A NUMBER of clubs have written to us regarding their club headquarters addresses as published in our Club Meeting Diary. It seems that a number of prospective members, using this information, are arriving at addresses vacated by the club members in favour of new premises.

The information, as published, is taken from the newsletters received, but to ensure that the present address of your club is given, check with the latest list published on page 37.

If your address or meeting date is incorrect, your club could be missing new members. Write and let us know and we will publish the correct address. Incidentally, on the same point we would be most grateful if club members would draw the attention of the club secretary to the last paragraph of this edition of club news.

Informality was the keynote of the July 3 meeting of the **CRAWLEY** club. The evening being yet another in the warm spell about that time, the members gathered on the green behind their headquarters. Although AC power was not available, the playback of tapes was continued with the aid of Maurice Pearson's Grundig TK1 and Tony Greenaway's Fi-Cord.

During the ensuing discussion, the secretary had to report his failure to arrange a visit to the nearby Gatwick Airport for a recording session. They are continuing their endeavours, however, and hope to arrange a visit during the autumn when the traffic is a little less congested. A visit to Crawley Fire Station was also discussed, the members hoping to achieve this during August.

A change of name and activities has been announced by the **ENFIELD** club members. Because of a lack of other clubs in the area, and at the request of the hi-fi-minded members, the club is in future to be known as the **NORTH LONDON** Tape and Hi-Fi Club. The secretary is still Richard Collinson of 30 Ridler Road, Forty Hill, Enfield, Middlesex.

Competition tapes are still the most popular event at their fortnightly meetings. The latest such was entitled "A Story in Sound" which entailed the production of a play on tape using sound effects only.

Roy Smith was judged the eventual winner, his excellent recording telling the tale of a smash-and-grab raid, including the window breaking and sounds of a police car chase. The tape was rounded off with "Dragnet" type music.

Other recent activities have included demonstrations of mixing and microphone techniques and a discussion on

impedance matching. Following the meeting concerning microphone handling, the members began a survey on the currently available instruments. Over a dozen microphones, ranging from the popular crystal to the old moving coil, were displayed and examined. Many of these were the property of club members, but local dealers, Studio 248, also assisted in providing a fair coverage. Grundig and Brenell recorders were used for the demonstration.

An evening out, giving their recorders a rest, was the order of the day recently for members of the **WALSALL** club. Starting from the secretary's house, the members first had to listen to a tape of a noise they were to encounter somewhere on the route which had to be identified. They were then presented with instructions and a sealed destination envelope.

During their excursion prepared questions had to be answered about some of the scenes and objects met. The points awarded for correct answers, plus mileometer readings, timing, etc., decided the final winners. The organisers, John and Joan Walford, realising that driving is thirsty work had kindly arranged the end of the competition to take place in a local hostelry.

At a more recent meeting, members returned to their more usual function, and spent the evening practising editing and splicing. A number of tapes, previously produced, contained a variety of mistakes and transpositions which had to be corrected for this exercise.

The latest sound hunt of the **WEST HERTS** members took place at the end of June. Dividing once more into four groups with a battery portable each. Their object was to record and interview the London Transport bus crews, to speak to passengers and to get motorists' opinions of the bus drivers' courtesy, or otherwise. It turned out that the crews like their jobs, the passengers had little to complain about, and the motorists found the drivers very good on the road.

Back at club headquarters, some quick editing was done and the tapes were played over in the usual competitive spirit. The eventual winner was a tape produced by Messrs. Holloway, Hill and Scarborough on a Minivox.

At Hemel Hempstead on July 12 the evening was spent producing sound effects for a local dramatic society. Careful use of two trumpets eventually realised a magnificent fanfare, although one effect that had them worried, surprisingly enough, was a thunderclap and roll. In common with many similar sounds, no-one had ever recorded an English storm, and the members had to rely on one imported, on tape of course, from America.

At another recent meeting judges Sid Attwood and Bob Scarborough had little difficulty selecting Michael Coates' entry in the "Family Fun" competition as the

winner. He was presented with a book on tape editing and splicing.

This particular meeting included the playback of a tape recorded at the wedding of Chairman, John Grainger and Jean Stern. The meeting concluded with a discussion on the use of parabolic reflectors.

On July 8 a few members again attended the Students' Rag Day at Watford. Michael Coates gave descriptions as the parade moved along the High Street, and John Grainger, with a Fi-Cord, mingled with onlookers and students in the parade and asked their views on the proceedings. The tapes obtained are to be made available to the local Blind Club, as are the tapes previously recorded at the Whit-Monday Carnival Day Parade.

The **LONDON** members have also shown a great interest in field recording events. One of the latest, organised during the summer, took the form of a sound hunt. Arranged by Mike Avel, this necessitated the members leaving the HQ with the usual sealed orders. The subject, "The Life of a 'Bob'", entitled spending one shilling and while doing so attempting to gather sound effects.

There were four teams and the task took just over two hours. At their meeting on July 13 the tapes recorded were played back. Some remarkable examples of ingenuity were seen, but the best was that produced and edited by the chairman Alan Stableford. This contained telephone calls, a "Speak your weight" machine, and "beery" singing. I regret Mr. Stableford will not divulge where he bought his beer for 3d.

At another recent meeting secretary Terry Devereux played a sound effects tape supplied by David McDowell. Thirteen members racked their brains to guess the noises proffered, and Mike Avel was declared the winner. The lowest scorer, whom they ask should remain nameless, won the booby prize which was an artistically designed piece of equipment called a "Dee-head fluxer". This is described as a horseshoe magnet, complete in manufacturer's box, with instruction beginning: "Remove the recording head by placing a twenty-eight-pound sledge hammer on the side, and delivering a sharp blow . . ."

Who does not recognise Mr. Devereux's style?

Home-made equipment seems to be the order of the day for the **BRIGHTON** club members, where the chairman, Eric Savage, and member, Alan Sharpe, have recently completed the construction of their own recorders. Mr. Savage even provided a step by step demonstration for the benefit of the less experienced, and detailed each section as it was completed. His unit was constructed, using a studio TDM and additional material gleaned from his "scrap"-box(!). The second home-constructed machine has been designed for eventual conversion to stereo use.

Such enthusiasm greeted the chairman's efforts, that he has now been called upon to guide members in the construction of a mixer unit.

Apart from these purely technical evenings, the members have also explored the creative aspect of tape recording,

(Continued on page 37)

## Classified advertisements

**Rate**—Sixpence per word (minimum 5s.); **Trade**, ninepence per word (minimum 10s.); **box numbers**, one shilling extra. **Payment with copy**. Copy should be sent to Advertisement Department, "Tape Recording Fortnightly," 1, Crane Court, Fleet Street, London, E.C.4.

### TAPE-TO-DISC

J & B RECORDINGS. Prompt Tape to Disc and Sound Effects Service. 14, Willows Avenue, Morden, Surrey.

**TAPE TO DISC RECORDING**  
Reduced prices. Finest professional quality. 10-in. L.P.—30s. (32 mins.), 12-in. LP—35s. (45 mins.), 7-in. EP 17s. 6d.

**48-HOUR POSTAL SERVICE**  
S.a.e. for leaflet to Deroysound Service, 52, Hest Bank Lane, Hest Bank, Lancaster. Tel.: H.B. 2444.

### SERVICES

**GRUNDIG sales/service in your area:** High Wycombe phone 457, Newbury phone Thatcham 3327, Wallingford phone 3083, Orpington, Kent, phone Orpington 23816, New Malden phone Malden 6448, Watford phone Garston 3367.

### MISCELLANEOUS

WONDERFUL SELECTION OF BARGAIN SECONDHAND RECORDERS completely overhauled and fully guaranteed from £12 always on display at all showrooms of Britain's Leading Tape Recorder Specialists, City & Essex Tape Recorder Centres. See page 27.

"BRAND FIVE" American Tape. Standard Play, 5 inch (600 feet) 16s.; 7 inch (1,200 feet) 25s.; Long Play 5 in. (900 feet) 18s. 6d.; 5½ in (1,200 feet), 23s. 6d.; 7 in. (1,800 feet), 35s. Sent by return. Post Free! Watts Radio, 54, Church Street, Weybridge, Surrey.

Something to sell?—equipment for exchange?—looking for a job in the hi-fi tape field?—seeking a tape contact abroad?—tape-to-disc services to offer?—expert staff needed? A classified advertisement in *Tape Recording Fortnightly* will bring you quick results—cheaply.

**FRIENDLY FOLK ASSOCIATION**, 87, Terrace, Torquay. Leading International Correspondence Hobby Club since 1943. Now included, facilities for Tapesponding. Details free.

**WAL GAIN** transistorised pre-amplifiers. Many applications, extra gain for Mics, Tape Heads, P-U's, etc. Mono version, £5. Stereo, £7 10s. **WAL BULK TAPE ERASER**, both tracks 8lin. reel erased 30 sec., £7 18s. 6d. **WAL TRAK** transistorised oscillator, 1,000 cps, indispensable for Service, £6 10s. Full technical literature sent, supplied through all leading dealers. Wellington Acoustic Laboratories Ltd., TRC Dept., Farnham, Surrey.

Ask your dealer for American Ferro-dynamics "Brand Five" recording tapes: the best tape value!

### PRE-RECORDED TAPES

Unique 40-page catalogue listing all makes, Mono, Stereo, 7½ and 3½ ips. Send 2s. 6d., refundable on first tape record purchased. Dept. 6, Teletape Ltd., 33, Edgware Road, W.2. PAD 1942.

**WAL PRODUCTS**. The new D-Mag Head Demagnetiser, nylon bushed probes, £2 10s. The new Hi-Gain Pre-amp, with tape equalisation, ideal for Ferrograph, Philips, etc. For monitoring, dubbing, playback, etc., £7 16s.

**WAL BULK ERASER** (for tape and film), £7 18s. 6d. **MONO WAL GAIN** £5, **STEREO** £7 10s. Professionally designed, professionally built, for professionals. **WELLINGTON ACOUSTIC LABORATORIES LTD.**, Farnham, Surrey (6461).

### MISCELLANEOUS

**RECORDING TAPE**. See my advertisement on page 25. Nobody has yet asked for his money back. Villiers.

### FOR SALE

**TELEFUNKEN 76T**, new and unused, £35. Edwards, 26, Charlton Street, Steyning, Sussex. Tel.: 3115.

One E.M.I. L2 Tape Recorder 7½ ips, in Perfect Condition, £75. Box 428, *Tape Recording Fortnightly*, 1, Crane Court, Fleet Street, London, E.C.4.

**FI-CORD**, complete with charger. New and unused, £35. 160, Denmark Hill, London, S.E.5. Tel.: Redpost 2718.

**FERROGRAPH 4AN** with additional monitor/replay head. Unused, 70 gns. Owner posted overseas. Box No. 429, *Tape Recording Fortnightly*, 1, Crane Court, Fleet Street, London, E.C.4.

**OWNER REGRETS** having to sell, due to emigrating, all his hi-fi equipment. The best available. At bargain prices. All items genuinely as new. Some only a month old. The oldest, one year.

**Beautifully finished hi-fi cabinet** in walnut includes Quad 22 Control Unit, Quad FM Tuner with its 2 quad 11 power amplifiers—Thorens latest modified TD 124 transcription turntable. S.M.E. 12 inch arm with bias weight, 3 new Decca cartridges in S.M.E. Shells Stereo/LP/78 with mounting rack. Telefunken 85T tape deck—specially designed control unit for use with other equipment.

**Loudspeakers:** 2 Quad Electrostatics, 1 BJ Sonetta.

**Professional tape recorders:** "Telefunken Studio M24KL" with 8½ inch 9 inch spools together with interchangeable full track and half track head assemblies. Ampex stereo system model 2560 consists matched pair of model 2010 amplifier/speakers and model 960 recorder. Stuzzi battery recorder 7½ ips version. Domestic Stuzzi battery recorder 3½ and 1½ ips. Garrard model 301 transcription motor in portable carrying case together with arm and stereo pick-up. Leak FM tuner latest model "Through-line II" in portable carrying case.

**Microphones:** Telefunken M251E professional condenser Three characteristic with its transformer. 2 Ampex Dynamic. 2 AKG D19 BK/200 moving coil. 1 AKG moving coil stereo; also microphone stands, etc.

A large comprehensive stock of transformers, cables screen leads, all types of plugs, connectors, tape splicing equipment, etc.

Battery to mains converter with frequency control.

Large record cabinet, walnut. Neat cabinet for tapes or equipment, walnut, with folding leaves.

Parasat record cleaner MKII for making records permanently inert to static charges.

A large library of stereo and mono records mostly unused.

A large stock of tapes of all kinds, some unsealed.

Write A. S. Mackenzie-Low, 7 Millfield, Old Town, Bexhill-on-Sea, Sussex. Phone Bexhill 3922.

## Subscription Order Form

TAPE RECORDING FORTNIGHTLY,  
7, TUDOR STREET, LONDON, E.C.4

I enclose my subscription of 45 shillings for one year, post free (Subscription to USA and Canada \$7) beginning with the issue dated.....

(BLOCK CAPITALS)

Mr., Mrs., Miss.....

Address .....

"Tape Recording Fortnightly" is published on alternate Wednesdays, and is obtainable at newsagents, bookstalls, and music and radio dealers.

# News from the Clubs

(Continued from page 35)

once again looking to the chairman for leadership. He responded by presenting a tape/slide show of a recent trip to Paris, and highlighted his show with a lecture on the snags to be met during the production of such a show.

Secretary Ralph Vivian then took over and presented recordings achieved during his holiday in Spain. He had taken along a Grundig TK830/3D and TK1, and had captured much of the musical atmosphere of the Latins.

A joint hospital message service operated by the members of the **CARDIFF** and **HULL** clubs recently received publicity in a South Wales journal. The story came to light following assistance given by the tape enthusiasts to two sisters living in the respective towns.

For the past 22 years a Cardiff woman has been a patient in a Yorkshire hospital. Her sister had not seen her for three years when the idea of sending messages by tape was suggested. The patient's consultant encouraged the idea and messages were recorded by the Cardiff members. The tapes were then passed to the York-

shire club members who relayed them to the patient.

Publicity also for the **NORTH HARROW** tape club, whose members Don and Toni Fisher were recently awarded first prize in the first tape recording contest organised by **THE VOICESPONDENCE CLUB** of America. Their eight-minute tape portraying a typical day cruise along the Norfolk Broads was entered in the competition which was open to 1,400 members in 30 different countries. Kenneth Miller of America and Kenneth Worman of South Africa, both past winners in the International Amateur Tape Recording Contest, were among the judges in the contest.

The Fishers have now received a handsome golden microphone award, and a certificate from the secretary of the world-wide tape exchange society.

Still on the international wavelength, we hear of an unusual round-robin from John McKenzie of the Australian Section of **WORLD TAPE PALS**. In his latest newsletter, he describes a novel type of round-robin contact. One of the section's members, Bert Beattie, received an invitation from a UK enthusiast to take part in a play specially written for a tape production. Following his acceptance Mr.

Beattie received his part, recorded his lines, and returned the tape to England.

Meanwhile a similar procedure was in operation with an American enthusiast. The two tapes are now being edited, sound effects added, and copies dubbed for posting to the "cast". It is not everyone who has acted on a stage as wide as the earth itself. We have no further details of this activity, but any interested reader is invited to contact Mr. McKenzie direct at 59 Wattle Road, Hawthorn, Victoria, Australia.

We would like to close this particular edition with a further plea to those clubs who have not yet returned the forms asking for details of their club.

According to our calculations there are still about twenty clubs still outstanding in this respect. In our next but one issue we will publish the addresses now in our possession, but wish to make this list as complete and accurate as possible. Our letter may have gone to an ex-member. If this is the case his address, the only one in our file, will be the one published. The only way to ensure the correct address of your club is published is to let us have details by post as soon as possible. Ask your secretary if he has co-operated with us. There is no time like the present, so please, **DO IT NOW**.

## CLUB MEETING DIARY

Is your club included in this list? If not, send details, on a postcard please, including date of the next meeting.

**ABERDEEN:** 1st Tuesday in every month at 8, Deer Road, Woodside.  
**ACTON:** Alternate Fridays at the King's Head, Acton High Street. (Sept. 29.)  
**BARNSELEY:** Every Tuesday at YMCA, Eldon Street.  
**BATH:** Alternate Wednesdays at St. Mary's Church Hall, Grove Street. (Sept. 20.)  
**BEDFORD:** Final Tuesday in month at 131, London Road.  
**BETHNAL GREEN:** Every Friday at Shoreditch Tabernacle, Hackney Road.  
**BIRMINGHAM:** Every Monday at the White Horse Cellars, Constitution Hill.  
**BIRMINGHAM (SOUTH):** Alternate Mondays at Starchley Institute, Hazlewell Street, Starchley. (Sept. 25.)  
**BLACKBURN:** 1st and 3rd Tuesdays at Blackburn YMCA.  
**BLACKPOOL:** Every Wednesday at "Habonim," Lonsdale Road, off Lytham Road.  
**BOURNEMOUTH:** Alternate Tuesdays at the Queen's Hotel, Queen's Road, Bournemouth West (Oct. 3.)  
**BRIDGWATER:** Every Tuesday at Evis' Radio Shop, West Street.  
**BRIGHTON:** Every Wednesday at The Brunswick Arms, 38, Ditchling Road.  
**BRISTOL:** Alternate Wednesdays at Redcliffe Church Hall, Guinea Street, Redcliffe. (Sept. 20.)  
**BRITTON:** Every Tuesday at The White Horse, 94, Britton Hill, S.W.9.  
**BROMLEY:** 2nd and 4th Thursdays at St. Mary's Church Hall, College Road.  
**CAMBRIDGE:** Every Wednesday at the Mitre Hotel, Bridge Street.  
**CARDIFF:** 1st and 3rd Tuesdays at 46, Caroline Street.  
**CATFORD:** Every Friday at St. Mary's C.E. School, Lewisham, S.E.13.  
**CHESTERFIELD:** Every 3rd Monday at the Yellow Lion Inn, Saltergate. (Sept. 25.)  
**COTSWOLD:** Fortnightly, alternating Monday and Thursday at Bayshell Hall, Royal Well Lane, Cheltenham. (Oct. 5.)  
**COVENTRY:** Alternate Wednesdays at Holyhead Hotel, Coventry. (Sept. 27.)  
**CRAWLEY:** 1st and 3rd Mondays at Southgate Community Hut.  
**DARTFORD:** Every Thursday at 41, Winsor Drive.  
**DERBY:** Alternate Wednesdays at Osmaston Park Hotel. (Sept. 27.)  
**DONCASTER:** Alternate Thursdays at Lancaster House, Westlith Gate. (Sept. 28.)

**DUBLIN:** 1st Monday at "Hardy House," 6, Capel Street.  
**DUNDEE:** Alternate Mondays at The Salvation Army Hostel, 31, Ward Road. (Sept. 25.)  
**EASTBOURNE:** Alternate Saturdays at Hartington Hall, Bolton Road. (Sept. 30.)  
**EDINBURGH:** 1st and 3rd Fridays at 22, Forth Street, Edinburgh 1.  
**FRIERN BARNET:** 2nd Friday at 7, Harmsworth Way, N.20, and 4th Thursday at 146, Friern Barnet Lane, N.20.  
**GRANTHAM:** Weekly, 1st week in month Wednesday; 2nd, Monday; 3rd, Thursday; 4th, Friday at Grantham Technical College, Avenue Road.  
**GRIMSBY:** 1st Monday at 21, Langton Drive, Nunsthorpe, Grimsby.  
**GLASGOW:** Fortnightly, alternating Tuesday and Thursday at the Christian Institute. (Sept. 26.)  
**HARROGATE:** Every Wednesday at 4, Belford Road.  
**HARROW:** 1st and 3rd Thursdays at St. George's Hall, Pinner View, North Harrow. (Sept. 21.)  
**HINCKLEY:** Alternate Wednesdays at The Wharf Inn, Coventry Road. (Sept. 27.)  
**HOVE:** Every Thursday at 44, Hogarth Road, Hove.  
**Huddersfield:** 1st and 3rd Wednesday and Last Monday at the Public Library, Ramsden Street.  
**HULL:** Alternate Tuesdays at 281, Hessele Road. (Sept. 26.)  
**ILFORD:** Every Tuesday at the RAFA Rooms, Cranbrook Road.  
**IPSWICH:** Alternate Thursdays at the Art Gallery, High Street. (Sept. 28.)  
**JERSEY:** 1st and 3rd Mondays at "Santa Barbara" Maufant, St. Saviour.  
**KEIGHLEY:** Alternate Wednesdays at the Spencer Street School Rooms. (Sept. 20.)  
**KETTERING:** 2nd and 4th Wednesdays at the Rising Sun, Silver Street.  
**KIDDERMINSTER:** Alternate Wednesdays at the Town Hall. (Sept. 27.)  
**LEEDS:** Alternate Fridays at 21, Wade Lane, Leeds 1. (Sept. 29.)  
**LEICESTER:** Alternate Fridays at the Newark Girls' School, Imperial Avenue. (Sept. 22.)  
**LONDON:** 2nd and 4th Thursdays at the Abbey Community Centre, Marsham Street, S.W.1.  
**LUTON:** 2nd and 4th Tuesdays at Flowers Recreation Club, Park Street West, Luton.  
**MAIDSTONE:** Every Thursday at the Ex-Services Club, King Street.  
**MANCHESTER:** Every Saturday, 6 p.m., at 20, Naylor Street, Hulme, Manchester 15.

**MIDDLESBROUGH:** Every Wednesday and Friday at 130, Newport Road.  
**NORTHAMPTON:** Tuesdays and Thursdays at 36, Spring Gardens.  
**NORTH LONDON:** Alternate Wednesdays from 1st Wednesday in month, at Bush Hill Park School, Main Avenue, Enfield.  
**NOTTINGHAM:** Alternate Thursdays at the Co-operative Educational Centre, Heathcote Street. (Sept. 21.)  
**NORWICH:** 4th Tuesday at "Lady Chamberlin Hall," 38a, St. Giles' Street.  
**PONTYPOOL:** Every Monday at the Hospitality Inn, Crumlin Road.  
**PLYMOUTH:** Alternate Wednesdays at Virginia House, Plymouth. (Sept. 20.)  
**READING:** Every Monday at Abbey Gateway.  
**REDDITCH:** 4th Thursday at The White Hart Hotel, Headless Cross.  
**RUGBY:** Alternate Thursdays at the Red Lion, Sheep Street. (Oct. 5.)  
**SHERNESS:** Alternate Fridays at 136, High Street. (Sept. 29.)  
**SOUTH DEVON:** Alternate Wednesdays at the Y.M.C.A., Castle Circus, Torquay. (Sept. 27.)  
**SOUTH-WEST LONDON:** Every Wednesday at Mayfield School, West Hill, S.W.15.  
**STAFFORD:** Alternate Tuesdays at The Grapes, Bridge Street. (Oct. 3.)  
**STEVENAGE:** 1st and 3rd Tuesdays at the Tenants' Meeting Room, Marymead.  
**STOCKPORT:** 1st Friday at the Unity Hall, Greek Street.  
**STOKE NEWINGTON:** Every Wednesday at 53, Londesborough Road, N.16.  
**SWANSEA:** Every Thursday at the YMCA Buildings, St. Helen's Road.  
**URMSTON:** Alternate Thursdays at Davyhulme Scout Hut, Barton Road. (Sept. 28.)  
**WAKEFIELD:** Alternate Mondays at York Street Hotel. (Sept. 25.)  
**WALSALL:** Every Wednesday at Bluecoats School, Springhill Road.  
**WALTHAMSTOW:** Alternate Fridays at 22, Orford Road, E.17. (Sept. 29.)  
**WARE:** 2nd Tuesday at the Old Brewery Tap, High Street.  
**WARWICK:** 1st and 3rd Wednesdays in Room 18 of the Royal Leamington Spa, Town Hall.  
**WEST HERTS:** Fortnightly, alternating at the Cookery Nook, High Street, Watford (Sept. 27) and Heath Park Hotel, Hemel Hempstead. (Oct. 11.)  
**WEST MIDDLESEX:** 2nd Thursday at the Railway Hotel, Station Road, Hampton, and 4th Thursday at Southall Community Centre, Bridge Road, Southall.  
**WEST WALES:** 1st and 3rd Fridays at The Meeting House, New Street, Aberystwyth.  
**WEYMOUTH:** Alternate Wednesdays at The Waverley Hotel, Abbotsbury Road. (Sept. 20.)  
**WINDSOR:** Every Thursday at The Royal Adelaide Hotel.  
**WINCHESTER:** Every Friday at 45a, St. Swithen's Street.  
**WOOLWICH:** Alternate Mondays at the North Kent Tavern, Spray Street, Woolwich. (Sept. 25.)  
**YORK:** Every Thursday at 62, Micklegate.

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



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## Tape in the Schools

(Continued from page 26)

are competent and confident in their operation of the machine, so that the machine doesn't become the important thing in the work. There is a danger here in letting the children get hold of the machine too early, so that it becomes too important. Theoretically, a group of children should be capable of operating the machine for you; in practice, I don't know, because I haven't achieved that.

JONES: First thing, the teacher should ask permission to take the school machine home, or work with it after school hours, until he or she can do absolutely anything with it. This makes sure that the machine doesn't take up too much of the lesson while

he is fiddling and getting tape all over the floor. The machine ought to be just very quietly in the background. It is the work that goes into it that's important. When you feel competent, then introduce it into the classroom, keeping a sharp eye open for the boy who sits at the back and stares at the ceiling and isn't terribly interested. Bear in mind the possibility of inviting him to do the machinery side as soon as possible, to bring him into the picture, so that he doesn't sit at the back and resent this rather strange piece of work in which he has no interest. As soon as possible, pass over to him or any other member of the form who may be interested, because working the machine is an important contribution towards the whole thing.

HODSON: The second point—we have all experienced the fact that one of the constant questions from newcomers to tape recording in the classroom is: "What do I do with the rest of the class when one or two people are recording at the microphone?" Or this question may be turned into a statement, by the die-hards who see no value in tape work anyway, as irrefutable evidence to support their stand. How do you deal with this?

HARRIS: The intelligent teacher working with the tape recorder will make sure that, if there is only one child going to be involved at the microphone, this will happen at a time other than when you have got the 39 or 44 other children in the room. That one would use the tape recorder with a class in a class situation—either where one gathers a group of children around a microphone and others are there both to listen to the recording taking place itself and then a playback for discussion, or a group of children round a microphone acting a scene with the rest of the children providing the background noises. For example, a scene taking place on board ship would use the whole class. In my work, at any rate, most of the recordings involving only two or three children take place at lunch hours, playtime, after school, and I think this would be the most sensible thing to do, rather than tie a whole class down. This really rounds off the whole thing. When one is planning ahead, or thinking of something on the spur of the moment, one must bear in mind the use of the whole class.

HODSON: You have both provided us with many ideas to think about for the coming year, and expressed your own basic thinking about the use of the tape recorder in school. We should be most interested to receive readers' comments. Thank you for coming in the middle of your holidays, and good luck for the coming year.

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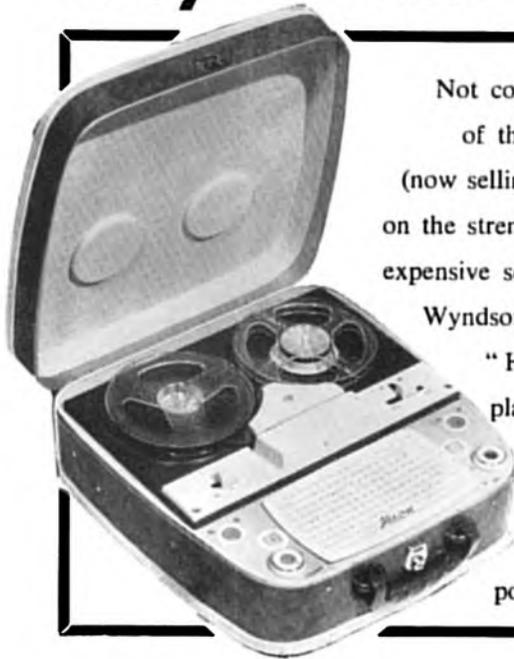
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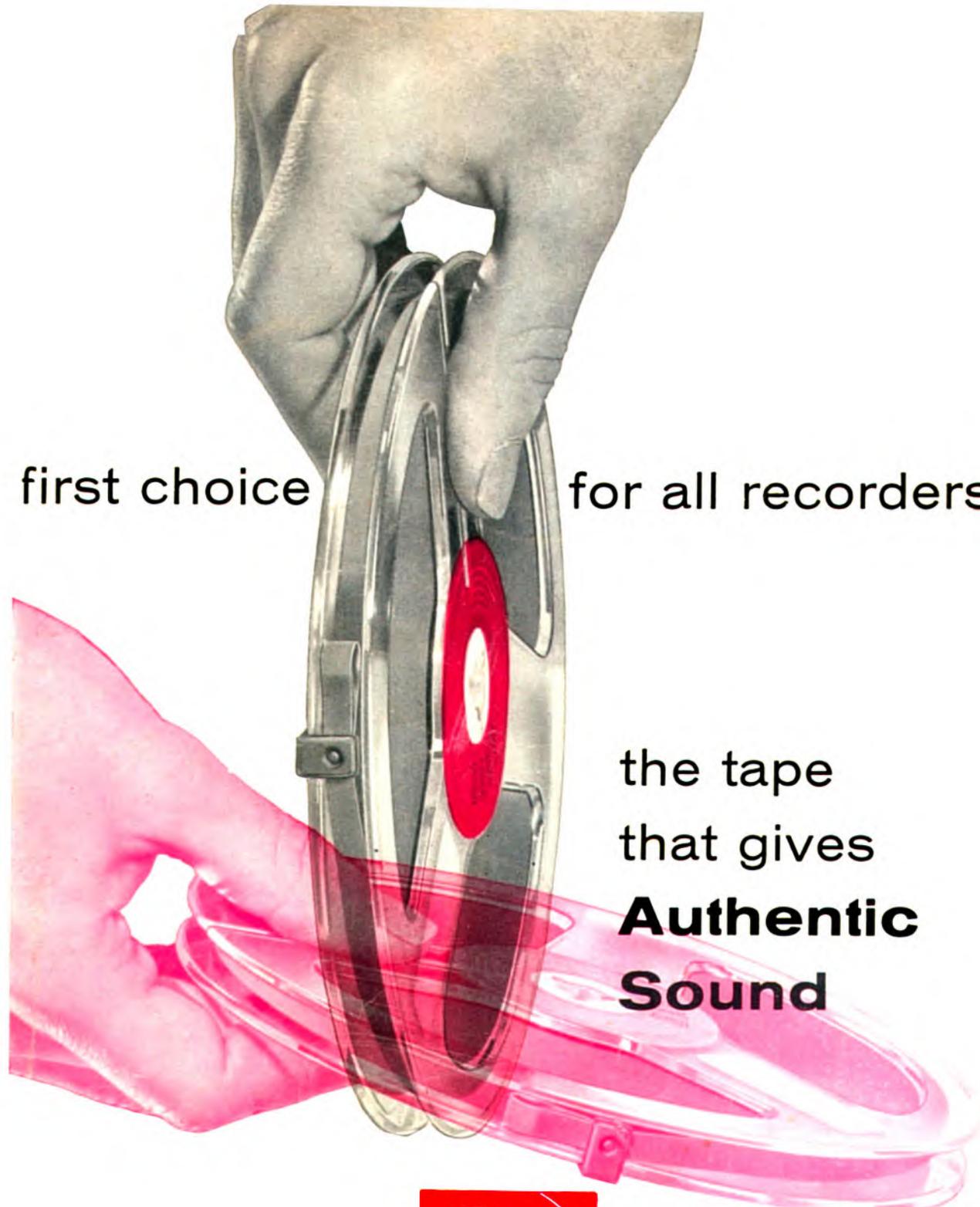
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