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ON TAPE**
Exclusive article

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WEDNESDAYS **1/6**

14th December, 1960



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PHILIPS STEREO TAPE RECORDER

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- Safety button interlocks with Record button.
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- Frequency response at $7\frac{1}{2}$ " sec: 50-20,000 c/s.
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- Complete with stereophonic moving-coil microphone and base, reel of 7" long-play tape, screened connecting lead and empty 7" spool.

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- * TWO SPEEDS:
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Yes, all these "professional" features, plus superb quality of sound, plus absolute reliability. Only H.M.V. could offer you such stupendous value for money. Hurry along to your dealer's and ask him to demonstrate this amazing tape recorder.

H.M.V.

TAPE RECORDER

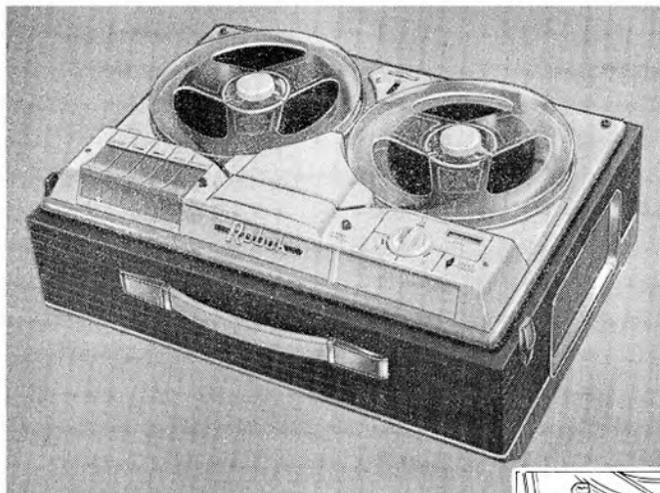
* Complete with 1,200' Emitape, spare spool and crystal microphone.

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The Robuk **r k 3**

makes tape recorder history!

'Never-before-offered' features in a quality recorder in the medium price range.



Three speeds 'n that!

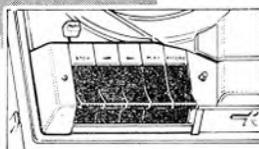
How's this for a list of tape recorder qualities?

- 1 Three speeds—amplifier compensated at all speeds
- 2 Simplified 'Piano-key' operation
- 3 Input for gram. and mic. have separate gain controls
- 4 Monitoring through speaker, with separate monitor gain control
- 5 Superimposition facilities with switch on tape deck
- 6 Separate on/off switch, and tone and volume controls
- 7 Full size 7" reels can be accommodated with lid closed

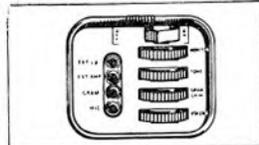
The Robuk RK 3

Its features include a featherlight 'piano-key' operation, 3 speed and separate gain controls for input mixing.

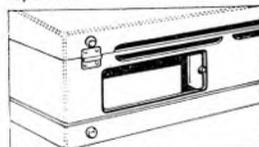
The introduction of the Robuk RK 3 is still the most exciting news in the tape recorder field! The full specification contains 36 features which are normally found only on expensive models—yet the three speed RK 3 costs only 36 gns., complete with microphone and long playing tape! Never before has a tape recorder in this price range, offered so many outstanding features!



Simplified "Piano-Key" Operation! Three keys complete the operating sequence! RECORD . . . REWIND . . . REPLAY!



Rim Controls for fingertip operation! Neatly grouped . . . easily identified! Simple enough for a child to operate!



Sliding door storage compartment for microphone and spare leads!

Many other features

Incorporated in the tape deck are additional features such as pause control, position indicator, recording-level indicator, accidental erasure prevention and automatic interlock to avoid tape spillage—fast forward and rapid rewind speeds. Sockets are also provided for extension speaker and external amplifier.

Free 'Tape Fun Book'

Offered as part of a drive to introduce all classes of families to the pleasure and fun of tape recording, this unique booklet lists new ideas for serious collectors as well as exciting party games that open up a new field of home entertainment.

Slim design for portability

Packed for carrying, including the microphone 7" reel of tape, the RK 3 weighs only 23 lbs! The attractively styled, two-tone case in scratchproof, washable plastic, measures only 16" x 11½" x 7" deep—a feature/quality machine!

Where to send for information

Dealers throughout the country will be stocking the RK 3 at the time you are reading this announcement. Send the coupon below for further information and you will also receive a free copy of the 'Tape Fun Book'.

The Robuk **r k 3** **36 GNS.**
THREE SPEED
TWIN TRACK

Today's greatest tape recorder value!

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NAME

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DRB.1/2

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Cinecorder

Regd. Trade Mark



The K.G.M. Cinecorder is a new conception in tape recorders designed for the enthusiast interested in compiling sound tracks for amateur cine films or in making feature tapes.

The Cinecorder has, in addition to the usual tape recording facilities, many novel features to make tape timing and cueing easier, and to simplify the mixing and superimposing of sound.

The Cinecorder may be used with any kind of Cine Projector to add sound to Home Movies, and has been designed especially to make it easier for the amateur, on his own, to record sound tracks of professional quality.

The Cinecorder and its wide range of accessories have been devised to make as much use as possible of the new perforated Cinetape in following the well-tried professional sound film making techniques, including lip-sync.

For full particulars write to

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lever for cueing and
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instantaneous start
and stop, with tape
marking for lip-sync.
shooting.



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LITERATURE ON REQUEST

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Tape Deck Cleaning Brush—made from specially shaped feather-
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PRICE 41 gns

Including built-in crystal microphone

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better

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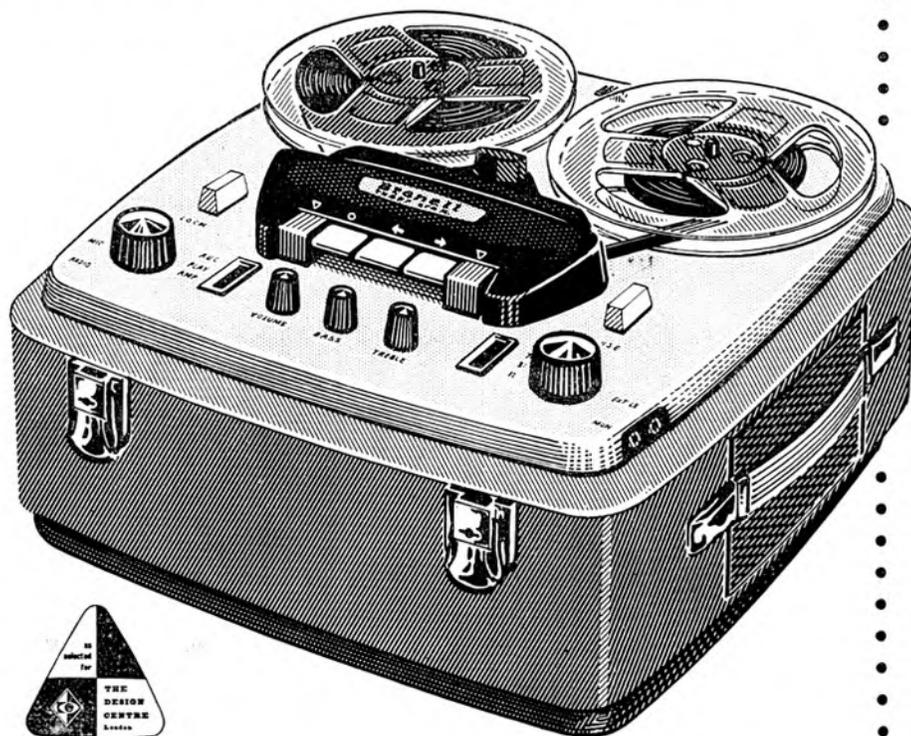
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A headphones' socket is provided for the monitoring of any recording operation. On playback, this output is suitable for feeding to an external amplifier.

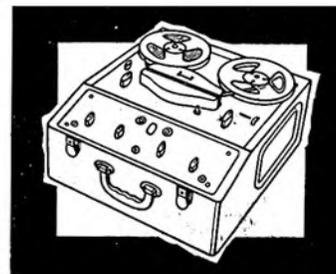
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WORLD'S LARGEST SALES OF MAGNETIC TAPE

TAPE

RECORDING
FORTNIGHTLY

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We take the view . . .

A DIGEST OF NEWS, COMMENT AND EDITORIAL OPINION

THE UNESCO Sound Library is so pleased with the response of amateur enthusiasts to its appeal early in the year for recordings of characteristic national sounds that it is co-operating in a second effort.

The International Federation (FICS), of which the Federation of British Tape Recording Clubs is a member, has agreed to collect and supply a specific collection of ten types of sound.

These are the sounds which British amateurs are invited to contribute:

Background conversations in various surroundings; the Lord's Prayer; one other (non-Christian) prayer; street noises; church (and other) bells; hunting sounds; animal noises (in natural surroundings); alarms (firebells, etc.); military life (words of command, etc.); vehicles.

The maximum duration of any one item should be two minutes, except for the background conversation noises, which should be limited to 90 seconds.

All recordings should be single-track, at $7\frac{1}{2}$ ips.

The final date for submission of tapes is March 1st, 1961. All inquiries and tapes should be addressed to Alan Stableford Esq., Federation of British Tape Recording Clubs, 9, Normandy Terrace, London, E.16.

Television on tape

AT the Radio Hobbies Exhibition I was fascinated to watch a television picture "played back" from a Grundig recorder operating at $3\frac{1}{2}$ ips. This opens a fascinating new field for the home constructor. So far as I can discover, only two enthusiasts have built the necessary equipment to perform this slow-scan TV adventure.

The first man to do it was Mr. J. A. Plowman, who contributes a special article on the subject in this issue, with an introductory explanation, simplified so far as it can be, by our Technical Advisory Editor.

What is the TV picture like? The one I saw at the Radio Hobbies Exhibition was four or five inches square. A bright line of greenish light appeared to move from top to bottom of the screen, falling like a venetian blind and leaving above it a clear picture which was just beginning to fade by the time the bright line began its next descent of the screen.

Who is going to be the first manufacturer to market a kit to enable less knowledgeable addicts to embark upon this activity?

At a moment like the present, when so many people seem pessimistic about the immediate future, it is good to see new possibilities opening up to excite public interest and stimulate home activity.

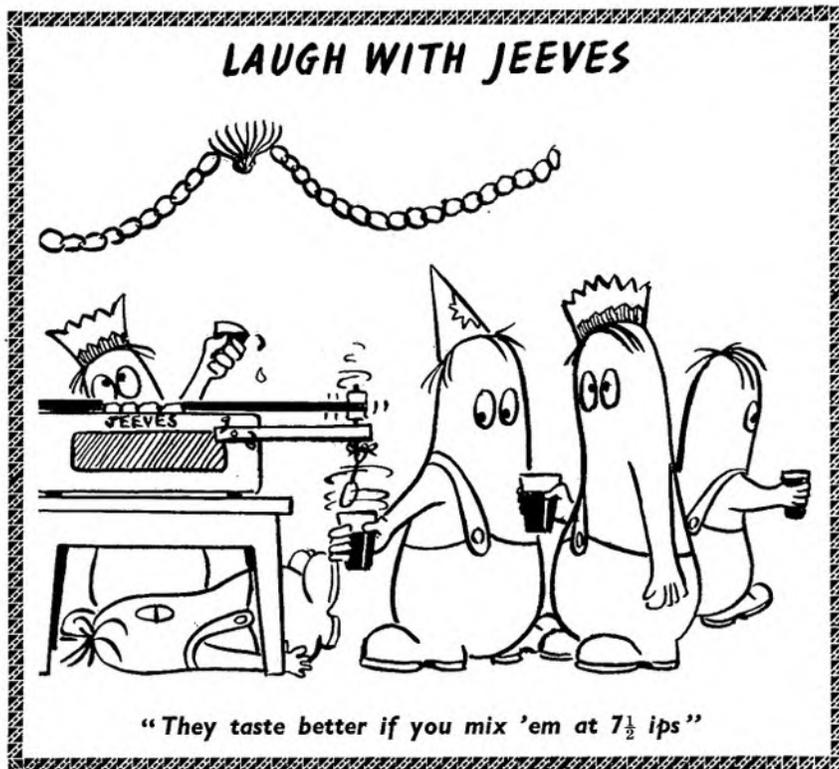
There is no doubt in my mind that, in the long term, the future of tape in the home lies with synchronised vision and sound, and any step in that direction is important.

"Tape" and Christmas

OUR next issue would normally be on sale on December 28, but we can scarcely expect our staff, printers, distributors and others to work over the Christmas holiday to produce it then. Furthermore, we want to provide our readers with some lighter-than-usual reading for the holiday weekend.

The issue dated December 28 will, therefore, be on sale a week earlier—that is, *next* Wednesday, December 21. We shall resume our normal publication rhythm with the first issue in the New Year, out on January 11, which will contain complete information about the 1961 British Amateur Tape Recording Contest, as well as introduce a number of important new editorial features.

Our Christmas issue will contain a special bonus of cartoons, a crossword puzzle, ideas for party games with tape, and a special Christmas ghost story with a recording twist. Don't forget to secure your copy *next* Wednesday.



GRUNDIG CELEBRATE BY GIVING TO THE BLIND

EARLIER this month, a cocktail party was held in London. This in itself was not unique, but the reason for the party was. Organised by Grundig (Great Britain) Limited, the party was held to celebrate the sale of the 100,000th TK 20 tape recorder.

Representatives of the recorder industry, and the tape recording press were invited to the Grundig Showrooms in New Oxford Street for this unique celebration, the highlight of which was the presentation of the 100,001st TK 20 to Mr. T. H. Tylor, Vice-Chairman of the National Institute for the Blind.

In our photograph, *right*, Mr. Tylor is seen receiving the recorder from Eric Robinson, who presented it on behalf of Grundig.

Mr. Tylor, who is blind himself, is Teacher in Jurisprudence and Estates' Bursar at Balliol College, Oxford, of which he is also a Fellow. He is an international bridge player, and President of the Midland Counties Chess Union.



Language Switchboard

A "LANGUAGE switchboard" is being used by Shell International Petroleum as part of the training scheme for executives, and their wives, going to Indonesia.

The students sitting in sound-proofed booths for two and a half hours a day, are linked by intercom speakers receivers to the instructor. Each student works with a tape recorder on which exercises can be set before the lesson starts.

Through a master set, the teacher can talk to each booth individually or simultaneously—an adaptation of the system described by Allan Cooper on page 22 of this issue.



THE WORLD OF TAPE • A NEWS ROUND-UP

Eiko tapes London

JAPAN'S unsuccessful but, nevertheless, charming contender for the "Miss World" title, 24-year-old Eiko Murai sets out from her London hotel on a sightseeing and recording tour. The current craze among tourists for recording typical London sounds is spreading fast.

The compact machine which Miss Murai is carrying is the Japanese "Documentor" which we hear is to be imported into this country soon by G.B.C. Electronic Industries Limited.

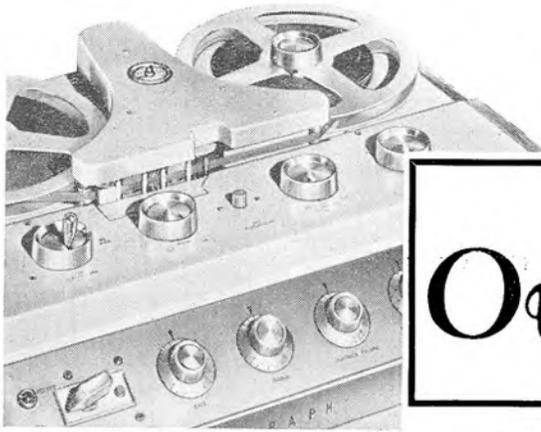
Full details of the "Documentor" are not yet available, but we understand that it is battery / m a i n s operated and that its features include two speeds — 1½ and 3½ ips—and a level and voltage meter. Dimensions are 7 x 5 x 2½ inches, and it weighs 3½ lb.



JESSIE SENDS CONGRATULATIONS ON TAPE

A HAND-WOVEN shawl entered in this year's "Do-it-Yourself" national contest by 83-year-old Mrs. W. Sutherland, of Shetland, was awarded £100 and a silver plaque. Unable to make the long journey to London for the presentation, Mrs. Sutherland received the hearty congratulations of Jessie Matthews—on tape.

Our photograph (left) shows the star that made *Had a feeling she was happy* famous, looking very happy indeed as she records her message on a Clarion portable recorder.



The Over £50 Range

IN our last issue we published a survey of tape recorders which cost under £50. The majority of these less expensive machines could be categorised according to decks. A glance at the total number of recorders available at prices over £50—a list which exceeds 100 models—shows that there can be no such grouping in this price range. Collaro Studio and Mk IV decks appear with perhaps the greatest frequency, but the majority of the recorders have their own decks.

What can a prospective buyer expect for his money?

It is fair to say that whereas he can get everything he wants if prepared to hand over something in the region of £100, he can also get a very respectable machine at the very bottom end of this range. Facilities for mixing, monitoring, superimposition, and extra inputs are pretty well standard among the lower priced models while the more de luxe extras, such as meters, separate bass and treble controls and quality microphones can usually be had for a few more pounds.

One word of advice. Despite the fact that there have been comparatively few additions to this price range since last year, it still covers a lot of recorders. It is possible to spend between £50 8s. on the **ABBEY RADIOGRAM SOVEREIGN** and £350 on the **CONNAUGHT TAPE-O-GRAM STEREO**. Because there is such a wide variety, the potential buyer's investigations should be that much more intense. These pages can hint at a choice, and the review pages in our magazine provide a detailed catalogue of information on individual recorders. Consult them to ensure that you are getting the machine you *really* want.

By the way, don't be depressed by that ceiling figure quoted a few lines back. Of the hundred or so machines in this range, only about 15 top the £100 mark. Provided you are prepared to spend over £50 there is an enormous variety of prices to choose from.

THE concern offering the widest selection of models is **Grundig** with a range which extends from the well-ried **TK 20** at £44 2s. to the stereophonic **TK 60** at £134 8s. with separate speaker unit. The latest addition to the family is the **TK 24**, a four-track machine costing 55 gns. In common with all other Grundig models a Grundig deck is used and a single speed of $3\frac{1}{2}$ ips is employed. Total playing time with a 1,800 ft. reel of tape is approximately six hours.

From the same country as Grundig comes the **Telefunken Magnetophon** range, which comprises five models. Once again "own" decks are a feature throughout, and prices extend from £54 12s. for the **75K-15** to 192 gns. for the **M24KL** portable design with 6 watt push-pull power stage and four loudspeakers. Facilities on the **75K-15** include monitoring pause control, automatic stop, safety erase lock, magic eye, rev. counter and tone control. These facilities are standard on all models.

The British **Brenell** company offers three models all fitted with Brenell decks. Most expensive of the trio is the **3-Star**



Above: The Simon SP 4 Automatic and (left) the Cinecorder

Stereo, a three-speed machine costing £93 9s. Two 8 x 5 in. elliptical units comprise the loudspeakers and the machine weighs 44 lb.

Fine-gap Bogen heads are fitted to the **Chitnis** model which consists of a basic model with two- or four-track versions and the **9/S 4K** four-track stereo machine costing 66 gns. A feature of the £56 14s. **KM 33** (two-track) version; £50 8s.) is that there are both 5 and 15 ohm outputs as well as three separate inputs. Two speeds— $1\frac{1}{2}$ and $3\frac{1}{2}$ ips—are employed.

The Collaro Mk IV deck is used three times and the Studio once in the **Reps** quartet of recorders. Cheapest model is the **R 10** with the Studio, at £58 16s. With three speeds ($1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips) it possesses all the normal facilities as well as a meter. Big brother in the range is the £73 10s. **R. 40** with push-pull output rated at 12 watts.

The **Ferrograph** series all employ Wearite decks. The prices begin at £85 1s. (the **4A/N**) and an exclusive factor in the design is the hinged deck which allows quick and easy access to the amplifier and motors. Meters are fitted as standard and all three models have two speeds— $3\frac{1}{2}$ and $7\frac{1}{2}$ ips. The **4A/N** and the **4A/H** (£90 6s.) are both equipped with ribbon mikes. Costing £110 5s. the **Stereo 808** is the most expensive model.

Two of the **Elizabethan** models—the **Major** (£68 5s.) and the **FT 3** (£57 15s.)—top the £50 mark. Both use Collaro Studio decks although on the FT 3 it has been adapted for four-track. The Major is the only model to include a meter, and the two loudspeakers fitted are a 10 x 6 in. and a tweeter.

Truvox decks are fitted to the **Truvox R 6** and **R 7**. The latter at £78 15s. is the most expensive model of the range using the more advanced deck model. Two speeds— $3\frac{1}{2}$ and $7\frac{1}{2}$ ips—separate bass and treble controls and automatic stopping are exclusively incorporated in this model and the output is rated at 10 watts push-pull. Two speakers 6 in. and 4½ in. are fitted. The R 6 costs £57 15s.

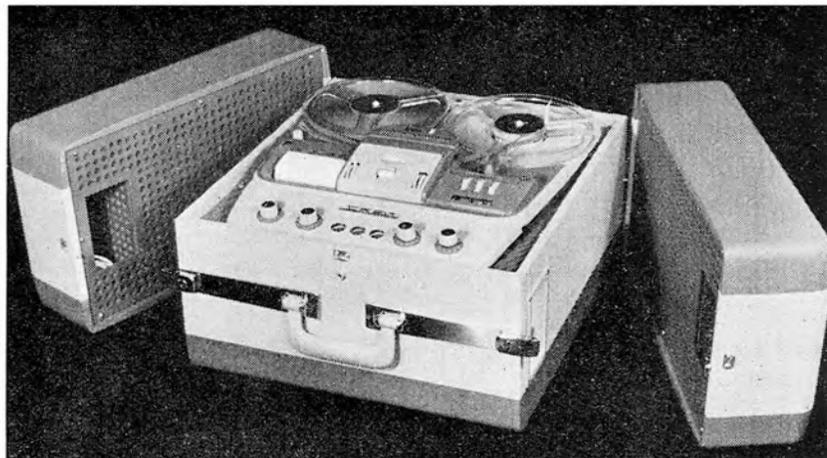
The well-known "joystick" control is incorporated on the £59 17s. **Walter 505**, as on other models from this company. A Mk. II version of the Walter deck is used and the loudspeakers are a 9 x 5 in. elliptical and a tweeter. There is a full range of facilities.

Another recorder which has a large quoted output is the **Simon SP/4** costing £99 15s., said to give 10 watts push-pull. Automatic stopping is one of the facilities offered on this two-speed ($3\frac{1}{2}$ and $7\frac{1}{2}$ ips) recorder and another more unusual facet is automatic reversal of the tape. The deck is a Simon and there are separate bass and treble controls. The machine can be used as a straight amplifier.

A Collaro Mk. IV deck giving $3\frac{1}{2}$, $7\frac{1}{2}$ and 15 ips is used on the **Spectone 161** which costs £51 9s. The usual facilities associated with this type of deck are available and a crystal microphone is supplied with the machine.

Available either in a portable or table cabinet form the **Symphony Mark III** costs £54 12s. and employs the Truvox Mk. VI deck. A choice of microphones is available with this machine which has

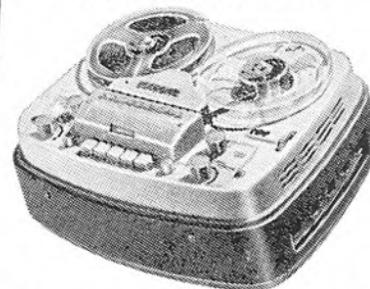
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The Grundig TK 60



The Ferrograph Stereo 808

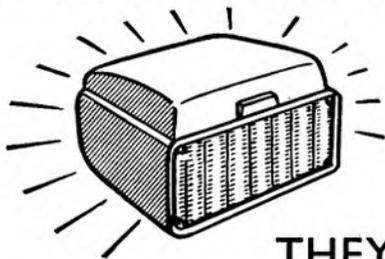


(above) The Symphony Mk. III and
(below) The Stuzzi Tricorder

(above) The Uher Universal and
(below) the Sound Connoisseur

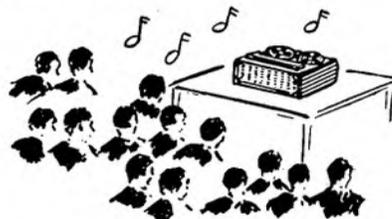


THEY LOOK SO GOOD The moment you see the styling of a Truvox Tape Recorder, you know it is the machine for you. Foolproof and simple in operation with professional facilities, a Truvox Recorder will be the centre of your home enjoyment of speech and music. See them at your dealers.

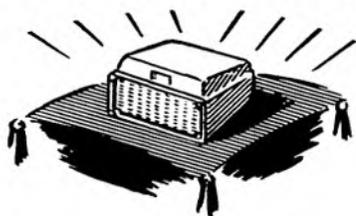


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You'll enjoy "listening" more than ever before. All the technical know-how of a decade of specialisation, to give perfect sound enjoyment, is embodied in the Truvox R6 and R7 . . . the original sound *truly* recorded and *truly* re-played through *large* loudspeakers. Hear them at your dealers.



THEY ARE SO GOOD That you'll never be satisfied with any other Recorder . . . once you've seen and heard them, you'll decide for yourself . . .



THEY MUST BE

TRUVOX

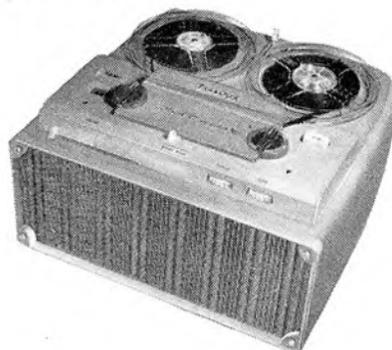
R.7

H.P. Facilities available.

SERVICE IN YOUR OWN HOME

7" spools. 10 watts output.
Records/Replays both directions.
Twin speakers.
Response 30-17,000 c/s.

Retail Price 75 gns.



R.6

7" spools. 4 watts output.
2 speeds. 8" x 6" speaker.
Response 30-15,000 c/s

Retail Price 55 gns.



Ask your local dealer for a demonstration or full details from:

TRUVOX LTD. NEASDEN LANE, LONDON, N. W. 10 (Gladstone 6455)



The Chitnis KMS 33 four-track recorder



The Brenell 3-star Stereo



(above) The Reprs R10 and
(below) the Elizabethan Major



(above) The Truvox R6 and
(below) the Spectone 161



OVER £50 REVIEW

Latest addition to the **Sound** range of recorders are the **Master** (85 gns.) and the **Connoisseur** (65 gns., or in de-luxe four-track version, 70 gns.). The **Master** is a three-speed— $1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips machine—equipped with an acoustically designed bass reflex loudspeaker system. Apart from the normal facilities, it also possesses a meter, two extension speaker sockets, an extension amplifier socket and the ability to record simultaneously from the playback output. Playing time is in the region of 18 hours, and a dynamic microphone is supplied. Facilities for the **Connoisseur** are the same with the exception of playback recording, and a magic eye is used. Loudspeakers used are two 10×6 in., one 8×5 in., and a tweeter.

Most interesting model in the **Uher** range is the **Universal** which incorporates the $15/16$ th ips speed (as well as $3\frac{1}{2}$ ips) and costs £82 19s. Features include fully automatic repetition of playback including stopping, rewind, stopping and re-starting, and a remote control dictating microphone which enables the user to reverse the tape at will with a single control. The other extreme of the **Uher** range is the **Stereo III** costing £108 3s. Among the latter's facilities is the ability to create trick effects by playing back No. 1 track while simultaneously recording on No. 2 track. Tape speeds are $1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips.

The two **Vortexion** recorders, the **WVA** (£93 13s.) and **WVB** (£110 3s.) are both in the semi-professional class. Both are two speeds— $3\frac{1}{2}$ and $7\frac{1}{2}$ ips—and use the Wright and Weaire decks. Both are supplied with ribbon microphones and possess automatic stopping and meters. The **WVB** also has superimposition and monitoring facilities.

Finally, a recorder which exists in a category on its own. The **Cinecorder** (55 gns.) is specially designed for those who want to add sound to cine and employs perforated tape. The tape driven capstan has a special indicator which allows highly accurate cueing and a special "tape lift" lever enables recordings to be made without extraneous "clicks."

(Continued from page 15)

facilities for connecting an external loudspeaker.

This latter facility is also present in the **Trixette Everest** which also has inputs for pick-up/tuner and microphone. A **Collaro Studio** deck is fitted and superimposition is among the facilities. The price is £51 9s.

Two 4 in. loudspeakers are used on the **Stuzzi Tricorder** (own deck) which costs £66 3s. A pause control and rev. counter are among the extra facilities, and it is also notable for being one of

the few recorders with the ultra-low $15/16$ th ips speed as well as $1\frac{1}{2}$ and $3\frac{1}{2}$ ips.

Both the **Philips EL 3542** (£61 19s.) and the **EL 3536 Stereo** (£96 12s.) are four-track machines although the latter, as its name implies, is a stereo machine. In common with all other Philips' machines the Philips' deck is utilised. A moving coil microphone is supplied with the **EL 3542** and the **EL 3536** is equipped with a moving coil stereo microphone. Both possess automatic stopping as well as the more usual facilities.



Untouched photograph showing the results obtained using the AM system. Slight distortion of the vertical lines is caused by wow in the tape recorder

TV PICTURES ON STANDARD TAPE

Our Technical Advisory Editor

CHARLES LANGTON, *A.M.Brit.I.R.E., A.M.Inst.E.*

offers this introductory explanation :

IT is well known that a good tape recorder has to be able to record and reproduce the whole range of audio frequencies from about 100 cps to 10,000 cps. Exceptionally good high fidelity recorders extend this range from 40 cps to 15,000 cps. This is because the output from a microphone (or audio pick-up device) gives voltages having frequencies within this range. Furthermore, as the human ear is only capable of responding to such frequencies, it would be pointless to design an instrument having wider capabilities.

On the other hand, the output from a BBC television camera (or video pick-up device) consists of voltages having frequencies covering a much greater range, from zero cps (or DC) up to 3,000,000 cps. Therefore even the highest fidelity audio amplifier and recorder would have no chance whatever of handling such a signal.

In the case of an amateur-built television camera, however, there are ways of reducing the upper limit of the video range, as long as it is understood that certain limitations will be imposed upon the quality of the reproduced picture. In the first place, a BBC television picture is made up out of 405 horizontal lines. If the amateur uses only half this number, the maximum video frequency will drop to one quarter of 3,000,000 cps, or 750,000 cps. Again, one-third the number of lines means one-ninth the video frequency, and so on. If a picture consisting of 125 lines can be tolerated therefore, the video frequency required will only be about 300,000 cps.

At present, under the BBC system the picture is flashed on the television screen fifty times per second so as to avoid "flicker." The amateur need not be so stringent, however, and if the scene is scanned only 25 times per second a passable picture will result, although flicker will be very noticeable. Reducing the *frame frequency* to 25 in this way will result in halving the maximum video frequency from 300,000 cps to 150,000 cps. This process may be carried out still further until the frame frequency is so low that it will be possible to see the picture being built up line by line from top to bottom.

There are special types of cathode ray tubes available whose screens remain illuminated for several seconds after the electron beam has moved on. Thus, they are capable of resolving an image even when the scanning frequency is one frame or less per second. According to the calculation in the paragraph above, then, it is possible to reduce the maximum video frequency from 300,000 cps to 6,000 cps by reducing the frame frequency from 50 cps to 1 cps, or to 2,000 cps if the screen is scanned only once in every three seconds.

The above calculations are greatly simplified but do indicate the possibility of rendering down the video frequency to a value within the audio range, and therefore suitable for recording on a normal recorder.

EVER since the British and other licensing authorities agreed to allow amateurs to transmit television on frequencies of 400 Mc/s and higher, there has been constant endeavour to increase the range of picture transmission, limited hitherto, by the propagation characteristics of the frequency allocation.

Progress in the fields of data recording and telemetry, however, has provided a new approach to the problem of image transmission, and although some very original work on this subject was carried out as long as three years ago, it is only over the last eighteen months that two new systems of image transmission have appeared, using sub-carrier techniques in both cases. An expanded time scale is used to reduce the bandwidth necessary for radio transmission on high and medium frequencies.

METHODS

In order to maintain a television format, yet reduce the required bandwidth to reasonable dimensions, the whole process of scanning is expanded in time, to an extent whereby the frequency coverage falls well inside the bandwidth normally enjoyed by an audio modulated transmission.

The effect of increasing the time required to synthesise one complete picture has, however, resulted in the necessity to extend the frequency spectrum down to zero frequency (DC). To meet this requirement a sub-carrier is modulated with picture and synchronising information, and the processed sub-carrier fed to the radio-telephone transmitter, rather than the more orthodox television system.

Two systems currently in operation are based on this philosophy. An amplitude modulated sub-carrier system has recently been demonstrated by WA2BCW, and picture information successfully transmitted over a transatlantic path by using a frequency in the ten metre amateur band.

Activity in the United Kingdom has been centred round the development of a composite AM/FM system, whereby the sub-carrier is wide-band frequency modulated and the synchronising pulses inserted at periods when the carrier frequency is reduced to zero.

You can record a TV signal on your domestic tape recorder and "play back" a very acceptable picture. In this article, J. A. PLOWMAN, the first man in this country to build the necessary auxiliary equipment, outlines the approach to the task.

DESCRIPTION OF SYSTEMS

Amplitude Modulation

This system is currently being employed in the United States and is largely the result of work carried out by WA2BCW. The format employed would be considered unusual in United Kingdom circles in that the synchronising pulses correspond to bursts of full sub-carrier amplitude.

A sub-carrier is generated which has a frequency of 2,000-3,000 cps. The amplitude of this carrier varies in sympathy with the picture and synchronising information. Use of a sub-carrier allows the frequency range to extend down to DC and is similar to techniques currently employed in data telemetry.

The side-bands generated by picture information are of the same order as the carrier frequency and, on receipt of the signal, full-wave rectification is employed which effectively doubles the frequency of the carrier without jeopardy to picture information. Carrier and video frequencies are separated by well designed low pass filters. Systems in use at the present time employ flying spot scanning techniques and photo electric multipliers.

As the bandwidth required for the system is not untoward, quite a considerable voltage output is available from the surplus type of photo multiplier. This signal can be fed directly into a self-balancing modulator and the output from the modulator amplified in the usual way.

After insertion of the synchronising pulses, which bear a fixed amplitude relationship to peak picture (black level), the signal can be fed to the sound channel of any radio telephone transmitter or even tape recorded, as the bandwidth required is well within the compass of even the most mediocre response characteristics.

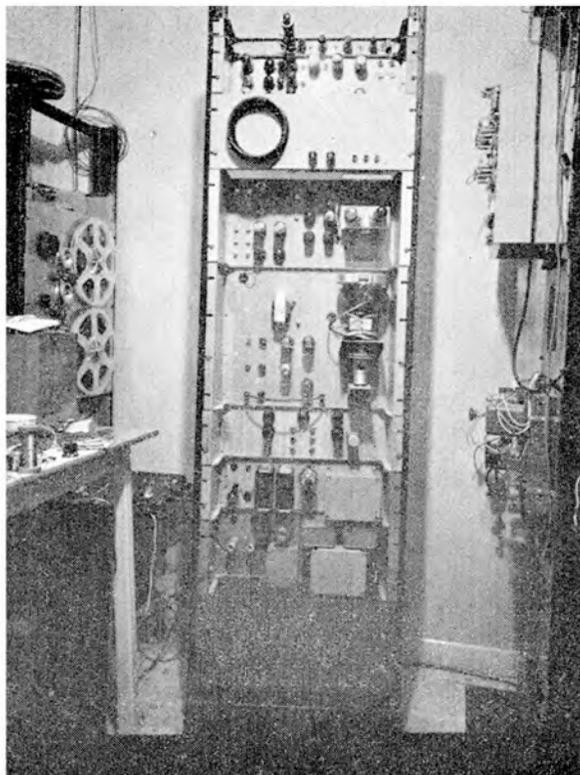
For reception purposes the signal is amplified and demodulated in the manner described above and the picture and synchronising information separated by orthodox television techniques. The picture is displayed on the cathode ray tube having long persistence characteristics which enable the information to be temporarily stored for a period which allows the full raster to be synthesised.

Frequency Modulation

Development of a system using a frequency modulated sub-carrier is being carried out in this country independent of the AM work in the United States. The result of tandem development of two dissimilar systems should result in a general improvement in techniques and the advantages from each system produce a better ultimate result.

The FM system offers the advantages of a better grey scale graduation and is less prone to precipitation interference

 + Slow scan pictures
 + are generated in
 + the caption scanner
 + (fourth unit from
 + top) and displayed
 + on a closed circuit
 + monitor near the
 + top of the rack.
 + AM and FM signals
 + are available
 + for the tape
 + recorder (extreme
 + left) from the
 + scanner unit,
 + which contains a
 + Patch panel for
 + mixing the neces-
 + sary synchronising
 + and video infor-
 + mation



than the AM system. The amplitude, however, is maintained constant during transmission of picture information but is reduced to zero during transmission of the synchronising pulse. This corresponds, of course, to the transmission of zero frequency but is, nevertheless, in the same sense as the U.S.A. system, i.e. the synchronising pulse corresponds to periods of "blacker than black."

The black level for the FM system is set at 3,000 cps or a little higher, and the frequency is increased linearly with increasing image brightness. The overall bandwidth is a little greater than the AM system but the advantages largely outweigh this point.

A system similar to the AM system is employed for image reproduction, namely flying-spot scanning or photo conductive devices. In order to obtain long term stability with the fairly high orders of amplification required for picture information, recourse is made to "spotting" or "dotting" techniques at supersonic frequency. The picture information, having been broken down into a very large number of dots, is reconstituted in a high level rectifier prior to introduction to the frequency modulated oscillator. Negative synchronising pulses (line and field) are mixed with picture information after the latter has been fed to the frequency modulator by means of an AM gating system. Once again the output is available to modulate the audio channel of any radio phone transmitter or stored as before on magnetic tape.

APPLICATIONS TO TAPE RECORDING

It became quite clear during the early phases of the experiments that the bandwidth required for either the AM or FM

system was quite within the compass of the domestic tape recorder.

My home-built machine was more than adequate for the purpose as the response was sensibly flat from 50-17,000 cps at 15 ips while the wow and flutter characteristics were considerably below average for a home manufactured machine.

As both the AM and FM systems employ sub-carrier principles the frequency response required of the tape recorder is adequate provided it covers the spectrum of the sub-carrier and side-bands. The short rise time of the synchronising pulses is normally inhibited from producing unduly large side-bands by use of a low pass filter, although this was not found necessary when feeding into a tape recorder.

Of the two systems, frequency modulation will inevitably yield the most acceptable results as surface noise and drop outs are reduced by limiting action prior to the discriminator upon "play back." With either system by far the most stringent requirement is "wow," as failure to meet the stringent requirement will cause considerable skewing of verticals in the picture and produce a somewhat unpalatable result.

The process of recording slow scan television on to a standard domestic tape recorder when the AM system is employed is quite orthodox in that the signal can be accepted at the pick-up or microphone terminals of the tape recorder and fed directly into the instrument at a suitable level. The utilisation of sub-carrier principles, mitigates the necessity of having a response down to DC, however, and a good low frequency response is by no means essential for the reproduction of an excellent picture.

(Continued on page 33)

FEATURES BEGIN IN THE HOME



"... the roar of the gas burner, ... and whistle of the kettle ..."

MR. D. HOWARD of Hampstead writes to ask for suggestions for recording at home on a standard machine, apart from the obvious recording from the radio.

People often say to me, "What can I record?" and if I were to reply that the purpose of their machine and microphone is to record sound vibrations within certain predetermined limits and that any noise within this range could be a subject for recording I should be considered very rude. Yet isn't that true? Here we are with a tape recorder and a microphone, a brand new tape laced up, ready and waiting on the deck as we sit comfortably in our living-room looking vainly for something worth recording. But just what are we waiting for?

The world of sound is a world of life and excitement that goes on around us all the time. Because it's so familiar we tend not to notice it; the sound of a tap dripping into a bowl of water, footsteps passing in the street, the rattle of this typewriter as it taps on the paper.

These and a thousand others are the sounds of everyday living going on in your home and in mine, and these are the raw material we can use to create something entirely original that didn't exist before.

Indeed, features should begin at home. Why envy the man who tours the country

with his battery miniature or who loads his car with stereophonic equipment and goes to endless trouble to secure a particular sound which occurs only in the most inaccessible of places when all the material really required for a feature tape is within your reach without walking outside the front door? The awful truth is that the greater the variety and complexity of the equipment the greater becomes the danger of losing oneself in a fog of technicalities, forgetful of the real business of recording sounds.

A collection of sounds

So let's get to work with that brand new spool of tape and see what we can do. My first suggestion is to record every single sound that you hear during an evening at home. If this is done conscientiously, and if your home is anything like mine, you will not only be surprised at the result when you play back but you will also begin to wonder why you asked what there is to record. The problem is not what to include, but what to leave out. Of course, the tape won't be a feature in the sense that we know it, but it will be a collection of sounds, any one of which might give you an idea for the main theme of a subject, and once you have the idea you'll think of nothing else until it's been properly developed and recorded.

What are the sounds to be heard in your home in the morning? Are there snores, clocks ticking, an alarm bell sounding, a reluctant getting out of bed, a swish of water in the bathroom and a crash of kettles and

crochery in the kitchen? Nothing to record? Do the children clamour for their breakfast, does the paper "plop" on the doormat and does the whistling kettle scream its head off as you noisily crunch your toast and burn your mouth with hot coffee?

An artist will tell you that the joy of still life painting lies in the power of interpretation and composition; a collection of objects are arranged to precisely suit the desire of the painter, and the final picture is his interpretation of the composite form he sees, with emphasis here, detail there and just the merest hint of form over there. The result may be a masterpiece or it may be valueless. Whatever it is it expresses what he himself felt and saw at the time.

If his name chanced to be Vincent van Gogh his representation of an old boot or a rough chair might be a supreme work of art, but the merit would lie in the artist, not the subject. So with recording.

Any subject

Our medium is not a mess of brilliant pigment worked on a wooden palette but the transitory vibrations of living sound, registered for posterity, perhaps, on a narrow band of oxide. The subject doesn't matter; in fact, the more ordinary the better. What was the value of Vincent's chair? Nothing, it probably wouldn't have fetched a single bid at an auction sale, yet in the medium of his choice it has been immortalised.

I can already hear voices raised in protest. To be a genius may be one thing, to be an ordinary man-in-the-street is quite another. But at least let's admit where the fault lies. If we own the simplest tape recorder we aren't at a loss because we lack the technical facilities, neither can we be said to lack opportunity just because we don't happen to live in an African jungle or the middle of the Sahara. No, if the fault exists it is within ourselves.

A certain well-known author was pestered by young persons complaining loudly that their one desire in life was to write, but they didn't know how to go about it. His sardonic reply was that all they had to do was to take a piece of plain paper,

DENYS G. KILLICK is combining the roles of explorer, experimenter, artist, teacher and roving reporter in this series. In this issue he encourages the amateur tape enthusiast to look around his own home in his search for "unusual" sounds.

FEATURES BEGIN IN THE HOME

pick up a pencil and make lots of funny black squiggles with it. If you want to record, switch on your machine, take your microphone and make lots of noises in front of it!

Those may be grossly over-simplified statements of very complex problems, but there is no satisfaction of achievement in accomplishing something so easy that a child could do it.

My first feature

The production of a feature tape is very closely allied to both pictorial and literary arts, and the only aesthetically valid excuse for any artist producing anything is because the idea was boiling up inside and he just couldn't help himself. The sound medium is, comparatively speaking, a new one and its mass-produced tools are placed within the reach of almost anyone who cares to acquire them, but that doesn't make them any the less fine in the hands of the man with ability and ideas. They are the things that really count, not the frequency response of the machine he happens to use.

The very first feature tape I made myself consisted of a sound picture of my own household in the early morning, and it followed roughly in the sequence suggested earlier in this article. Having decided on the sounds required the family reconstructed the scene on a Sunday afternoon rather than record in the early hours when tempers are likely to be as sharp as the blade of my razor. For some reason my wife does not appreciate having a microphone thrust under her nose as soon as she rolls out of bed.

I found it needed only the scantiest of scripts to hold the whole thing together. The recording opens with a few bars of appropriate music fading into my voice reading the introduction in somewhat sepulchral tones and leaning fairly close to a ribbon microphone, thus giving a very bass emphasis to the sound.

The exact words will appear shockingly banal in cold print and out of their context, but they were: "Night! It is night and the dark, bible black, creeps softly from the damp, hushed common to smother the room, the furniture, the sleeping figures."

My voice dropped in tone towards the end of the sentence and after the word "figures" the music faded up again briefly only to die once more as the metallic sound of a ticking clock was brought up to the microphone. This was our faithful old alarm clock; I don't know if it objected to performing at such an unusual hour but the sequence had to be repeated several times before we could get the thing to ring at the right moment. The sound of my wife's hand falling on top of the clock to stop the bell registered quite well, as did her stifled yawn and muttered complaint.

On to the bathroom with sounds of running water, brushing of teeth and gargling. My wife does not normally gargle every morning but the sound made in this way is so delightfully expressive that it seemed too good to miss, in fact I mixed some music of fast, aggressive tempo with the gargling noises and the result was both humorous and descriptive.

This sequence faded into kitchen sounds with water running into the kettle, the pop

and then the roar of the gas burner, the chinking of cups and saucers and then the whistle of the kettle as it boiled. Actually, we found in practice that the kettle had to be filled with hot water in order to reach boiling point within an acceptable time, but that is one of the many things one discovers by trial and error. Finally, the whole morning picture came to an end with my wife "waking" me and offering me a cup of tea. The whole thing was very simple, quite effective and great fun to do.

Copyright

I should mention that if any copyright music is included in such a feature it is an offence to use it without first obtaining the permission of the copyright holder. This is invariably easily obtained for a purely nominal fee if the precise purpose for which it is required is fully explained.

At some later stage you may care to think about composing your own incidental music, getting some friends to perform it whilst you record for use later in the feature. This, of course, could begin to approach Vincent and his chair!

Personally, I believe that a recording such as is described here is worth making for its own sake, but in fact mine was used for another purpose. The final tape, with a few personal messages added, was re-recorded on to a long-playing disc and this was sent away as a Christmas present to some very near relations who had been living in the West Indies for a number of years.

Under the heat of the Jamaican sun the record was played to the family as they were gathered round their Christmas table, and I heard later of the profound effect it had on them. To hear the simple, everyday sounds of home when thousands of miles away, and to hear them unexpectedly at that particular time of the year brought back more pleasantly nostalgic memories than any ordinary letter or present could possibly have given them.

My suggestion, Mr. Howard, of what to record at home is to record the sounds of home; record in the morning, record in the day, record in the evening, but record. If you think your life is dull and uninteresting—don't believe it. The interest lies in the way in which you record it and in the imagination which you, as the creative individual, can put into something which appears dull only because you have done it so many times.

The material is there. If you have the ideas and the ability, so is Vincent's chair.





AMERICAN STUDENTS TAUGHT BY TAPE



A class of 30 American students being taught languages by the "Lingua-trainer" classroom unit. Note the sound booths round each student



THE existence of a National Tape Repository at Kent State University, Ohio, is in itself indicative of the growing importance of "audio instruction" in U.S. schools and colleges. Close on fifty agencies contribute tapes to the Repository. Among them are the American Forestry Products' Industries, the Teachers' College at Columbia University, and the British Information Services' Radio and TV Section.

The tapes may not be borrowed, but may be re-recorded on tapes sent in by teachers at modest rates, e.g., 3s. 6d. for a fifteen-minute programme. Alternatively, tapes may be

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AMERICAN STUDENTS TAUGHT BY TAPE

by Allan T. P. Cooper

purchased from the Repository. Choosing at random from more than a thousand titles in the National Tape Recording Catalogue, there are programmes such as "The First Steamboat: Maiden Voyage of the *New Orleans* in 1811," "Poetry of Lord Tennyson," "Why Study Geometry?" and "James Watt, Tycoon of the Teakettle." (!)

Ingenuity unstifled

Such varied and abundant resources do not stifle the ingenuity of individual teachers. Each tape-recorder enthusiast brings his own native inventiveness to the work of recording.

The task of collecting and validating the ways tape-recordings can be used profitably in the classroom was undertaken by the Minnesota Mining and Manufacturing Company in 1955, when it published a booklet called *The Tape Recorder in the Elementary Classroom*. Fifty activities are outlined in this publication, ranging from the correction of speech defects to instruction in foreign languages. For instance, creative dramatics may be fostered through the recording of skits and playlets; in supplying a sound track for puppet plays; rehearsing class plays; and preparing radio broadcasts. Two- and three-part harmonies in class singing may be learned by singing them to a recorded melody; and partial tone deafness may be overcome by matching recorded voices of the monotonous with tone exercises provided by the teacher.

State education authorities are not slow in recognising the work of tape-recording enthusiasts in schools. One enterprising class teacher, employed last year at the University of Nebraska Summer School to demonstrate her recording techniques, was named

"Arkansas Teacher of the Year" owing to her success in using tape-recordings with junior classes. This teacher, among many others, through judicious publicity, is making it clear to the teaching profession and to people generally in the United States that, used wisely, tape-recordings can help to conserve and to consolidate the work of an inadequate supply of teachers, ensuring a more effective use of their talent.

Some voluntary schools, as well as State schools, are prominent in developing the possibilities of recordings in class work. Recognition of the pioneer work carried out at Mount St. Scholastica College, a high school for girls in Kansas, has brought rich rewards from educational foundations, amounting to many thousands of dollars.

Language tuition

These grants are enabling Sister Mary Theresa Brentano, the chief instigator of the research programme, to develop forward-looking ideas, especially in foreign language instruction. These lessons can be given individually, each pupil tuning in to the appropriate tapes on the teacher's master console. The recordings are heard through headphones having a microphone attachment which may be used to speak to the teacher. Thus, in a class of thirty, there may be several levels of instruction going on simultaneously with no disturbance to any member of the class, even if the teacher chooses to instruct a group orally at the blackboard in the usual manner.

A survey made in 1957-58 showed that 240 colleges and universities, and 64 high schools had installed such electronic devices.

It is the teaching of foreign languages, especially, that should benefit from the use of tape-recordings, which can provide a valuable service to the schools of America, so notoriously weak in this respect.

Both Rear-Admiral Rickover and Dr. James Bryant Conant have lately voiced criticism that is becoming widely considered in the United States.

"Drilling for oil"

"The study of foreign language for less than three years," says Dr. Conant, "is like drilling for oil and then stopping before striking it."

It is obvious that a break must be made in the American custom of giving all children identical teaching. The tape recorder may become an important tool in providing instruction at various levels while yet fostering the American concern over "togetherness."

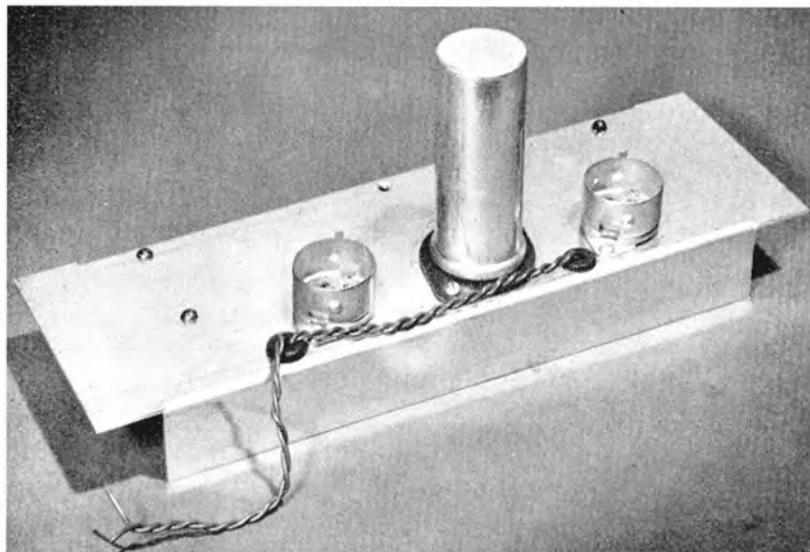
"A school system that insists on the same instruction for the talented, average and below-average child," said Admiral Rickover, "may prevent as many children from growing intellectually as would a system that excludes children because of social, political or economic status of their parents. Neither system is democratic."

Whatever the outcome of the criticism, and however profitably the innovations thrown up by technology may be used in meeting the national clamour for more and better education, one organisation is particularly concerned with the question as a whole. That is the National Education Association's Department of Audio-Visual Instruction: a beneficent watchdog of Federal and local parties alike.

H. Burrell-Hadden continues his learn-as-you-make-it series on:

Part one (Deciding the requirements) and two (Use of a "monophonic" microphone in stereo) appeared in the issues dated October 19 and November 16

BUILDING A STEREO MIXER



IN the first two articles of this series we discussed the various requirements for a comprehensive stereo mixer/pre-amplifier, and it became evident that a fairly elaborate unit was needed. There should be at least two stereo channels, one for a twin microphone, the other having alternative inputs for microphone or high level, say disc or tape. There should also be two monophonic channels with pan pots, again one for microphone, and the other with the alternative high level input. Finally, there should be the mixing stage itself.

It was decided that all gain controls should be in sum and difference circuits to minimise the effect of slight out of balance in the ganging of the controls.

Since such a complex piece of

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H. Burrell-Hadden continues his
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BUILDING A STEREO MIXER

equipment tends to look somewhat frightening, if any attempt is made to consider—or make—it in one piece, it was decided that a unit form of construction would be adopted.

This simplifies matters considerably, since each half of the stereo pre-amplifiers is very similar to the other, and these in turn are very similar to the monophonic pre-amplifiers. Hence, we have already broken the complex design down to six almost identical pre-amplifier units and a mixer unit.

All seven units will fit into a frame which carries the input and output connections, both programme and power supply, and a sub panel on which is mounted the various controls. The whole assembly is mounted on a steel panel 22½ inches x 5½ inches. Power supplies are from a separate unit.

The photograph shows the mixing stage partially completed, and gives a general idea of the appearance of the units. The other units are similar in appearance. Each unit is 9 x 2¼ x 1 inches deep and fully dimensional drawings will be supplied in a further article.

The mixer circuit is of the familiar anode follower "Virtual earth" type which has been described before, and two of these circuits are obviously necessary, one for each side of the stereo system. A twin triode valve is

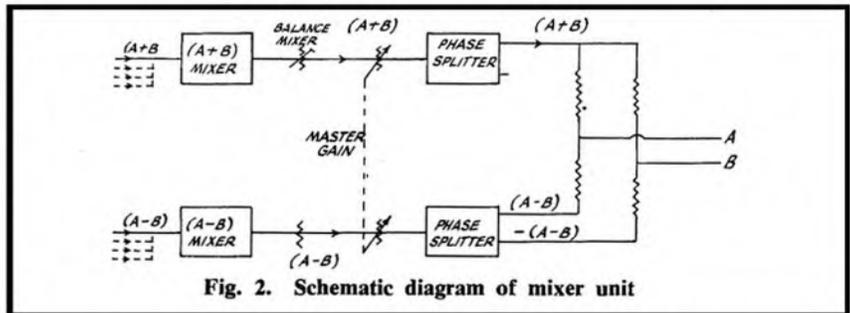


Fig. 2. Schematic diagram of mixer unit

used for each side, and the second half of each valve is used as a phase splitter. This is the familiar split load phase splitter, with equal anode and cathode load resistors. In block form the circuit is as Fig. 1.

The phase splitters each give two outputs, one in phase with the input, and one out of phase. We must remember that the mixer inputs are (A+B) and (A-B). It is only necessary, therefore, to add together the inphase signal from (A+B) and the inphase signal from (A-B) to produce our original signal, and also to add the inphase (A+B) signal with the out of phase (A-B) signal to produce the original signal B.

$$(A+B) + (A-B) = 2A$$

$$(A+B) - (A-B) = 2B$$

The "2" can obviously be neglected.

The schematic diagram for the complete unit then becomes as shown in Fig. 2.

Some consideration must be given to facilities for setting up the equipment prior to its use for an actual recording.

It is necessary to ensure that, as we discussed in the first article, the microphone and pre-amplifier combination is correctly balanced in each stereo channel, and it is equally necessary to ensure that the two mixer/phase splitter circuits are balanced to ensure correct reconstruction of channels A and B.

Fortunately, this is fairly easy. If we arrange a switch so that we can listen to the A-B input to the mixer, and then we put an identical monophonic signal into both stereo pre-amplifiers, A and B will be equal, and so we should hear nothing if the gains are equal. It is a simple matter, therefore, to adjust the balance control of the stereo pre-amplifiers for the minimum output in this condition. Complete cancellation may not occur, but a very good lull will be possible.

Our two stereo pre-amplifiers are now balanced, but how to balance the mixer? This also is simple. If we switch the "set up" switch to normal, and put a signal into one side of the stereo pre-amplifier, after it has been balanced, say channel A, then B will be zero, so (A+B) will equal (A-B).

In this case we are putting equal signals into the mixer, and at the output of the "B" channel we should get zero. Again an adjustment of the mixer balance control achieves this.

In the next article we will consider the design of the microphone pre-amplifiers and give further constructional details.

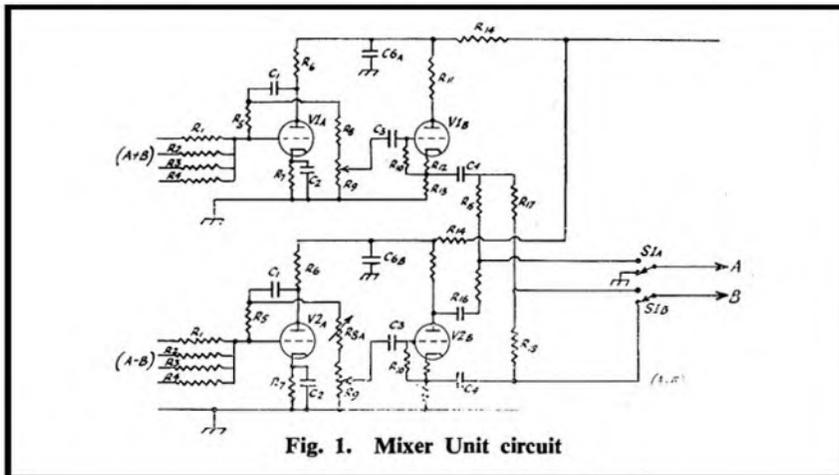
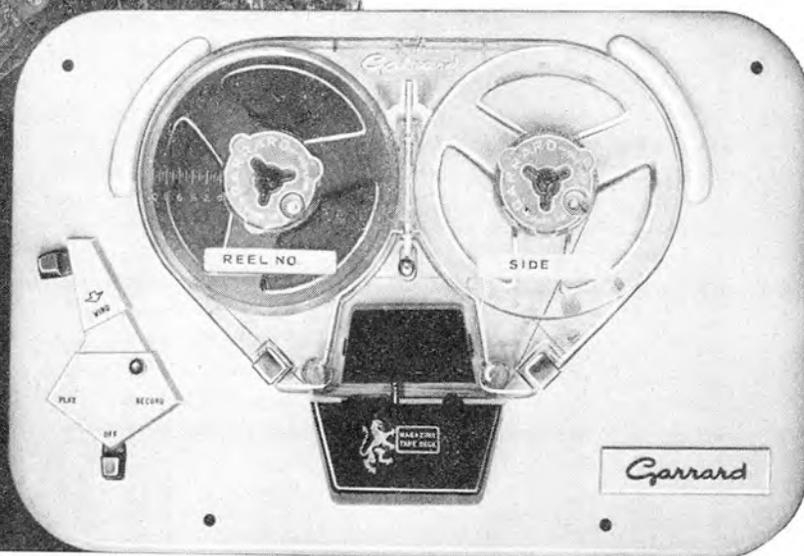


Fig. 1. Mixer Unit circuit

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26

Equipment Under Test

THE WYNDSOR "VICTOR"



★
by
**H. Burrell
-Hadden**



THIS tape recorder is one of several which have appeared in the past few months, based on the Collaro "Studio" tape deck. This deck is capable of operation on any of three speeds and in this version the speeds chosen are $1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips. These speeds are selectable by the right hand knob on the deck.

The normal operation of the deck is by a series of piano type keys, and record/play selection is combined with the on/off switch on the left hand knob on the deck. Tape threading is very simple and consists merely of dropping the tape into a straight slot. A timing indicator of the digital type is provided, and so is a pause control, the latter being one of the piano type keys. The tape heads on the Collaro machine are of the fine gap variety and so wide frequency response can be expected.

Turning now to the complete WyndSOR "Victor," various facilities are provided. Separate inputs for microphone and high level, say radio or gramophone, are each brought to

separate gain controls so that mixing can be carried out, and speech can be added over a background of music. Whilst recording, a third volume control adjusts the level of the sound fed to the loud speaker for monitoring. Obviously this cannot be used when recording with the microphone close to the recorder or a howl will result.

On playback the microphone volume control becomes the volume control, and the monitoring volume control becomes a tone control. I found this a little confusing at first, but soon got used to it. On playback the high level gain control should be set at zero to prevent hum.

The equipment can be used as a straight through amplifier for radio or gram, provided the tape controls are in the stop position. In this condition, the quality is somewhat affected by the position of the speed change switch and the record/play switch. An output socket is provided to feed an external amplifier system at high impedance, and the use of this socket mutes the internal loudspeaker. No

external loudspeaker socket is provided.

In operation I found the two vertically mounted thumb controls awkward to handle since they worked in opposite directions, one of them having to be moved upwards to increase gain, and the other downwards. Surely, it would be possible to make them both move in the same direction.

Another feature which I found disturbing was the lack of interlock on the record switch and tape transport mechanism. If one forgets to switch to "play" immediately after making a recording, there is a risk of erasing the tape on the rewind, before you have even heard it. This seems to me to be quite a serious disadvantage.

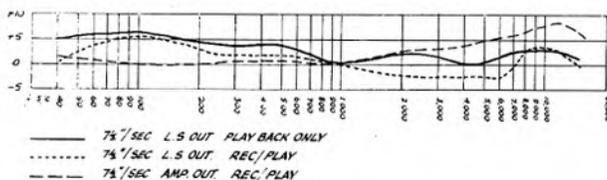
The usual frequency response tests were made, first on playback with a standard tape, and then the overall record/play characteristic. Measurements were made both on the loudspeaker output and on the high impedance output, and the results can be seen in the accompanying graph. It will be seen that the replay characteristic at $7\frac{1}{2}$ ips as measured on the loudspeaker, but when the check was noticeable rise at the bass end, this rise presumably having been introduced to compensate for the bass loss in the loudspeaker.

One was not conscious of any audible rise when listening to the tape.

The record/play characteristic is very similar when measured at the loud speaker, but when the check was made at the high impedance output, a considerable rise appeared at high frequencies, peaking at about 12,000 cps. The tone control is inoperative in this condition, and so cannot be used to correct this. The tone controls on the external amplifier will have to be used.

A similar state of affairs exists at $3\frac{1}{2}$ ips, but again, measured at the

(Continued on page 29)



**The Frequency
Response graph
of the "Victor"**



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Letters to the Editor

Ma-in-Law Silenced!

SOME of your readers may be amused, others (who knows) instructed, by the new use which a friend of mine has found for a tape recorder.

Bill is one of these unfortunate chaps who possess, or are possessed by, a very loud-mouthed, domineering mother-in-law. To make matters worse, his financial position, and the housing shortage, forces him and wife to live in said ma-in-law's house.

By hard saving, and use of the never-never, Bill at last reached one of his goals, and one Saturday proudly carried home his first tape recorder, put it down tenderly on the radiogram and sat down to study the "directions." Ma-in-law was reading the "daily" just across the room.

Finally, Bill was ready for the test run. He plugged in, placed the mike in position, and switched on.

Just as he pressed the "start" button ma-in-law lowered her paper and started a loud, one-sided conversation with Bill's wife, who was in the kitchen.

Now her one idea of making conversation is running down neighbours or passing malicious remarks about any and everyone. This time was no exception. The waspish voice went on and on for some ten minutes—so did the tape.

Finally, the tirade ceased and the newspaper was raised again.

Bill rewound and then pressed the replay button.

For a first trial the recording was perfect.

From the corner of his eye Bill saw the paper drop suddenly, revealing a furious red face. Then the paper was raised again to remain there until the play-back ended, held by clenched hands shaking with suppressed rage.

The sequel is a happy one—for Bill. When he wants peace now he has only to raise the lid of his recorder—the mother-in-law silencer that never fails. No home should be without one.

THOMAS SUTTON.

Hall Green, Birmingham.

ANOTHER BOUQUET FOR DENYS KILLICK

AS a newcomer to the world of tape-recording, I have only recently begun to read your excellent magazine, and I would like to say how much I appreciate the articles by Mr. Denys G. Killick.

They describe exactly the kind of way in which I imagine most amateurs would like to use their tape-recorders—once they are past the stage of hiding the machine beneath the settee or eavesdrop. A library in sound must be as interesting as one in film, and becomes more so as one increases in practice and knowledge of technique, etc.

Another point which is appreciated, is that although Mr. Killick is obviously writing for those people who know the language, nevertheless his articles can be read and enjoyed by those who merely become haunted at the mention of "wow", "flutter", "ips" and "howl-round".

Yours faithfully,

J. R. CUMINGS (MISS)

Wallington, Surrey.

PROBLEMS WITH PORTABLES

AS a beginner in recording outside with a portable machine, I am delighted to see the new series you are starting on this subject. A completely different approach is needed compared with indoor mains recording, and imagination and patience must be almost unlimited.

Mr. Killick obviously has an abundance of these qualities, as well as the ability to rise early and retire late, which is also useful, as success in collecting a great number of sounds is often best achieved when the majority of people are in their beds. The biggest problem of recording during the busiest times of the day is the difficulty of isolating a specific sound, or at least getting a good balance between the desired sound and the general daily hub-bub.

My own two greatest failures in the few months I have been using my Stuzzi Magnette, were attempts at recording the sounds of a London bus ride from the inside—passenger's chatter, conductor's quips, ticket punching, etc., and the second was trying to get the sounds of the engine of a steam boat while on a pleasure cruise on Lake Windermere; it was quite unrecognisable on playback.

If Mr. Killick should touch on either of these problems during the course of these articles I, for one, will be extremely interested in his technique and results.

His first article is a wonderful lesson in listening and recognising what sounds are suitable for a feature programme. I only wish we could hear the resulting tape. I very much look forward to the rest of the series.

PHYLLIS M. COPINGER.

Kilmarnock, Ayrshire.

A cry for "Cry"

I AM anxious to obtain a recording of Johnny Ray singing "Cry" and wonder if any of your readers possess a copy which they could send me. Jack Buchanan also recorded "Cry" on Columbia DLPC1001, and this record would be ideal. The song is to be burlesqued in a forthcoming production of the Changi Variety Club. I will, of course, meet the cost.

There is a keen interest in tape recording here, particularly portable transistorised recorders, of which several Japanese makes are available. If anyone requires any Far-Eastern noises this can be arranged.

My own recorder operates at $1\frac{1}{2}$ and $3\frac{1}{2}$ ips.

H. J. BRADLEY.

Fairy Point Officers' Mess,
R.A.F., Changi, Singapore 17.

The Wyndor "Victor"

(Continued from page 27)

loudspeaker, a very good characteristic is obtained. At $1\frac{1}{2}$ ips the response is very commendable.

Wow and flutter were negligible at the two higher speeds and were not sufficient to mar speech reproduction at the lower. The signal-to-noise ratio was good.

An Acos crystal hand microphone is provided with the equipment, and is carried, together with the mains leads in the detachable lid. The recorder is unusual in that the loudspeaker is also in this lid, and because of the extra room thus available, is rather larger than is usually found in a portable recorder. The quality of reproduction is thus noticeably improved. Space for carrying a reel of tape and an empty spool up to 7 inches diameter is provided on either side of the tape deck.

The styling of the cabinet is unusual, some may call it "contemporary," but personally I could find nothing to commend: I tend to prefer functional beauty in tape machines, but the design may well appeal to other tastes.

Apart from the peculiar response from the amplifier output socket, I find this to be a very good machine, and worth the price at £47 5s.

Hi-Fi HARRY by rich



"There's one thing about Harry—it's easy to choose Christmas presents for him."

V.I.Ps PEOPLE IN THE NEWS

MR. G. Hofman, managing director of Philips Electrical Ltd., has recently completed forty years service with the Philips organisation.

Under his leadership the company has rapidly expanded in many fields, and during his eleven years of office he has gained countless friends in the radio and electrical industry.

Various celebrations are taking place in London and Eindhoven to mark this milestone in Mr. Hofman's life with Philips.

* * *

MR. RAYMOND WILLIAMS, 23-year-old car radio and dictation machine representative in the Midlands for Philips Electrical, has won unusual distinction in the Diploma examinations in sales management of the Incorporated Sales Managers' Association.

He took six subjects, passed in all and in doing so won two first prizes for the whole country—for marketing and for market research.

Mr. Williams, who joined Philips two years ago, started his studies for the examinations in September 1958 and averaged 12 hours a week. Married since March, he now lives at Lichfield.

* * *

MR. A. B. Skevington, acting manager of Philips Nottingham branch since September 1959, has been appointed branch manager.

Mr. Skevington, who joined the Nottingham branch in 1949 as a lighting representative, was promoted a sales supervisor in May 1955. Two years later he was made area manager of the Electrical Appliances Group.

FOUR-TRACKS WITH A BSR MONARDECK

LAATEST news from the Stuzzi "stable" is the Stuzzi Junior 4M. This is a four-track recorder made entirely in England, costs 26 guineas and uses a B.S.R. deck.

Features include a speed of 3½ ips, a maximum spool size of 5½ inches, giving 6 hours' playing time with double-play tape, a magic eye indicator and facilities for superimposition, and volume and tone controls. The Loudspeaker is a 8 x 3 inch elliptical.

Input and output sockets are provided and the total weight of the machine is 18 lbs. It is supplied with tape, a spare spool and a microphone, and is housed in a cabinet finished in two tone plastic cloth.

Frequency response is given as 80-9,000 cps.



Stuzzi Junior 4M

Recording Devices Ltd., 44 Southern Row, Kensington, London.

GRUNDIG REDUCTIONS

TO mark the occasion of selling the 100,000th TK 20 recorder, Grundig are announcing price reductions on a number of models.

The TK 20 price is to be reduced by 10 guineas and can now be bought for 42 guineas. This includes the condenser microphone, which costs 6 guineas if bought separately.

Reduced by 7 guineas in price, the TK 24 now costs 55 guineas. This reduction has also been made on the TK 30 (now

65 guineas) and the three-speed version of the TK 30—the TK 35—which now costs 75 guineas.

Grundig (Great Britain) Ltd., 39/41 New Oxford Street, London, W.C.1.

Three-speeds by Magnavox

RETAILING at 39 guineas, the new Magnavox TM 800 is a three-speed machine (1½, 3½ and 7½ ips) with an output rated at approximately four watts.

Separate bass and treble controls are a feature of the machine which has an 8 x 5 inch loudspeaker. Maximum spool size that can be used is 7 inches and the dimensions are 17½ x 15½ x 11½ inches.



Magnavox TM 800

Among the facilities available is superimposition, and safety interlocks provide against accidental erasure of tape. A magic eye recording level indicator is fitted and R.O. feedback circuits are used to give high frequency emphasis according to the tape speed in use.

There are input sockets for microphone and pick-up or tuner, and output sockets for monitor, and extension loudspeaker.

Magnavox Electronics Ltd., 129 Mount Street, London, W.1.

Scotch Boy

AFTER last year's tremendous success, the makers of "Scotch" brand recording tape are again introducing a colourful Christmas wrapper for their handy accessory kit (29s. 6d.).

In an effort to develop their dynamic sales promotion Minnesota Mining are currently running a series of programmes on Radio Luxembourg.

Every Wednesday and Saturday until after Christmas, they will present "Six o'clock Record Show" (Radio Luxembourg, 6-6.30 p.m.).



Minnesota Mining & Manufacturing Co. Ltd., 3m House, Wigmore Street, London, W.1.

New Products

FOUR TRACKS and FOUR SPEEDS



A C.E.C. Enterprises Limited announce the introduction of their Lugavox model 1165. This new machine, a development of the earlier 1161, is similar in general appearance to that model. Its function varies solely with the adaptation of the four-track system, which makes possible its use for stereo in conjunction with the Lugavox pre-amplifier 1291. All the facilities incorporated in the 1165 are as for the 1161.

These include four speeds, 15, 7½, 3½, and 1½ ips, mixing, and superimposition.

Other features include separate bass and treble controls, magic eye recording

level indicator, pause control, digital rev. counter, and printed circuitry. Inputs are provided for microphone and radio/pick-up, and outputs to external amplifier and extension loudspeaker.

Two loudspeakers are provided, both 5½ x 4 inch elliptical units.

The quoted frequency response at the top speed is 40-20,000 cps, and wow is given as better than .2 per cent at the same speed. A special PAPST motor with balanced flywheel is employed.

Valve line-up is: EF86, ECC83, EL84, ECC82, EM91, and B250 C75. The mains supply is 110-240 v, A.C. 50 cycles. Enclosed in a wooden, washable

“Rexine” covered case, the 1165 measures 16½ x 16½ x 8½ inches. The price has still to be announced.

The manufacturers have asked us to record the following changes in the specification regarding the Lugavox 1160 and 1161 models. The tape speeds of the 1160 are now 15 and 7½ ips, and the speeds of the £58 1161, as indicated above, are 15, 7½, 3½, and 1½ ips.

A.C.E.C. Enterprises Limited, 13/16, Fleet Street, Dublin, Eire.

FERRODYNAMIC TAPE NOW AVAILABLE

FERRODYNAMICS Brand Five magnetic tape, made in America, is now available in this country. Announcing this recently, the importers provided the following list of prices for the acetate-based tapes. Five-inch reels; 600 ft., 16s.; 900 ft., 18s. 6d.; 5¼ inch reels; 1,200 ft., £1 3s. 6d.; 7 inch reel, 1,200 ft., £1 5s.; and 7 inch reels; 1,800 ft., £1 15s.

Prices for the extra quality Mylar Du

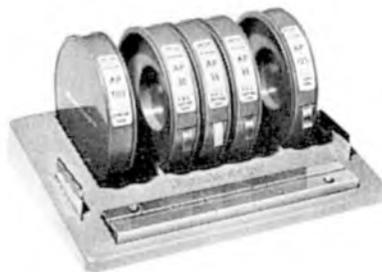
Pont tapes are: 3 inch reel, 300ft., 13s.; 5 inch reel, 1,200 ft., £1 17s. 6; 7 inch reel, 1,800 ft., £2 4s.; 7 inch reel, 2,400 ft., £3.

The tapes are identified by the colour of the box: acetate standard, blue; acetate L.P., red; Mylar Du Pont L.P., green; Mylar Du Pont D.P., yellow.

Electro-Techno-Dynamics Ltd., 101 Leadenhall Street, London, E.C.3.

EMI INTRODUCE NEW TAPE KIT

A NEW Emitape Accessory Kit providing in compact and immediately accessible form facilities for editing magnetic recording tape has been introduced by EMI Sales and Service Limited.



Mounted on a specially-moulded plastic tray with a rack for seven reels, the kit comprises an Edit-all detachable metal joining block slotted for 90 and 45-degree cuts, two cutters, three reels of leader tape, a reel of metallic stop foil, and a reel of jointing tape. Each of the reels are protected in a neat and practical Emicase dispenser of red polystyrene.

The tray is drilled for easy fixing to a workbench or table, dual-purpose wood/metal screws being provided with the kit.

The price of the complete kit, with instruction booklet, is 37s. 6d.

E.M.I. Sales and Service Limited, Hayes, Middlesex.

New Recorder from Italy

A QUOTED frequency response of 70-10,000 cps at 3½ ips is the main feature of a new recorder recently introduced to this country from Italy by Denham & Morley Limited.

The recorder is the Incis, illustrated, which also incorporates a second speed of 1½ ips. Claimed frequency response for the lower speed is 100-6,000 cps.

With normal two-track recording, and

using four-inch reels, the Incis provides a playing time of over five hours with double-play tape. Rewind time for a four-inch reel is two minutes.

Other features include inputs for microphone (5mV), radio or pick-up, and there is also a socket for an extension loudspeaker. To increase the loudspeaker output to 2½ watts, a second speaker is installed in the supplied carrying case. A magic eye recording level indicator is incorporated.

Mains supply is 240v., 50 cycles, A.C., and consumption is rated at 40 watts.

The valve line-up includes one ECC83, one EL84, one EM84, and a selenium rectifier.

The total weight of the recorder and case with loudspeaker is 20 lbs. (recorder only 12 lbs.). Its dimensions are 10½ x 9 x 5 inches.

The price, including loudspeaker and bag, microphone, spool of tape, spare spool and recording lead is 29½ guineas.

Denham & Morley Limited, Denmore House, 173/175 Cleveland Street, London, W.1.



The Incis

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Sagatone	38
Elizabethan Princess	39
Simon Minstrelle	39
Perth Saja	45
Wyndor Victor	45
Elektron	47½
Magnafon	49
Spectone Ex Tape	49
H.M.V.	50
Grundig TK20	52
Telefunken 75 with mic.	56
Perth Saja De Luxe	56
Brenell 3-Star	58
Vertone	58
Mobile	58
Ficord	59
Grundig TK25*	62
Telefunken Deck*	63
Korting Stereo*	68
Telefunken 4-track with mic.	68
Stuzzi-Magnette	69
Brenell MKV with mic.	69
Grundig TK30*	72
Brenell Mk.V with meter, mic.	74
Elektron Stereo*	77
Telefunken 85KL*	79
Sabafon Automatic*	79
Harting Stereo*	86
Timbra*	89
Simon SP4*	95

* Excluding Microphone.



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The Royal Opera Arcade lies behind Her Majesty's Theatre in the Haymarket (one minute from Piccadilly Circus or Trafalgar Square)

TV PICTURES ON STANDARD TAPE

(Continued from page 19)

Early experiments with the amplitude modulation system in conjunction with the tape recorder previously described gave excellent results after a period of development in order to assess the correct recording techniques. The only difficulty experienced was the tendency to over-record and thus compress the synchronising pulses which are approximately twice the amplitude of peak picture level.

The photograph on page 18 shows the result that can be obtained using the amplitude modulation system with a sub-carrier of 2,000 cps and a bandwidth of 2,000 cps. The spectrum is well within the capabilities of almost all commercial tape recorders and provided the choice of the instrument is such that due regard has been paid to wow and flutter, excellent results can be obtained even at $3\frac{1}{2}$ ips.

With reference to recording on tape the FM system at once showed a considerable advantage in that it was found no bias techniques were necessary to produce an extremely acceptable result. The output from the frequency modulator is of sufficient amplitude to be fed directly to the recording head via a constant current resistor and this system is at present employed by the author as shown by block diagram in Fig. 1.

With the author's set up, black level is adjusted to 3,500 cps and the white extended upwards to as much as 5,500 or 6,000 cps. At these frequencies—peak white—a standard domestic tape recorder running at $3\frac{1}{2}$ ips becomes a little marginal. However, most domestic tape

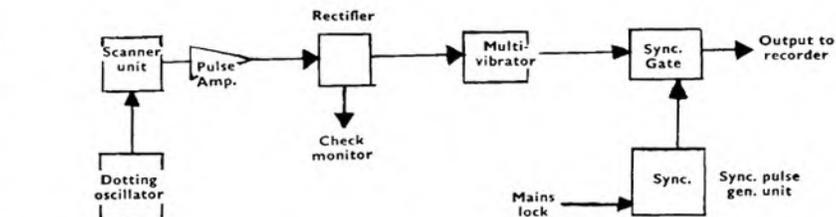
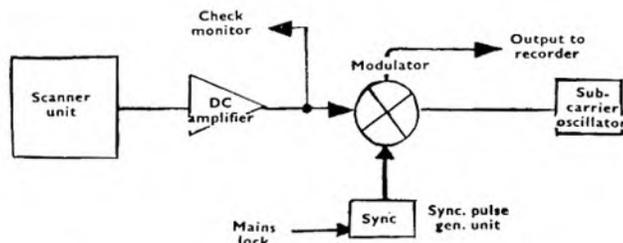


Fig. 1. Block diagram showing method of recording slow scan visual images on standard domestic tape-recording equipment



recorders these days will easily accommodate this frequency at $7\frac{1}{2}$ ips.

Bearing in mind, however, that prior to display whilst "receiving" the signal passes through a limiter stage, a slight droop in the HF characteristics of the tape recorder is of no consequence provided the gain of the playback unit is sufficiently high to ensure limiting over the whole range.

Although not essential, "monitor off tape" facilities are a distinct advantage in setting up and it enables adjustments to be made whilst the recorder is running.

In point of fact, the author found a great advantage was obtained by merely using a small closed loop of tape on a recorder which is continually used over and over again.

I have manufactured two "reader" units—the first of these being assembled almost entirely from Government surplus materials and providing quite acceptable results using a VCR517 British cathode ray tube. The phosphor limitations of this tube, however, result in rather a rapid decay of the picture information and a far superior instrument was constructed (see left) using an American 5FP7A cathode ray tube.

In addition to the improved phosphor characteristics of the tube this instrument was able to accept either AM or FM information at the turn of a switch. The input to both the instruments is referred to 15 ohms so that they may be connected to the extension loud speaker terminals on any tape recorder thus provided, or, alternatively, to a radio receiver when direct transmissions are being received.

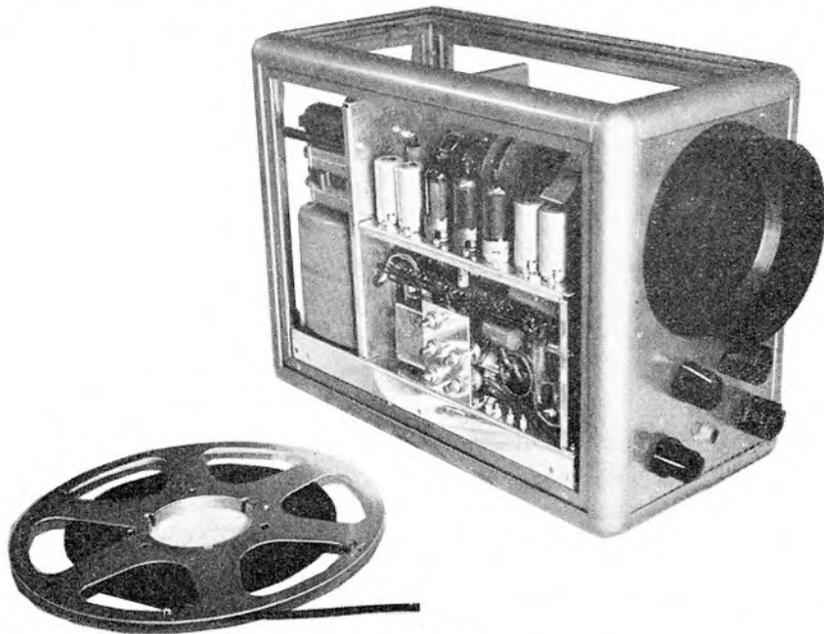
Results so far achieved indicate that extremely acceptable pictures can be reproduced from any good quality domestic tape recorder without using, to the full, the frequency performance generally available.

The 125 line definition produced gives a picture of reasonable quality especially when referred to a 3 inch or 5 inch screen. The only criticism that might be directed at the display is the rather poor grey scale available from the long persistence phosphors.

REFERENCES

C. MacDonald, "A New Narrow Band Image Transmission System," *QST*, August/September, 1958.

J. A. Plowman, "An Introduction to Slow Scan Television," *B.A.T.C. Information Booklet*, November 1960.



The author's tape "reader" unit, which is capable of accepting either AM or FM signals and provides a long persistence display on a cathode ray tube screen

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News from the Clubs

THE tape recording course being organised by the **Warwick and Leamington** club is rapidly gaining momentum and a rough sketch has been mapped out of items to be included.

The programme will cover advice on buying a recorder, how it works, care and maintenance, and information about microphones, loudspeakers and other ancillary equipment.

The course is also to include advice on editing, dubbing, splicing, programme construction, and synchronisation of tape and cine or slides. With the wide range of experienced members available within the club, the course should prove well worthwhile for all those attending. No dates are as yet available, but I understand the course is scheduled for early in the New Year.

While the suggestions and counter-suggestions for the course are being discussed, members are continuing their normal activities. Included in these, and most recent, was a demonstration by Mr. A. J. Hobley of Southam who entertained members to an evening of stereophonic sound.

At the November 7 meeting of the **Dundee** club members heard Ernest Keith talk about outside recording. His speciality is recording weddings, and he used extracts from several recent commissions to illustrate his lecture.

An interesting feature of his activities is that of the scores of weddings he has recorded he has never seen the bride or groom. Normally, the microphones only are in the church, led by way of a mixer unit to his recorder, situated in an adjoining hall.

Two stereo machines were demonstrated at the November 21 meeting—the Philips and the Harting.

Following the successful interview with Anna Neagle, Miss Dee Harris, chairman of the **Eastbourne** club, travelled to Worthing to record a similar interview with Andre Melly, who was appearing, at the time, in the new Broadway play "The Warm Peninsula." Miss Melly showed great interest in the club and recorded a special message for the society's hospital tape service.

An open house evening was held at one of the recent meetings, and seven new members were enrolled. Mr. Knight of Cosmocord attended this meeting to give a lecture and demonstration of some of the Acos microphones. The highlight of his demon-

stration was a recording made with the new stereophonic microphone.

After the questions which followed, the taped interview with Miss Melly was heard, followed by some examples of musique concrete.

Another recent activity concerned a visit to the local Dr. Barnardo's Home. Recordings were made of the boys singing carols there, and of the juniors reciting nursery rhymes. Prizes were awarded to the juniors for their singing and to the seniors for guessing the sounds played in a short quiz session.

One of the **Iford** club's recent meetings included a visit by Mr. Parrington of Walter Instruments who demonstrated his company's range of equipment. At the meeting a week later (November 8), Walter Gillings presented a "science recorded" tape on the Bell Telephone's "Vocoder"—and showed the American Webcor recorder.

The November 15 meeting included the election of a new chairman and assistant secretary.

Members then heard the completed Waltham Abbey production and the final edited version of the club's recent "question time" recording. Details of the tape library were discussed and a recorded quiz was heard.

Technical Suppliers Limited equipment was to be demonstrated at the November 29 meeting.

Four new members were welcomed at these meetings, the first, Phillip Postings, took along his home-built equipment, which included a Collaro Studio deck, a Mullard pre-amp and a Wharfedale reflex enclosure.

The other three members were Mr. David Sowray, accompanied by his wife and daughter. Mr. Sowray owns a Wyndor Viscount and stereo equipment on which he had recorded an excellent tape which was played back at the meeting.

A tape dealing with the subject of tape exchanges, and consisting of the voices of his contacts throughout the world was presented by treasurer Don Fisher at the November 10 meeting of the **Harrow** club. Of the 14 members present only one other had had any experience in exchanging tapes and the evening was therefore an instructive one.

The secretary of the **Ware** club had asked by letter for assistance in putting a patient, in the Stanmore hospital, in touch with his family at Golders Green. The patient, a minister from Rhodesia, had been flown back to England for an operation and his family had not been able to visit him as frequently as they would have liked. Needless to say, the members quickly co-operated.

The Spectone 161 was put through its paces by a representative of Spectone Ltd. at the November 24 meeting.

Latest of the clubs to announce a hospital service is the **Ipswich** society.

Their new service is to take the form

of a weekly musical programme broadcast over the public address system in the Ipswich and East Suffolk Hospital. The 45-minute broadcast will take place every Tuesday evening.

Music and songs from shows are proving very popular and assistance to broadcast these is given by the Coltishall Forces Network (R.A.F.) Norwich, who forward complete programmes with appropriate continuity added.

Recently the hospital presented a three-act play to the general public and the Ipswich members recorded the performance. This tape is to be included in the hospital broadcasts.

A tape service for the blind is also now in operation. Short stories are recorded and the material is then passed to the local blind societies. Mr. Parrington of Walters also attended a recent meeting of this club, and showed the new mains/battery machine.

A further tape has been received from the **Bristol** club members and a reply is now being prepared. Secretary Malcolm Wilding invites tapes from any club. His address is 31, Darwin Road, Ipswich.

Among the activities undertaken by the members of the **Stevenage** club was a successful recording session in the local church when the organ was taped. It is hoped soon to return to the church to record the choir.

An offer published in a local paper to assist the old folk to keep in touch with their relatives in other parts of the world, brought no response. Recently, however, the secretary received a letter from an enthusiast in Australia, wanting to contact his mother who lives in Stevenage. Two members were delighted to be able to assist, and a message was winging its way to the Antipodes within a few days.

Undaunted by the non-appearance of the public during a recent amateur talent recording session, members went into the street and persuaded five teenagers to come in and sing.

Later a new member tried his hand at interviewing and was surprised to find that only two of the teenagers were originally Londoners. Two were Canadians and a third was Australian. This, in a town imagined to consist entirely of Londoners.

A full attendance was recorded at the A.G.M. of the **Plymouth** club held during November. The officers were all re-elected and are as follows: President, John Ashby; secretary, John Baker and treasurer, Bill Cardew. During the ensuing discussion it was generally agreed that the club's first year of existence had been most successful.

Outstanding among their activities was the "Meet Yourselves" show which recently ended after its twelfth showing. There are no plans to continue this show for the future but rather to concentrate more fully on club demonstration. The first of these will take place in the New Year when members will see the BASF film *The Magic Tape*.

Also in January the club will hold a special "At Home" evening where the main feature will be a recorded programme entitled "Top Track." This is being made on Joe Pengelly's Ferrograph and Bill Cardew's four-track

(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.

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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.

FOR SALE

Hi-Fi system incorporating Mullard 5-10 and 2-valve pre-amplifier, Jason FM Tuner. Garrard 4 H.F. Wharfedale speaker system, matching equipment and speaker cabinets. £75. Box F552, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

Ferrograph recorder latest model 4AH. Equal to brand new. £40. Box F512, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

Grundig TK 830/3D, recent factory overhaul, ribbon mike, many tapes. Also Dulci AM/FM tuner together or separately. Offers. Box F509, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

FERROGRAPH 4AN 5 months old, absolutely perfect. Manufacturer's Guarantee, many extras. Reslo microphone, spare tapes. Originally £100 All 75 gns. o.n.o. Box F519, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

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.

Telefunken "Hymnas" Stereo Radiogram complete with tape recorder. Cash wating. Box W501, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

Hi-Fi Stereophonic Record Player and Radio with 2 Lowther speakers, Quad amps. Decca pickup, Garrard transcription unit. £40 o.n.o. Box F515, *Tape Recording Fortnightly*, 1, Crane Court, London E.C.4.

Brenell Mark II Tape Recorder, excellent condition, tape, microphone, £42. 115, Lydhurst Avenue, Streatham Hill, London, S.W.2.

WANTED

Eddystone or good communications receiver wanted. Write stating age and model. Box W503, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

Ferrograph endless cassette required urgently. Box W502, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

Wanted. Latest model FICORD, complete, in mint condition. £40 offered. Box No. 401, *Tape Recording Fortnightly*, 1 Crane Court, Fleet Street, London, E.C.4.

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PART TIME electronics engineer wanted for tape recorder servicing. Age unimportant; experience necessary. To travel in general London area. Box 399, *Tape Recording Fortnightly*, 1, Crane Court, Fleet Street, London, E.C.4.

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

Tape to Disc—All Speeds. Rendezvous Records. 19, Blackfriars Street, Manchester 3. Leaflet on request.

MISCELLANEOUS

Recordist, semi-pro., specialising in weddings would co-operate with any enthusiast that can secure this type of work. London. Box M505, *Tape Recording Fortnightly*, 1, Crane Court, London, E.C.4.

STEREO TAPE LIBRARY, "Linden," St. John's Road, Brecon, South Wales.

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News from the Clubs

(Continued from page 35)

Cossor. Introduction and script will be by John Baker.

Publicity arrangements are being completed by the secretary who is organising a tape recording contest with the help of the local cinemas.

Tapes in a contest entitled "Your Prison Cell" were heard and judged at the November 2 meeting of the West Herts society. Entries ranged from the girl addicted to drink who finally masters the craving in a hospital ward, through the confines of a space-ship where the only contact with earth was by radio (some very good sound effects here), to the luxurious cell of a political prisoner held in America before being allowed to return to Russia.

It was this last tape presented by secretary Peter Holloway that was judged the best by Derek Stowers and Colin Coates.

Other activities during the last few weeks included a visit by John Grainger to the Gaumont Cinema, Watford, where a midnight charity performance was being held. Unable to get into the cinema, he interviewed some of the visitors attending and described their arrival with

the aid of his Fi-Cord. Remaining "on duty" until 4 a.m., he managed to obtain interviews with Peter Haigh, Cleo Lane and Jill Adams.

Accompanied by Jean Stern, John also recently visited Langleybury Church where he recorded an interview with the Rev. R. Martin. He managed to unearth several interesting facts concerning the church and discovered that the bell is of Russian origin.

With an ever-increasing variety of tapes in the club's archives a librarian has been elected. Jack Hill volunteered for the post and he is to be in charge of the library which will be divided into two sections. One will contain recordings of events such as recent visiting speakers and contest tapes, and the other will include sound effects and actuality recordings which may be needed on some future occasion.

Three of the tapes which won prizes in the British Amateur Tape Recording Contest were heard at a meeting of the West Middlesex club on October 27. The tapes were: "The Rest is Silence," "Ban the Phon" and "Beat'n Heart." A prediction made by members after the tape was heard that Norman Paul's "The Rest is Silence" would win further honours at the International Contest has since come true.

This was followed by the playback of Phil Mead's tape of his Swiss holiday. A change of recorder since last year had made a marked improvement on his previous tape and was a good example of what experience and a better machine can do.

A welcome was extended to Len Francis of the Sheen Tape Recorder Centre who presented the club with a copy of the *Tape Recording Year Book*. He also arranged a visit from Wilmex (Distributors) Ltd. for November 24, an evening which began with a film dealing with the manufacture of Irish tapes.

A home-made and gadget evening was held on November 10, when all members were invited to bring along anything they had made, or any device which they had bought, that make life a little easier for the recorderist.

Plans for the hospital service are going ahead and the club has received a very encouraging letter from Dr. Robinson, the geriatrician of the Hillingdon group of hospitals.

An explanation of the workings of his Cossor machine was given by the chairman, R. Penfold, at the October 27 meeting of the Coventry club. The explanation was followed by the playback of the time-honoured tape *Strange to your ears* in which it is shown how sound can be completely changed by altering its pitch.

Carl Briggs then played a tape which was not, as expected, a quiz recording, but a skit on the famed San Francisco tape. It was said to have been made with a special microphone made from a cocoa tin.

In the same humorous vein, Roy Penfold's visit to a "Do-it-yourself" Exhibition was up to his normal standard.

Finally Tom Bagley brought a couple of tapes—one a collection of outdoor sounds made on his Fi-Cord with the Philips AG 8108 G microphone, and the other a skit on Yankee slang with some rather extraordinary English interpretations.

CLUB MEETING DIARY

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

ACTON: Alternate Fridays at the King's Head, Acton High Street. (Dec. 16.)

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

BLACKPOOL: Every Wednesday at 173, Church Street.

BOURNEMOUTH: Alternate Tuesdays at the Civil Defence Centre, Holdenhurst Road. (Dec. 27.)

BRIDGWATER: Alternate Tuesdays at Erio's Radio, West Street. (Dec. 27.)

BRIGHTON: Every Wednesday at Fairlight School, Pevensey Road.

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

CHESTERFIELD: Every 3rd Monday at the Yellow Lion Inn, Saltergate. (Dec. 26.)

COVENTRY: Alternate Thursdays at Rotherham's Social Club. (Dec. 22.)

CRAWLEY: 1st and 3rd Mondays in month at Southgate Community Centre.

DARTFORD: Every 4th Tuesday at Dartford Public Library.

DOVER: Alternate Mondays at The Priory Hotel. (Dec. 26.)

DUNDEE: Alternate Mondays at The Salvation Army Hostel, 31, Ward Road. (Dec. 19.)

EASTBOURNE: Alternate Saturdays at Hartington Hall, Bolton Road. (Dec. 24.)

EDINBURGH: 1st Tuesday and 3rd Sunday at 23, Fettes Row, Edinburgh 3.

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

GRIMSBY: Alternate Tuesdays at the RAFA Club, Abbey Drive West, Abbey Road. (Dec. 20.)

HARROW: Alternate Thursdays at St. George's Hall, Pinner View, North Harrow. (Dec. 15.)

HUDDERSFIELD: Fortnightly, alternate Thursdays and Fridays at the Congregational Church Schoolroom, Great Northern Street. (Dec. 23.)

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

IPSWICH: Fortnightly, alternating Fridays and Saturdays at the Art Gallery Committee Rooms (Dec. 31) and the King's Arms Hotel, Cornhill. (Dec. 16.)

KEIGHLEY: Alternate Wednesdays at the South Street Sunday School Rooms. (Dec. 14.)

KETTERING: Alternate Wednesdays at the Rising Sun, Silver Street. (Dec. 21.)

LEEDS: Every Thursday at the British Legion Club, Albion Street, Leeds 1.

LEICESTER: 1st and 3rd Friday at Bishop Street Reference Library.

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

LUTON: 2nd and 4th Tuesdays at 17, Dunstable Road.

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

MIDDLESBROUGH: Every Tuesday at 130, Newport Road.

NOTTINGHAM: Alternate Thursdays at the Co-operative Educational Centre, Broad Street. (Dec. 22.)

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

SOUTHAMPTON: 2nd and 4th Thursday at The Bay Tree Inn, New Road.

SOUTH DEVON: Alternate Wednesdays at the Torquay Trades Club, Union Lane, Torquay. (Dec. 14.)

STAFFORD: Alternate Tuesdays at The Grapes, Bridge Street. (Dec. 27.)

STEVENAGE: Alternate Tuesdays at the Tenants' Meeting Room, Marymead. (Dec. 20.)

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

WALSALL: Every Wednesday at 113, Lichfield Street.

WALTHAMSTOW: Alternate Fridays at 26, Church Hill, E.17. (Dec. 16.)

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

WARWICK: Alternate Wednesdays in Room 18 of the Royal Leamington Spa Town Hall. (Dec. 14.)

WEST HERTS: Fortnightly, alternating at the Cookery Nook, Watford (Dec. 14) and Heath Park Hotel, Hemel Hempstead. (Dec. 28.)

WEST MIDDLESEX: 2nd Thursday at the Railway Hotel, Station Road, Hampton, and 4th Thursday at St. George's Hall, Lancaster Road, Southall Broadway.

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

WEYMOUTH: Alternate Wednesdays at the Waverley Hotel, Abbotsbury Road. (Dec. 28.)

WINDSOR: Every Thursday at the Royal Adelaide Hotel.

WINCHESTER: Every Friday at The Ship Inn.

YORK: Every Thursday at the Rechabite Hall, Clifford Street.

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

B.B.C. "Sound" Programme 6.40 p.m., December 19

(A repeat of the programme broadcast on December 11)

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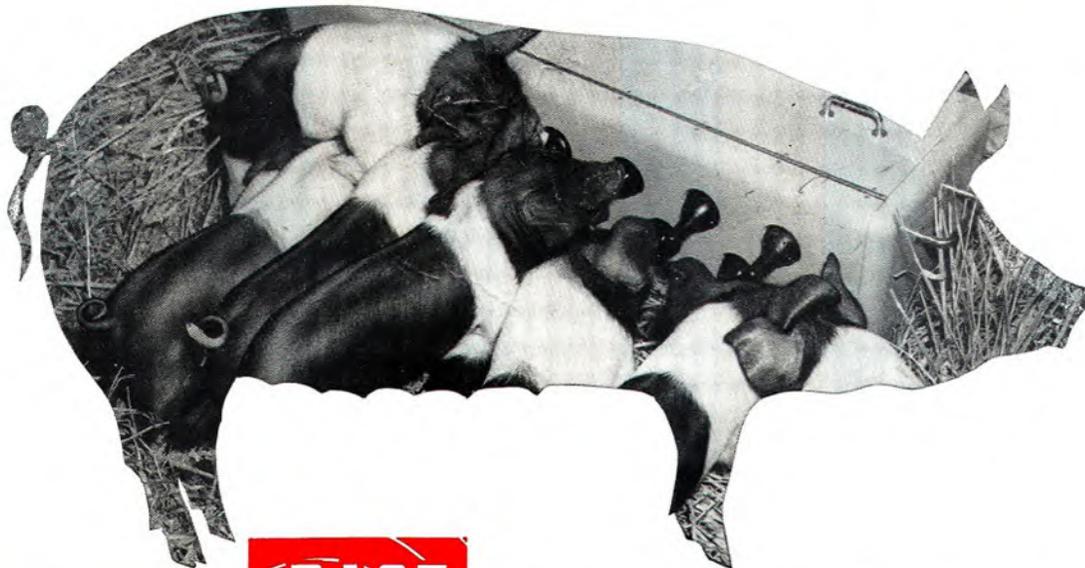
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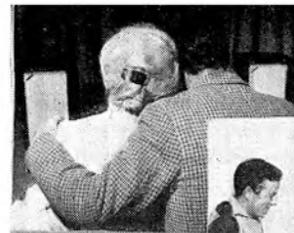
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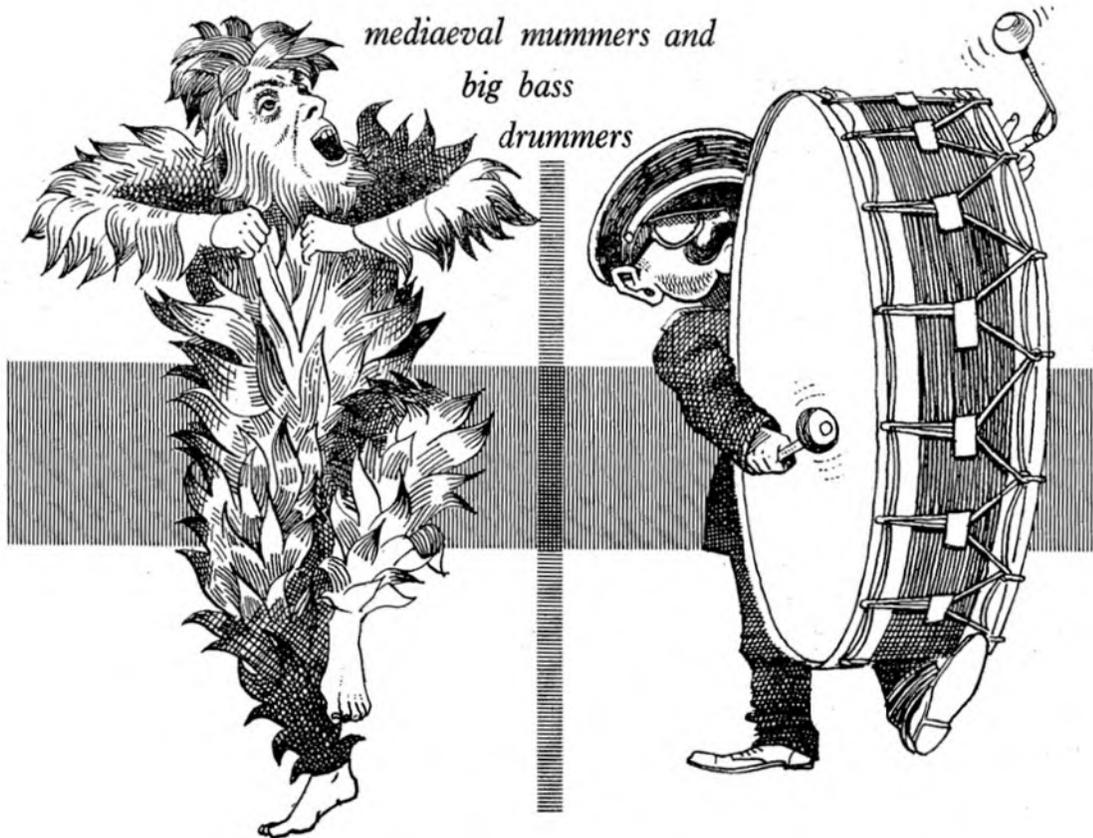
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The R40. $1\frac{7}{8}$ ips 70—4,500± 3dBs. $3\frac{1}{2}$ ips 60—9,000± 3dBs. $7\frac{1}{2}$ ips 50—15,000± 3dBs. 15 ips 40—20,000± 3dBs. (signal noise ratio at $7\frac{1}{2}$ ips—47dBs.). Separate record amplifier. Push-pull bias erase oscillator for low tape hiss. Separate bass and treble controls± 15dBs at 14 kc/s—15dBs at 40 c/s. Supplied complete with Acos 39/1 microphone. Radio Record lead and 1,200' PVC Tape.

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It is not generally known that the Tape Deck mechanism is virtually re-built in the REPS machines. It is standard procedure to remove all rubber wheels—i.e., re-wind, idle and pinch—and re-grind them to a closer tolerance. Also the Capstan is skimmed to less than ± 0.0001". This has resulted in a very low "wow" factor, especially at $3\frac{1}{2}$ ips which has lead to the logical introduction of $1\frac{7}{8}$ ips in place of the 15 ips. The principal cause of "flutter" is due to the eccentricity of the three-step pulleys which control the tape speed. This eccentricity occurs when the pulley is locked to the motor shaft and is due to the off-setting action of the fixing screws. This difficulty has been overcome by manufacturing pulleys over-size and machining to the correct diameter when fitted to the motor shaft. By this method a total variation of less than 0.0001" has been achieved at $1\frac{7}{8}$ ips. Initial measurement indicate total "flutter" content at $1\frac{7}{8}$ ips to be of a lower order than previously associated with $3\frac{1}{2}$ ips.

D. W. Aldous of 'GRAMOPHONE RECORD REVIEW' writes in March issue:—

"The overall performance of this Repls R30 recorder, coupled with its reliability and simplicity of operation, not to mention an attractive styling, must give it a wide appeal to tape recordists seeking an all-British machine of unusual quality."

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TAPE

RECORDING
FORTNIGHTLY

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We take the view . . .

THE publication date of this issue has been brought forward so that we may make it a special Christmas issue and we have surrendered some of our more sober regular features in favour of lighter reading for the holiday season.

We wish our readers a very happy Christmas and every good fortune—and exciting recording—in the New Year.

Our next issue, out on January 11, will point the way to tape adventure in 1961. It will include full details of the next British and International Tape Recording Contests.

It will also introduce some of the new features which we have lined up for future publication.

Four regular columns by experts will appear once a month.

We are anxious to cater fully for the increasing number of schools taking to recording activity—here is the tape recording public of the future. Geoffrey Hodson's "Tape in the Schools" will, therefore, appear henceforth in alternate issues, and there will be additional feature articles on school activities.

We recognise, too, the increasing feminine interest in tape and hi-fi, demonstrated by the large number of letters we now receive from women. We have arranged, therefore, for a monthly feature to cater for their particular interests and activities. "Make way for the ladies" we shall call it, and it will be edited by Vivienne Gooding.

Other features

THE increase in the number of battery portable machines in use calls for more detailed attention to the special problems of "Tape recorders out-of-doors" and a monthly page under this title will be written by S. M. Wheatley who, until his recent retirement from the B.B.C., was known as "the king of the midgets." His experience in this field is unique.

Our fourth new column will be written by Alan Edward Beeby, whose series of articles on sound effects, published during the past year, has proved highly popular. Mr. Beeby now has a wider brief: under the title

A DIGEST OF

NEWS, COMMENT AND

EDITORIAL OPINION

"Tape Talk" he will range over the whole field, offering his views and suggestions, reporting his contacts with other enthusiasts, keeping a special eye on the service provided to the customer by manufacturers and dealers, trying to satisfy readers in search of special taped sound effects, and so on.

Apart from these new features, we have other important plans. We propose to give much more attention to stereo than in the past; fuller details will be published soon.

Another series by Alec Nisbett will begin in our next issue, this time on "Mixing and fading." Writing with great experience in B.B.C. studios, Mr. Nisbett has already roused remarkable reader interest with his earlier series.

Mr. E. A. Rule has written a series on "Elimination of hum and noise in recorders." The first article in this series begins in the next issue.

We shall, as always, welcome reactions to these features and ideas will always be carefully considered. We are determined to hold in 1961 the lead which we have always enjoyed in the journalism of tape recording.

History on tape

HISTORY is to be accumulated on tape by a new "historical trust" just set up, on a non-profit-making basis, with money provided by Granada. Eminent men and women will be invited to talk privately into a microphone or, if they prefer, to be interviewed, providing a personal assessment of their lives and times and work.

None of the recordings will be released or publicised in any way

before the death of the contributor or against his wishes.

There is obvious scope for the man-in-the-street to follow this idea with his friends and family. It is a plain fact that this sort of personal narrative, if handled skilfully by the producer-interrogator, can be as fascinating with an octogenarian retired coal-miner as a subject as with a general or statesman. Try it out with your grandfather!

New speaker

I WAIT with interest to see the trade reaction to the claims made for the revolutionary loud-speaker unit produced by a Cardiff radio engineer and a Welsh professor. If it is true that a £5 unit can surpass the performance of almost all existing equipment, then we are in for some turmoil, I imagine!

The new design consists of an open-ended cabinet with a tilted lid, about three feet high and four feet long.

"The secret," said one of the inventors, "is in the cabinet itself. As yet we do not really know why it works, though the principle itself, to some people, seems obvious."

Very enigmatic. Very intriguing.

Control designs

LAATEST issue of *Design*, journal of the Council of Industrial Design, points out that in these days of cookers, washing machines, spin dryers—and sound equipment—housewives have to learn to understand control panels.

And, says the author of the article, Peter E. M. Sharp, manufacturers have got to learn to produce control panels suitable for women.

He argues that the three different types of controls—function, volume and tone—should be clearly differentiated by position or shape and size of controls—or both. Balance control on stereo units should be banished from the front panel, he thinks, or made a screwdriver control.

He praises the Quad 22 unit as showing "considerable refinement" but is mildly critical of four others because of their "desire for symmetry at all costs and the desire to be different."



Percy W. Harris (right) visits the Neville Brown stand at the Synchro-Sound Exhibition

When Hitler butted in on Eisenhower

SPEECHES by General Eisenhower, interrupted by the voice of Adolf Hitler, were described by Percy W. Harris, F.I.B.P., Hon.F.R.P.S., F.P.S.A., in Maidenhead last month. He was outlining the first attempts to marry silent photography to sound, and explained how the first experiments only became effective when the Germans developed magnetic tape recordings.

Nazi rantings

"When the Allied Forces overran Luxembourg," he said, "they found a number of tapes, some of which carried recordings by the Nazi wartime leader. General Eisenhower was not long in making use of these tapes, but unfortunately through lack of technical knowledge at that time, some of his earlier recordings were punctuated by Nazi rantings."

This story was told during the opening of the Synchro-Sound Exhibition organised by Norman Greville Ltd. on November 2.

After congratulating Mr. Peter Gruegon and the staff of Norman Greville for their foresight in organising the exhibition, Mr. Harris described the importance of combining photographic projection, sound effects, music and speech recordings, and told how this new technique brought sound within the reach of

The exhibition believed to be the first of its kind ever organised, was supported all enthusiastic amateurs.

by such well-known names as Dominus Ltd., D.W. Cine Equipment Ltd., Johnsons Ltd., Leitz Ltd., Neville Brown Ltd., Peeling and Komlosy Ltd., Pullin Optical Ltd., and Specto Ltd.

THE WORLD OF TAPE • A NEWS ROUND-UP

Trade announcement by M.S.S.

THE following trade announcement is made by the M.S.S. Recording Company Limited.

In view of the growing demands for Mastertape, together with the current release of their new high grade Data Tape, the M.S.S. Recording Co. Ltd., has an urgent need of more space.

Immediate expansion is necessary and already more modern equipment is being installed. Due to this, arrangements have now been made for the whole of the manufacture and distribution of Disks, and Disk Cutting Apparatus, hitherto carried on by M.S.S., to be taken over by E.M.I. Limited, with effect from 1st January, 1961.

Our customers can be assured that they will receive the same high level of service from E.M.I. to which they have been accustomed in the past from M.S.S.

New control unit

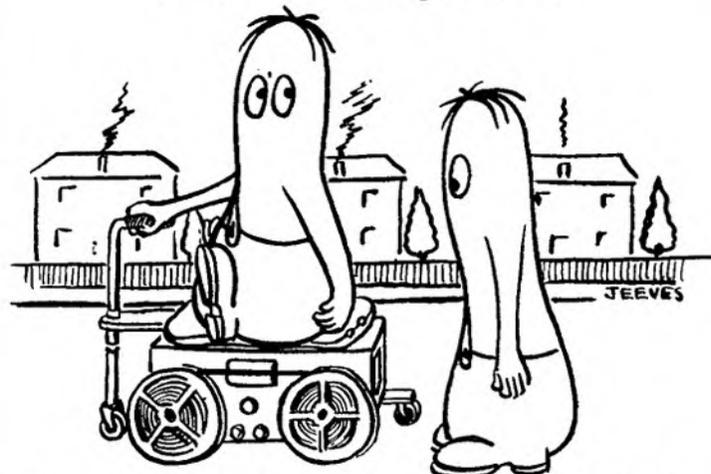
A BRITISH-MADE tape control system was one of the highlights of the American Society of Tool and Mechanical Engineers' show in Los Angeles last month.

The equipment fitted to a controlled rotary table on a machine tool was designed to reduce the time taken for positioning metalwork for machinery and drilling operations.

TAPE RECORDED Christmas greetings from wives, mothers and sweethearts will be heard by hundreds of British sailors in the Far East.

The messages are being recorded in Scotland and will be sent by the Admiralty to the crew of the cruiser *Belfast* stationed in Singapore.

LAUGH WITH JEEVES



"I get to work and back on a seven-inch reel, but it plays heck with the batteries."

TAPE NOISE AND THINGS

by G. Harris

THE idea was to produce a film for the entertainment of our respective families for Christmas. It was the advent of the "Banana Film Productions," with a mighty cast and staff of five, including such famous names as Ann, Brian, Monty, Mike and Me.

Time went on—there's no stopping it—the celebrated season drew nearer, the finale of the film seemed farther away than ever, and I said brightly: "Why don't we do a tape show instead?"

Fired by the enthusiastic silent reaction, I dissolved "Banana Film Productions" and created "Banana Sound Productions." It seemed that I was to be the script-writer, producer, director, technician and call-boy. The other four offered their services in the roles of voices.



I called the show "Things," on account of the mass assortment of ideas which, when classified, fell under the general heading of—"things."

The first "thing" was part of a play. All in all, it would have proved more fruitful if we had rehearsed it before the actual recording session, but I had explained to the company that there was a lack of time. It wasn't the only thing that was lacking. Enthusiasm, acting ability and patience were also difficult to find. There was a motley selection of

'um's, 'er's and 'arh's which were not in the script.

I decided to include a selection of Christmas carols. We formed an orchestra, which consisted of a zither, recorder (the type you blow through), bass drum, piano and piano-accordion.

God Rest Ye Merry Gentlemen was the first carol; after half an hour of "melody" we decided that the Gentlemen would be better off resting on their own.

During the sweet lull that followed, Brian discovered that he was another "Anton Karas" and could play the first few bars of *Put Another Nickel In*. Monty, on the rhythm section, had managed to perfect the tympanic backing to Ravel's *Bolero*, while Ann, at great speed, beat the piano keys into a submission of *Chopsticks* (or *Monkey's Wedding*, or anything). I gave up trying to plug in the piano-accordion and played the tape recorder and settled to a period of releasing the record and erase heads of twisted tape.

Eventually we managed to produce our own inimitable version of *Force Meat Balls*. It would have been a greater success had I succeeded in using the pause button with my foot (my hands were wrapped around the accordion). Brian thought it might have been even better had I used the pause button with my fingers and played the accordion with my feet.

The festive season of good cheer was almost on top of us when I got down to sorting out the various contributions—and discovered that we hadn't anything that had to do with Christmas.

I collected the various members of the staff from the bars and put the point to them: "We've got nothing Christmassy."

Brian exhibited a bottle of whisky. "What I mean," I added, "is nothing on tape. What I had in mind was a series of greetings from people from all parts of the world."

I thought between us we might muster something that would suggest greetings from our foreign friends. We could impersonate an American, a Russian, a Spaniard, a German, a Frenchman, a Martian?



Monty said that he could "do an Australian," and Brian said that, if there was one thing he could do, it was an "Ozzie," and I said something like "so can I."

Monty said it sounded more like a Devon farmer. The tape recorded a "Brummie."

When the tape was finished, I gave a preview to my grandmother. She listened intently and laughed when she shouldn't have done.

Then, she said, "you know, that would have been much better on that moving camera thing you've got."

ONCE I became accustomed to corresponding by tape I found letter-writing a bit slow and tedious; so I sent my sister a tape, suggesting she find someone to play it back for her. A simple enough matter—at least, that is what I thought, until I received the following reply:—

"My dear, what I've been through. I knew of a chap who dealt in radios and recorders, so I saw his mother. Oh yes, Bill would be delighted to play the tape for me. She would tell him and I would hear from him. Hear from him, I'll say I did.

"He went to night school and arrived on my doorstep a bit after nine o'clock. Unfortunately, Tom was at a meeting, but I said 'Come in.' He sat down and we talked recorders. He had brought one, but it wouldn't take the tape you sent me . . . but he would borrow a friend's.

"Well, from then on I heard about stereophonic sound, his breakdown, his mother's collapse, Blinko's radios, and the good firm they are to deal with—he sells the stuff. More about

A TAPESPONDENT'S NIGHTMARE

Jane Dowding

himself, his wonderfully receptive brain, etc., etc., etc. . . .

"By this time it was ten o'clock. Would he like a cup of tea?"

"'Oh yes,' he said, 'I never turn down a cup of tea.'

"Surely, I thought, he'll move off after this; but, oh, how over-optimistic I was. Eleven o'clock. Gradually, I am passing into a coma; his voice drones on. Tom arrives home from his meeting. Heaven help me, I'll hear it all over again. He puts on a tape.

"'Do talk into it and hear yourselves,' he invites. We begin, he grasps our thoughts, and away goes Bill Brown once more.

"He plays it back. We hear ourselves saying 'yes' and 'no,' and hysterical laughs. Bill's voice drones on at us from the tape. 'I seem to be talking a lot,' he says. My soul moans: 'You're telling me!'

"At half past eleven the clock chimes. 'It is getting late,' he exclaims, and settles himself deeper in the chair. His voice drones. Tom has a glassy look in his eye.

"I wait for the clock to chime midnight. I'm now a desperate woman. I jump to my feet: 'Twelve o'clock,' time all good people were in bed.'

"He reluctantly rises. 'Thank you so much, etc., etc., I'll be back with another recorder tomorrow.' I shut the door, and collapse exhausted on the bed.

"He came back and played your tape through but, with a bit of scheming, I managed to get him out of the house by 11.10 p.m."

From all this one might suppose that my sister had had her fill of tape recording. On the contrary: she has bought one herself.

David Lazell

ONLY FOR CHARITY

ONE evening last December, I wandered through the town with my portable tape recorder, waiting for something exciting to happen. I had always imagined that the possession of a portable recorder would enable me to capture great historic events, so that I could be a twentieth-century tape-wise Samuel Pepys. But that dingy, respectable town remained well-behaved that crisp, December evening.

I met Ben Fourpence standing on the pavement outside the Constitutional Club. A red-and-white football scarf was coiled around his neck, like an affectionate snake. He held, in his tattered-gloved hand, a trombone. I remembered that Ben Fourpence and other members of the Pigeon Club Committee went carol-singing every year—in aid of charity, they said, although most of us believed that the money went towards the annual outing of that worthy body, when all self-respecting pigeons stayed at home.

"Good evening, Ben Fourpence," I said. "Going carol-singing?"

"Yes, bach!" he replied. "In aid of charity, you know. I'm just waiting for the others. There's Will Cross-eyes, Griff Jenkin, Gaffer Watkins and Hugh Fish-man. And me, of course."

I looked at my tape recorder, and had an idea.

"Can I come with you, Ben?"

"Well, Dai," he reflected. "Are you baritone?"

"I wasn't thinking of *singing*," I explained. "I thought it would be interesting to record your carol-singing on my tape recorder."

"Tape recorder?" Ben wondered. "It isn't as though we have rehearsed, Dai bach. We only do it for charity, see? And you know that Gaffer Watkins is tone-deaf. We only have him along because he's President of the Pigeon Club."

"It would make a wonderful souvenir, Ben," I persuaded him. "Something to hear in your old age."

"I expect it will be all right," Ben decided. "But don't let Gaffer Watkins get too near the microphone!"



AT that moment, the other members of the carol party appeared from the jovial interior of the Constitutional Club.

"Hello, Ben," beamed Will Cross-eyes, looking up and down the road at the same time. "We've been getting ready for the carols." He hiccupped gently.

Ben Fourpence and his carol - singing mates represented a difficult problem for the battery portable. There were other difficulties too . . .

"Nothing like a drop of cyder for singing, you know," Hugh Fish-man added in a thin high-pitched voice. I always said that *he* sang like a soprano sardine.

"Dai has brought along his tape recorder," Ben began.

"Whatever for?" interrupted Gaffer Watkins. "And are you going to play that old trombone of yours, Ben Fourpence? You made Mrs. Hooper have hysterics when you blew it outside her coal shed last year."

"Something was wrong with the valve," Ben replied. "That's not a misfortune that can happen twice."

"Mrs. Hooper moved to Swansea, didn't she?" piped Hugh Fish-man. "Lovely place, Swansea."

"Well, I wish that Ben Fourpence had taken his trombone to Swansea, too," grumbled Gaffer Watkins. "It would be a great relief to everyone here if he did."

"Then Mrs. Hooper would have to move back here," joked Hugh Fish-man, but no-one laughed.

"There's no need to speak rudely about my trombone, Gaffer Watkins," growled Ben Fourpence. "It will help to keep you in tune. Everyone knows you're tone-deaf."

"Tone-deaf am I?"

For a moment, I thought that the joyful carollers were about to fight. This, at least, would be worth recording. But Griff, possessed by a bad cold which prompted him to sniff every few minutes, reminded them that it was only for charity.

"Aye," Ben agreed. "It's only for charity. Let's be moving. We'll start at Councillor Rees's house, as usual."

"Oh, I don't think it will be much

use this year," said Hugh Fish-man. "He bought a television set."

"I've got my trombone," Ben said fiercely. "He'll hear us."



WE trudged up the road, and finally arrived at the front door of the splendid house owned by Councillor William Rees.

"Perhaps he's out," suggested Hugh Fish-man. "At a council meeting."

"We'll start with 'Silent Night,'" Ben hissed.

I switched on the tape recorder, and held the microphone at arm's length.

Ben blew a sudden, shuddering blast on his trombone.

"That's the key, boys," he said. "One, two, three. . . ."

I suppose that the rendering of that carol was, to say the least, unusual. Hugh Fish-man warbled like a nocturnal troubador with cold feet. Griff sniffed. Will Crosseyes sang what was, I think, "Good King Wenceslas." Ben played the trombone like a man, who, if inspired, had never seen the music. After the first verse, Gaffer Watkins threw his cap on the ground.

"I'm not trying to sing while you're playing that wicked trombone, Ben Fourpence!" he exclaimed angrily.

"No arguing, boys," sniffed Griff Jenkin. "It's for charity, remember."

"We've got to have a musical accompaniment," said Ben, "to keep us in tune."

Mrs. Rees opened the parlour window, and shouted "Who's there?"

"It's only us," Ben replied politely. "Singing carols."

"Carols, is it?" said Mrs. Rees. "I thought you were having a meeting about the bus shelter."

She closed the window. "There's been a lot of argument about the bus shelter," Hugh remarked.

"Well, we're not having a lot of argument about this trombone," Ben stated. "We'll get an impartial, well-informed opinion from someone quite unbiased, someone who knows something about music!" He turned to me. "Now, Dai, don't you think that my playing helps the singing?"

"It's very nice," I quavered, unconvincedly. "But it's a bit loud. . . ."

"There!" said Gaffer Watkins triumphantly. "A well-informed opinion from someone quite unbiased. Now, Ben Fourpence, throw your trombone in the nearest litter bin."

Mrs. Rees opened the parlour window again.

(Continued on page 10)

Only for Charity

(Continued from page 9)

"Could you go somewhere else, please?" she asked. "We're expecting a deputation about the bus shelter."

The window was banged shut. "Perhaps I should stay and join the deputation," said Griff. "I caught my cold waiting for the bus."

"Let's go and sing some carols at Williams' Farm," Hugh Fish-man suggested.

"Fred Williams is more likely to set his sheep-dogs onto us, if Ben plays that trombone outside his back door," growled Gaffer Watkins. We argued our way along the road. I recorded some of the conversation; as a souvenir, mind, just in case the boys sang no carols.



WE arrived at the farm-house. The windows were bright and cheerful, all a-glow with Christmas.

"We'll sing 'We Three Kings'," said Ben.

"Without trombone!" Gaffer Watkins added.

"Are you going to record us, Dai?" Griff Jenkin wheezed.

"If you are, I don't think I'd better sing. I'm a bit out of practice."

"It's only for charity," Ben reminded him. "Besides you're the bass. We can't do without you."

"Maybe," Griff argued. "It's all very well having a poor voice when you're singing carols—for charity—but when it's being recorded. . . ."

He shook his head sadly.

"We'll not have our singing recorded then," said Ben. "Does that satisfy you?"

And it was only by my agreeing to put the recorder away, that Griff was persuaded to join the "Three Kings of Orient." Not that it did them much good. After singing the carol through two or three times, young Betty Williams came to the door.

"Mummy and Daddy are out to the pictures," she announced. "And you've woken the baby up."

We went back to the Constitutional Club.

"I think we ought to try tombola," Hugh Fish-man said. "To raise funds for the annual outing."

"Oh, I don't know," Ben retorted. "There's something about this carol-singing. . . ."

And I suppose that there was, for Ben. It was the only time of the year that he was able to get an audience for his trombone playing.

Later, when the others had disappeared, Ben turned to me.

"Next year," he said. "We'll go caroling, Dai, just you and me. I'll play my trombone, and you can bring the tape recorder."

I winced at the thought.

"Mind you," he added. "It's only for charity."

MOST of the club members were away for Christmas but those remaining met as usual, and as often happens at this time of year the talk turned to ghosts and hauntings. Then Tony Willis led the conversation into a more serious channel.

"Those spooky yarns are all very well," his pipe gurgled noisily, "but you know there are real life cases where unexplainable things happen."

"I suppose you are thinking of. . . what do you call 'em," Bill Jones snapped his fingers, "poltergeists, that's the word. Things are hurled about and broken?"

"Those. . . and other happenings less. . . less material shall I say? Where things are heard or seen by one person and not by others present."

"But," I broke in, "how do we know that it isn't just his imagination? I can almost see things myself if I read a ghost story late at night."

"That's right, Alan," Tony Maxwell backed me up, "but haven't there been cases where a camera caught things which were not visible to anyone? You can't say that is imagination."

"Fakes," scoffed Sam Brown. "There's more trickery in this ghost business than anywhere else. Why, any good conjuror could produce a ghost as easily as a rabbit."

"Granted," Tony waved his pipe stem, "but there are some honest investigators, and suppose, just suppose, that some of the photos are genuine. Wouldn't that prove that there are some things which can have an effect on film without stimulating our sense. Now," he paused and knocked out his pipe, "would it be possible to record things which we ourselves can't hear at the time?"

"H'm. . . ." Johnny clasped his knee, "It's an intriguing idea. After all we can't hear radio waves until they've been through a set. I know it's not quite the same thing," he brushed aside an interruption, "but how could Tony's idea be proved even if it was right?"

"Maybe those weird noises we sometimes hear from Sam's home-made recorder are from the spirit world," somebody jibed.

"I've told you before," Sam was indignant, "those are due to feedback when I forget to. . . ."

Tony waved him to silence. "I've an idea," he said thoughtfully, "we could take a recorder to Burndale Priory some night—its supposed to be haunted and we might get some interesting recordings."

The idea of a night's ghost hunting appealed to the younger members present, and four of us agreed to accompany Tony on the expedition.

"Just a moment," Sam broke in, "what about power? Alan's the only

A spook in his reel

one with a battery recorder. The rest of us will need a jolly old power point."

"I don't think we'll have any trouble with that," Tony dismissed the objection, "a friend of mine lives about a hundred yards from the Priory and I'm sure he'll help out. We'll only need to borrow a roll of cable."



SO it was agreed, and two nights later we set out. All the gear was piled into Tony's shooting brake, and he and Bill led the way while the rest of us followed in my old Morris.

Bill and Tony had been to the Priory earlier to lay the cable and look round to see what we needed in the way of equipment. Of course Tony brought his professional job, and Sam insisted on using his own affair with its clumsy looking mike which we said would scare any ghost! The others had standard mains jobs, and my own battery recorder completed the list.

The Priory, surrounded by tall dark trees, looked ghostly enough in the moonlight as we drove up the weed-covered drive. Nobody had lived here for half a century, and wind and rain had done their worst. An owl flitted silently from one of the broken windows as we parked in front of the house and unloaded our gear.

"It's spooky enough," Johnny shivered slightly as he gazed up at the windows, "How do we get in?"

"I've a key to the front door," Tony struggled up the steps with his recorder, and the key grated in the lock. "The power supply is in a little cloakroom on the right. We'll operate from there."

The rising wind moaned dolefully through the trees and sent dark clouds scudding across the moon, so that there was an eerie effect of life behind the dark windows.

It was quieter inside the house and our steps sounded very loud as we crossed the bare boards of the hall. Tony had thoughtfully rigged up a light and a small heater in the cloakroom, and we'd brought boxes to sit on, so things wouldn't be too uncomfortable.

"Now," Tony directed, "I'm spreading my mikes to cover as much of the house as possible, but one will be in the ballroom. That's where things have been seen, so I think you chaps had better concentrate on that."

We felt very small as we examined the vast ballroom by the light of our torches. There was a damp dusty smell

A spook in his reel

and cobwebs hung in black curtains from the ceiling, as though the house was in mourning. Dirt and mildew covered the floor where rain had penetrated through broken panes. I noticed that nobody seemed keen to become separated from the group as we positioned our mikes.

The French windows had been nailed shut, and the key was rusted in the lock of the second door, so only one entrance remained and this was just across the hall from our cloakroom.

When the mikes had been tested Tony produced a flour sifter and laid a broad white carpet across all doors and windows so that nothing could enter without leaving traces.

"There," he said with satisfaction, "now we'll retire to our control room and wait for something to happen. I've rigged up a loud speaker for monitoring, so you can all hear."



TIME passed and the air in the little room became thick with tobacco smoke. I began to feel sleepy, and was dozing off when Bill jumped to his feet.

"Let's have some coffee" he said, stretching himself, "before we fall asleep."

I'd just taken a bite from my third sandwich when the light flickered and went out, and the red glow faded from the heater.

"Blast. I've spilt my coffee." Bill sounded aggrieved.

"Never mind" Johnny spoke in a sepulchral tone, "the ghosts must be abroad. The powers of darkness can't stand the light."

"Stop it" Bill spoke sharply and switched on his torch. "If anything does happen we won't be able to record unless Alan goes after it with his portable."

I didn't fancy the idea much, and I was glad when Tony finished his coffee and picked up a torch.

"I'll nip over to Jack's place and see if there's been a fuse" he said as he opened the door, and we heard his footsteps in the hall followed by a dull thud from the front door. Silence settled on the house again, only it seemed more intense when we only had torches for illumination.

A cold breeze from the broken window soon chilled the room, and without

our monitoring system we felt isolated; anything could be creeping round the house and we wouldn't know. Something might even now be standing just outside the door which we couldn't close on account of the cables. . . . I was beginning to feel quite creepy when an unearthly scream made my hair stand on end.

"Wh-what's that," someone gasped.

Johnny took a bite at his sandwich and tried to appear as though he hadn't been startled, too. "It's easy seeing that you chaps weren't reared in the country," he raised his cup, "or you'd recognise the howl of a fox."

We were all relieved when the light suddenly came on and made us blink.

"You get all sorts of queer noises in a wood like this." Johnny lit a cigarette, "something is always hunting something else . . . he broke off abruptly as a thumping noise rang through the silent house.

A story for Christmas by L. REID

TENSE and motionless we stood facing the door. The noise stopped for a moment and then broke out again accompanied by a faint crying sound.

"Sound's kind of hollow," Bill said uneasily, "as though something was trying to get out of a-a cupboard."

I'm sure he meant to say coffin. The noise stopped just as we remembered to start the tape.

Tony's voice at the window made us whirl round.

"Are you all deaf" he shouted, "I've been hammering on the door for ages."

Rather sheepishly we let him in. "I forgot the darned key," he explained. "Sorry to be so long but we had to hunt for fuse wire. Anything happened?"

"No," I said hastily, "but you'd better renew the flour in the hall."

Tony fiddled with his mixer, but time passed and all we heard over the speaker was the wind howling round the house; once there was a scurrying sound from the mike in the passage but it was probably a rat.

I was thinking longingly of bed when we heard it. A sort of heavy tapping sound from the speaker.

Tony turned his knobs. "It's coming from the ballroom," he said quietly as he set the tape moving.

We all started our recorders again, and almost at once an evil chuckle that chilled my spine came over the wires.

There came the sound of heavy breathing and dragging footsteps as though someone, or something, was carrying a heavy weight across the ballroom. The footsteps halted and a high-pitched voice screamed "No, no," before ending in a choking gurgle and the noise of something falling to the ground.

"Come on," Tony grabbed a torch, "someone's likely playing a trick on us."

The flour in the hall and across the ballroom door was still white and unmarked, and even Tony hesitated as we reached the ballroom door.

From the other side we again heard that horrible chuckle and the footsteps started to cross the floor.

For a moment we were all too petrified to move, then we realised that the footsteps were getting fainter . . . moving away.

Tony hurled the door open and our torches stabbed the darkness, but nothing was to be seen although the steps were still faintly audible. Again the floor showed no trace and we had to admit that it wasn't humanly possible to enter the room without leaving some marks.



THE others were still hunting about when I remembered that the recorders were still running, and I crossed the hall to switch them off. Sam seemed to have altered the layout of his machine again, and while I was trying to find the switch he hurried in with his mike under one arm, and gave me a suspicious look.

"Roll this up for me, Alan," he handed me the cable, "I'll attend to the recorder."

He bent over his apparatus and I heard several clicks, but before I could question him the others crowded in.

"We've solved part of the mystery," Tony announced as he began to pack up. "The first knocking sound we heard . . . it was caused by a loose downpipe just outside the window, whenever a gust of wind set it rattling."

"But the chuckle . . . the footsteps . . ." I demanded.

Tony shook his head with a bewildered air. "I don't know. Nobody could have got in there . . . I can't explain it."

I was gazing idly at Sam's machine and suddenly realised that the selector switch was in a different position from what it had been a few minutes before. There had been two clicks.

"Let me see your mike, Sam."

He passed it over silently. It seemed much larger than was necessary and was encased in something like perforated zinc, but I could see enough through the holes to confirm my sudden suspicion.

Suddenly Sam burst out laughing. "I see you've tumbled to it, so I'll have to confess, I was the ghost."

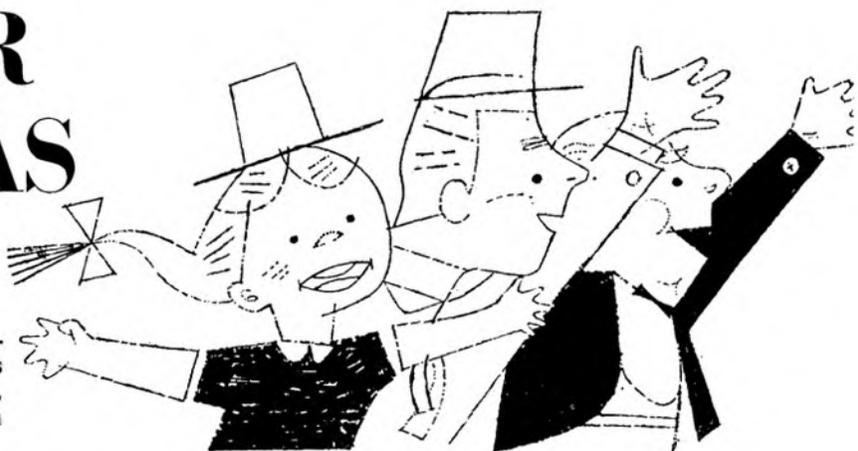
"What?" Tony still didn't see it.

"I told you most of this ghost business was fake," Sam explained, "so I prepared a few spooky noises on tape. Instead of a mike I used a small speaker, and my recorder was on playback. Get it?"

"Of course," Tony looked very crestfallen at being taken in so easily. "There wasn't a ghost at all."

Then his pipe fell from his nerveless fingers as from outside the door came an evil chuckle.

FOR YOUR CHRISTMAS PARTY



If you have a tape recorder, you have unlimited possibilities for making your own games and competitions for a Christmas Party. Below, JEAN PAWSON provides some ideas which may start the ball rolling.

MYSTERY VOICES . . .

The simplest is, perhaps, a mystery voice competition. This means that a few days before the party you record a sentence or two from radio or television of well-known people, or of friends and relations who will be known to all at the party. Each voice should be introduced by a number to make easier the final counting of correct answers.

At the party give each a paper and ask them to write down numbers 1 to 20, turn on the tape and sit down for a breather. The answers can be recorded at the end of the tape. This will save added strain on your voice.

. . . OR NOISES

Closely following the voices is the mystery noise contest. This takes a little more work but can easily be done in and around the house. It is best to play each noise twice to give them a second chance, but don't have each one on for very long. Introductions should be made here again as for mystery voices, with a phrase something like "here it is again" in between each extract.

The following are some of the sounds I have recorded for this competition: Hammering a nail; bath-water running out; gargling; an electric razor; a vacuum cleaner; a typewriter; striking a match; a kitten mewling and a baby crying (difficult to tell which!); a car self-starter and horn; tearing a piece of cloth; a sewing-machine; a whistling kettle; a clock ticking and the alarm going off; dialling a number on a telephone; the telephone ringing and sawing wood.

At the end I give the answers followed by a replay of each sound.

This system, of course, involves three recordings of each sound, unless you have access to another tape recorder for dubbing purposes.

PUT BACK THE CLOCK COMPETITION

This is more elaborate, involves some preparation and is best for a large party or a Church Social. Some weeks before the party ask the intended guests to lend you a photograph of themselves when very young. Next get each one separately to record a verse of a nursery rhyme in a child's voice, as they might have done when they were the age on the photograph. Keep a list of the nursery rhymes to avoid duplication. Then place the photographs in the order of the voices on the tape and have a film-strip made from them.

On the night of the party, use a film-strip projector and show each face on the screen, introducing at the same time the voice of the person saying the nursery rhyme. Allow about five seconds for them to write down who it is. You will be surprised how difficult it is, even with the double clue of photograph and disguised voice, to recognise many of your closest friends.

CROSS QUESTIONS AND CROOKED ANSWERS

This is great fun but can only be used if you can find half a dozen or so co-operative friends who are not afraid of their own voices. I find that the sight of a microphone often

paralyses many people's power of speech!

The basis of this game is that you send six people out of the room. While they are out you ask a question on the tape recorder, operate the pause control, call in the first volunteer and ask them an entirely different question. The tape is then re-started to record only their answer. It is necessary to think out the questions carefully beforehand, with due reference to the interests of the victim. The tape, when played back, will cause uproarious laughter. The following questions and answers which I have used should set the ball rolling if applicable:—

(A Lady Doctor) On the tape: "How would you remove an old lady's appendix?"

To her, unrecorded: "How would you go about making a dress for your daughter?"

Recorded answer: "I would buy a pattern, lay it on the part to be cut out, cut it with pinkish shears and then run it up on a machine."

(A Young Mother) On the tape: "How do you bath your baby?"

To her, unrecorded: "Please

A quiz is always popular

CHRISTMAS will soon be with us and there will be many parties and family gatherings. If you have a tape recorder you can add to the enjoyment of a party—not by switching on the tape recorder in the middle of a congenial gathering and saying "say something, you are being recorded"—which will probably produce either a meaningless babble of voices or alternatively a stony silence, but by preparing on tape beforehand something in the way of entertainment. One of the easiest things to produce is a quiz.

The subject of the quiz is most important—your gathering will probably be a mixed one, with people of

different ages and interests, so the quiz must have a general appeal.

Christmas carols give you a seasonal subject. In turn, read the second line of a group of well-known carols and ask your audience to write down the first line—not as easy as it sounds—carol number one: "All seated on the ground"—it is surprising the thoughtful and puzzled looks this quiz produces—and when you give the answer (which you can record at the end of the quiz itself). Carol number one: "While shepherds watched their flocks by night," you will get a chorus of "Oh, of course!" A variation of this quiz would be to use nursery rhymes.



Away with the splicer, jointing block and sundry items—Christmas is here.

In keeping with the season, we offer on these and the adjacent pages an assortment of games, stories and cartoons with the festive flavour.

describe how you wash a blanket."

Recorded answer: "First I fill the electric washer, then plunge it in for one minute, rinse it twice in cold water, spin it dry and then peg out on the line in the sun."

Perhaps my best is this one.

(A grassland specialist, with a mass of curly hair) On the tape: "Do tell us how you keep your hair so nice and curly?"

To him, unrecorded: "Please tell us how you improve a piece of poor grassland."

Recorded answer: "Well, first I harrow it, and then I give it a good dressing of manure. Many people think pig-muck is the best of all!"

Other questions I have used with their unrecorded second query are:—

"Can you tell us what Dame Clara Butt's voice was like?"

"Can you describe to us an air-raid siren?"

"What ingredients do you put in your Christmas cake?"

"What do you put in your ash bin?"

One important thing is to ask each "victim" not to use the name of the object in the question, just say "it."

A MUSICAL MEDLEY

This is an ideal competition for a tape recorder. You need to make up a story, using the titles of songs wherever possible. You can buy these competitions, but it is more fun to make up your own. It could run something like this: *Bobby Shaftoe* met *Cushy Butterfield* on the shores of *Killarney*. She said: "I think this is prettier than *Loch Lomond*," and so on, making a coherent story.

Record on the tape the opening bars of each song, leaving quite a few seconds blank after each one to allow time for writing the answers. Ideally, you would provide each competitor with a duplicated paper in the following style: . . . met . . . on the shores of . . . She said: "I think this is

prettier than . . ." and so on. If you find this impossible, you could just give them papers number 1 to 20.

MUSICAL CHAIRS, PARCEL

Lastly, use the remainder of the tape to record music for any of the old games which involve music that suddenly stops. You can do this easily from "Music while you work"

and similar programmes, making breaks at irregular intervals by pressing the appropriate control to stop recording for a moment. This is proof against favouritism from the pianist!

I hope that with these suggestions and your good friend, the tape recorder, you will have a very happy Christmas.

TAPE RECORDING CROSSWORD

by
D. H.
Mackenzie

ACROSS

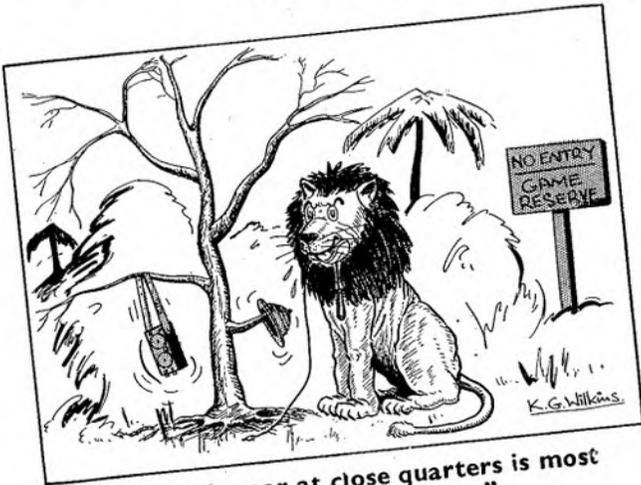
- Noisy orator in the Cabinet perhaps? (11)
- Someone's hidden the recorder here! Help! I come quickly. (6)
- The police and an artist tangle with bitter results. (5)
- Sit back, poetically speaking. (3)
- To join, 2 down went East. (5)
- To join that A.C. (6)
- Acted shiftily, as the enclosed field was? (6)
- Suitable *Stuzzi* model for recording *Latin-American* music? (5)
- Respectful address in the tapes, Irish brand. (3)
- Reslo can strongly provide the parts for the cast. (5)
- Little Edward followed short, backward form of jazz, quickly. (6)
- Run sulphate into a microphone. (11)

DOWN

- Twice, she begins 22 across. (4)
- Single hi-fi component. (4)
- Tape to use on 10 down? (6)
- Certain to follow an age—leaves no traces. (7)
- Recorders revealed when sovereigns surround unfamiliar rot. (8)
- Colourful features of Russian recorders? (8)
- Obvious recorder to use, when you visit the Highlands? (8)
- Trips, when the bus melts awkwardly. (8)
- Disturbed scorers become even more angry. (7)
- Wedding call; reason for inability to purchase recorder? (4, 2)
- Record company aboard the cargo steamer. (4)
- There's a man in the Audiotape testing room! (4)

(Solution to be published in January 11 issue)

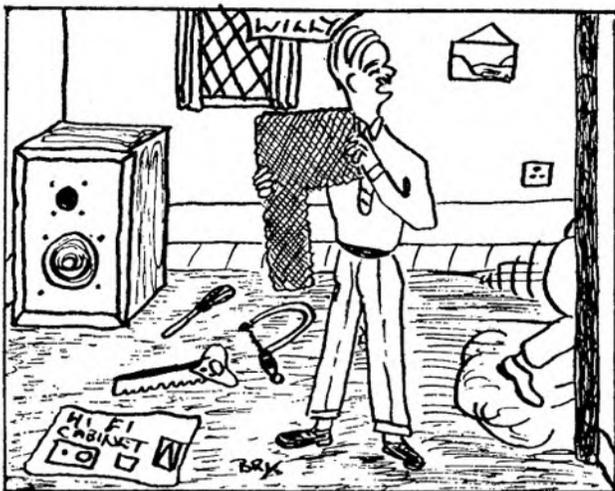
WOW and flutter



"A lion's roar at close quarters is most impressive, and . . ."



"The best mixer on the market . . . and I can't find the input"



"Willy! Where did you get that stuff you were telling me about, on the front of your mouse cage?"



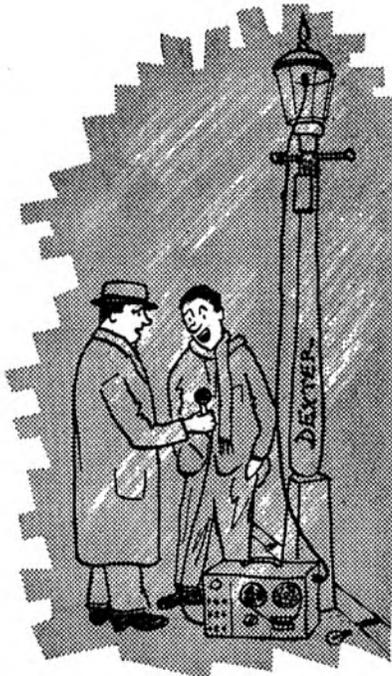
"And when it finishes recording, it switches off automatically"

WOW

and
flutter



"That's funny—all I said was my tape recorder had been running all the time I was out of the room, and. . . ."





THE 1960 B.A.T.R.C. WINNERS AND THEIR STORIES

BAN THE PHON

BY
D. J. GARRETT

TO ban the phon (a subjective measure of the loudness of sound) is the aim of a group of people led by the whisky-loving H. James Trundle. To follow a large-scale publicity campaign they organise a protest march from Sevenoaks to London. This march ends with a demonstration which develops into a riot. Such action brings the matter to the notice of the Government, and after an interminable delay, the phon is finally abolished.

The tape was produced from a script, and was the second composition Roger Gouldsworthy, Patrick Tucker and I had attempted since we started tape recording last year.

Our equipment consisted primarily of two Gramdeck tape tables and pre-amps, but in order to make the best use of them, some extra home-made equipment was necessary. We made two volume controls from 10 K ohm potentiometers for fading, and in some of the scenes used a transformer for

mixing either two microphones, or a microphone and tape deck output on to the final recording.

We were careful to keep the transformer as far as possible from all magnetic fields, and there was no audible hum pick-up when the tape was played back at a few watts output. But at the public playback following the prize presentation at the Radio Show, using high output equipment, hum was very noticeable in those scenes where we had used the transformer. We have since found that there is very little damping if the microphone outputs (moving coil—600 ohm imp.) are connected directly together.

MORNING DEPARTURE

by J. Radford Evans

PRODUCTION of "Morning Departure," a ten-minute tour of Ringway, Manchester's Airport, was a two-man effort. My friend, Robert Rendle, took care of the Simon SP 4 which we used for the job and kept a very watchful eye on the volume control.

Our first step was to take a careful walk round the airport, noting recording possibilities and positions. Then we approached the Airport Controller and the north-west boss of British European Airways who gladly granted facilities.

Came the "shooting day" and we arrived in the main hall with our gear and a rough script of the sort of sounds and interviews we would like to obtain.

Our first snag came when we discovered that, despite a variety of plugs and sockets, we were unable to link up to the airport mains without a certain amount of re-thinking.

Help came our way from everybody and soon we were making test recordings of the BEA announcements

coming from a battery of loud-speakers.

We learned from experience, but not soon enough. For we completed the recording without realising that we had needlessly used two microphones at the same time—a Lustraphone ribbon and an Acos stick—so that we were certain of getting sufficient background.

I think the most important lesson learnt from this documentary is that it is a sounder recording technique, if the background is recorded separately and dubbed in later. This makes for easier editing.

We were prepared to record and re-record interviews so that any microphone-shy employee of either the airport itself or of B.E.A. would have a second, even a tenth chance. But in all the eight or nine interviews recorded only one had to be done again.

A quick preliminary chat with the "victim" revealed the best points he or she would be likely to make. I did a run through in some cases without microphone, but mostly we were able to shoot straight on to tape.

The programme was kept moving by switching our "studio" from the main reception hall to the apron control, the airport's nerve centre.

Our recording session at the airport took roughly four hours and I suppose we brought away with us about 3,000 feet of tape.

I count as our luckiest moment the interview with a B.E.A. employee who had been on the company's payroll just exactly three hours. Her summing up of what it was like to work in an airport struck exactly the right note after talking to people who had been with B.E.A. for five, ten and fifteen years.

We estimate that editing the tapes down to the final ten-minute finished programme took just over 70 hours, and we did the whole thing without one single splice.

Robert, the wizard of the technical world, brought a second mains machine into play and, by using two recorders, we began to discard all the tape we were certain we shouldn't need.

From one machine to the other we passed material that was worth a second hearing before it was replayed again or rejected.

Then, after many hours of work, we

The script gave us plenty of scope for sound effects, without their becoming over apparent. Conventional effects included rain and thunder on the march (pouring fine gravel, and rattling sheets of newspaper close to the microphone) and pub scenes with glasses chinking, and background conversation.

The BBC news, heard on a radio in the pub was produced by pre-recording, and playing back through a loud-speaker about six feet from the microphone.

We had some difficulty in meeting the requirements of the script when it needed the chimes of Big Ben and the BBC "pips." Normally, for a private recording, these could have been taken straight from a radio.

We were able to record Big Ben when Patrick Tucker drove us to London in his car. Stopping in Westminster just before midnight, we carried our equipment to a deserted bus-shelter on the Embankment, and proceeded to set up the Gramdeck on a clockwork gramophone. Parliament was still sitting in a late-night session, and a worried police officer was afraid that we were about to broadcast derogatory slogans at the nation's

leaders. His worries were soon dispersed.

We were lucky that there was little traffic during the midnight chimes, but a parabolic reflector (made from cardboard, string-and-pencil compasses and G.C.E. "A" Level Mathematics) minimised background noise, and increased the recording level. It also frightened two American tourists who refused to walk in front of it, lest it should be a new form of ray-gun.

The time signal could easily have been reproduced with a signal generator: only we did not possess one. Instead we had to record a mains hum from a loudspeaker, at 50 cps, and by speeding up the recording, and re-taping it on the second Gramdeck several times, at last arrived at a note approximating to the sound of the "pips." The tape was then chopped into $\frac{1}{4}$ in. pieces, and $6\frac{1}{4}$ in. lengths of "silence" spliced in between them.

The effect that gave us the most trouble was an "echo" for Trafalgar Square — when the marchers are addressed by their leader. We had tried to obtain this effect by making one Gramdeck pull the tape over both its own, and the other's head, but we were unable to obtain a delay of less than two seconds. We then experi-

mented with making stereophonic recordings, using the same principle, but reversing one Gramdeck, and putting a twist in the tape. This way, both tracks were recorded separately, yet simultaneously. It was obvious that if the same recording was made on both tapes, and then, before playback, the second deck was moved a short extra distance away, an echo would result. By dubbing, the two staggered recordings could be put on to one track.

Having worked out the technicalities, we had only to wait until the local children, housewives, babies, ice-cream vans with chimes, and rooks (there are no rooks in Trafalgar Square) had finished their cacophony before making the outdoor recording.

Throughout the tape, special attention was paid to acoustics. Outdoor crowd scenes were recorded outside; the size of the rooms in which recordings were made was altered to give variety to the quality of the sounds; and narrations and mock BBC announcements were deadened with curtains draped around the microphone and speaker.

Finally, a few days before closing date, all the separate scenes were edited and spliced together, and our entry sent in.

made a shattering discovery. The second machine was neither recording nor re-playing at exactly $7\frac{1}{2}$ ips. Thus every time a section of tape was passed between the two machines, voices were getting slightly out of true.

We were so alarmed at this appalling bad luck that we called an immediate halt to editing.

Frantically we checked that all the rejected tape was still playable and hadn't been scrubbed. Luckily it hadn't.

Unanimously we decided that the second machine, though it had given stalwart service in its time, was due for retirement.

A second machine was bought and the job started all over again.

However, part of the introduction to the programme had been tossed backwards and forwards so many times that we never did succeed in restoring quite the accurate speed to the opening voices.

We wondered several times whether to scrap the whole thing and leave our first entry for the contest until next year.

Happily we decided—wisely I think—that as strangers would be hearing the voices they could in no way condemn us or lose us marks for not being able to recognise them.

A lot of hard work, considerable anxiety, much burning of midnight oil—but, whether "Morning Departure" was to win a prize or not, we knew one thing long before we posted our entry. The planning, recording and making of the programme had given us tremendous enjoyment.

Even a little satisfaction. . . .



FIRSTLY, let me say that I was extremely lucky in obtaining first prize in the actuality section of the British Amateur Tape Recording Contest. When I recorded the firework demonstration at a carnival held in Lydd, Kent, it was not my original intention to enter the tape in the competition. It was just part of a scheme whereby for several months I had been recording general fairground sounds.

During the first week of my holiday

LYDD CARNIVAL FIREWORKS NIGHT

By Michael Pollock

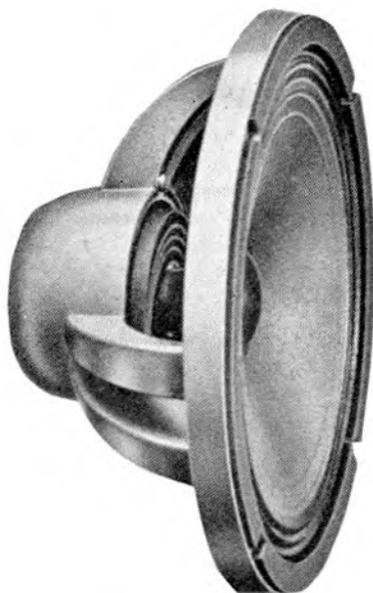
at Dymchurch, the windy weather had made it impossible to record out of doors. To overcome this wind problem, I made a wind shield out of foam rubber. This fitted snugly over the A.K.G. D.19 microphone which I use with the Stuzzi Magnette and provided adequate protection.

Recording continued in a general scheme until one day, driving aimlessly along we came across the small town of Lydd. Arriving early in the evening we had unfortunately missed the carnival, but as there was a large fair on the village green, we parked the car and went over to the fair. There, I recorded several sounds needed to complete my fairground tape.

(Continued on page 21)

AN INEXPENSIVE SPEAKER CABINET

R.N. ROBINSON describes the construction of a speaker enclosure suitable for improving a tape recorder's reproduction



The Goodmans' Axiom 110

IT all started with Dennis Brain. I admire the technique, feeling and choice of instrument of this much-lamented horn player and possess several of his records. But they brought with them their own snags. At certain points during the disc performances of the four Mozart concerti, when the horn emits its creamiest and most exotic notes, a harsh buzz would occur at the speaker of my not-very-fashionable record player. The same ugly noise was apparent when I played the record through my tape recorder.

Clearly then, the trouble was not acoustical feedback—the vicious circle begun by loudspeaker vibrations which cause the pick-up to rattle in the groove—but rather inadequate loudspeakers on both record player and tape recorder. I had fought shy of hi-fi in the past, mainly for financial reasons, but it now looked as though I would have to investigate the question.

My problems were not only finan-

cial but spatial. As a London flat-dweller I have no room for an enormous corner enclosure, sand-filled or otherwise. My aim was the smallest enclosure possible, compatible with reasonable bass response.

Luckily, I am in contact with a number of people who are able to give me disinterested advice on all aspects of sound reproduction, tape and disc, and it was through one such contact that I was recommended the Goodmans' 10-in. Axiom 110.

At £5 (including £1 4s. 3d. tax) this is a moderately-priced unit with a power handling capacity of 10 watts and a quoted frequency range of 40-15,000 cps.

Goodmans themselves were the next to help me. I wrote to them on private notepaper, saying that their Axiom 110 had been recommended to me, and could they suggest a method of mounting it to best effect. By return of post I received a leaflet which gave details of two enclosures: one a corner reflex and the other a "bookshelf" unit.

In view of the lack of space (and of vacant corners, as it happened) in my flat, I opted for the latter unit. There was another reason for this choice. I am by no means a craftsman, and my past experiences with wood have not been too happy.

A rectangular box

The bookshelf enclosure was, in the main, a rectangular box apart from the small reflex aperture at the front and seemed relatively simple to construct. Several of the details of actual construction were left to the builder, and this suited me too. I did not relish the thought of accurately dovetailing pieces of wood which were nearly 2½ ft. long.

The wood recommended by my

original contact was ¾-in. plywood, blockboard or chipboard. At first I ordered blockboard (price, approximately £4), but because the shop was so tardy, I cancelled my order and began to look around timber yards.

I found one in Clerkenwell which offered to accommodate me in chipboard (the man-made wood, apparently fabricated from pressed sawdust and chippings) for £2 13s. 3d. This seemed reasonable and was in fact more reasonable than I imagined. When I had paid my money I found I had inherited a huge slab of wood measuring 8 ft. x 4 ft., almost double my requirements. As it was, I was very grateful.

A warning

For those readers who are experienced at woodwork it may be superfluous to remind them of the care needed when making specifications for the rough pieces of wood. For others, as inexperienced as myself, I append a warning. Mysteriously, a measurement that started off as 13 x 30 inches, was reduced to 13 x 20 inches in my hazy calculations, and I ended up with two of these undersized pieces. I was thus very grateful for my original over-buying. Incidentally, in rough form, there must be about 20-25 lb. of wood, so it is advisable to plan your transport from the builder's yard.

Forewarned by the above error I was meticulous in marking out the pieces I wanted. It was just as well, for even accounting for this and my even more careful sawing; the width measurements on certain of the longer pieces, varied up to nearly ¼-inch, I did use a plane occasionally to cut away some unwanted undulations in the edge surfaces, but I did not plane throughout. As I said before, 2½ ft. is quite a distance for an amateur to form with accuracy, and

AN INEXPENSIVE SPEAKER CABINET

R.N. ROBINSON describes the construction of a speaker enclosure suitable for improving a tape recorder's reproduction

in any case, I found that chipboard saws very evenly.

The front baffle incorporates a circular hole $8\frac{1}{2}$ inches wide. I have no compasses but I produced a fair circle by using elementary geometry (a series of squares with $8\frac{1}{2}$ inch diagonals, forming an appealing star design) and then drilled a circle of holes within half an inch of the circle circumference. A thin-bladed saw was used to connect up the holes and the job was finished off with a file.

The plan (shown with this article) gives only inside measurements and I assumed that the front and back pieces would conform to these measurements, while the "outer" measurements would be made up on the pieces which formed the back, top and sides.

I had been told that fillets screwed onto the inside of the pieces would eliminate the appearance of screws on the outside of the cabinet and would help to strengthen the structure. The first factor would be desirable when it came to the beautifying stage, but I felt that as far as strengthening the enclosure was concerned, this was hardly necessary. As it was I avoided the fillets due to the difficulty of putting the second lot of screws through them. As I have perhaps indicated, I am not a fanatical woodworker.

viously drilled with a small drill which gave holes of, say, $1/10$ in. diameter, and I was surprised that it only needed three screws in each end to give an astonishing amount of rigidity.

Next came the front baffle, followed by the already assembled "tunnel." After mounting the loudspeaker with four $\frac{1}{2}$ in. screws I now had the nucleus on which to start "padding" operations.

Quilted effect

To achieve this I used sheets of cotton wool encased in gauze and sewn together with very wide stitches to give a quilted effect. I attached these to the two sides and the bottom with insulated wire staples. Carpet tacks I found to be useless for the job. After I had similarly padded the top and rear, I screwed in the latter. Throughout, the screws were put in at four-inch intervals. This gave a very sturdy feeling to the whole thing.

The Axiom 110 has screw terminals

and for connectors at the end of my internal leads I used open "fork" tags. These I connected and before I went any further, I tried the assembly out with the tape recorder.

All seemed to be well so I attached the central curtain and began the most laborious job of all, screwing down the top. Anyone who is not used to this sort of work is well advised to wear a glove to protect the palm of the right hand. I have a large blister there, even as I type this article.

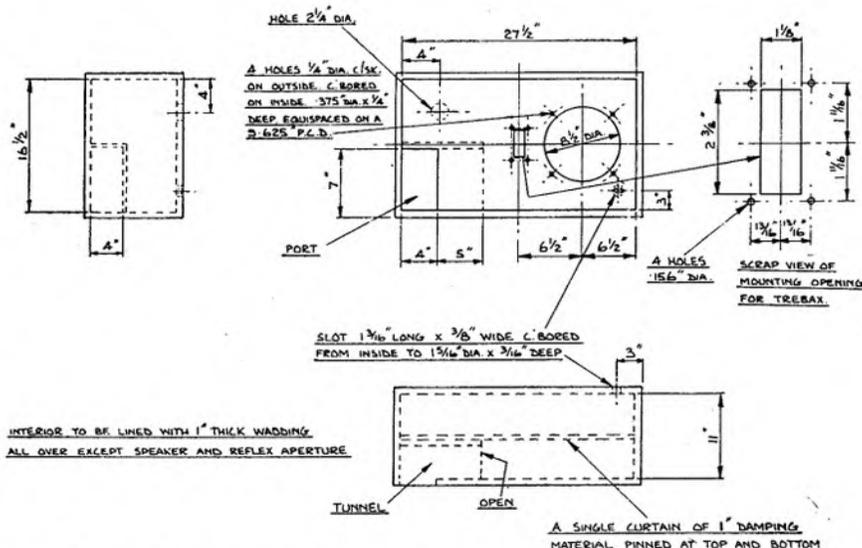
At present by cabinet is unfinished from the aesthetic point of view but this awaits a possible removal when there will, no doubt, be a change of decor. There are various avenues open here, ranging from thin plastic sheeting to a full-blown veneer.

Total cost was well under £10 and reproduction is superb. The unit has been used on a set-up which includes a Leak Point One amplifier which demonstrates its potentialities admirably. On the other hand it gives new life to my medium-priced tape recorder and I can fully recommend it to anybody who requires a good speaker unit at low cost.

Ready to assemble

The pieces were now ready to assemble. I had cut the reflex aperture in the front baffle and had assembled the two pieces of the "tunnel" to go behind it. At the rear, a small hole had been fashioned ($\frac{1}{4}$ in. drill, chisel and file) to Goodmans' specifications and a special socket (1s. 9d.) had been fitted with internal leads soldered on.

Uninstructed in woodwork practice, I fitted the two ends to the bottom piece. All screw holes had been pre-



The enclosure plan, mentioned above, as recommended by Goodmans



Gil Gilmore samples a "cuppa" while his wife takes a photograph during their stay in England. (Right) The Gilmores in their smart police uniforms at home.

TAPE FIGHTS CRIME DENYS G. KILICK

IT would be impossible to meet more generous, open-hearted or sincere people than Gil Gilmore and his wife, Chloe, from Los Angeles, California, U.S.A. They not only exemplify all that is best in the individual, nor are they merely content to work together as a husband-and-wife team, but with typically American enthusiasm they have thrown themselves into the task of fighting crime throughout the world through the medium of tape.

Like nearly all real life police work, there is nothing melodramatic about the International Police Tape Recording Club, of which the Gilmores are founder-members.

A number of ordinary police officers like Jack Vaudin of Brisbane, Australia, assisted by Merv Tobin, like George Brooks who combines his official duties of caring for a rural district near Reading with the British Secretaryship of the Club assisted by Lance Blacklock, and a large number of others in widely scattered parts of the world, make tapes about their work and duties. These tapes are then circularised to all members on the "round robin" principle, finally ending up at the point of origin.

The value of such an interchange of information and ideas is incalculable. One tape may contain a lecture on narcotics, another discuss the problems

of juvenile delinquency; every aspect of police work is covered and debated from the national point of view of every member of this truly international organisation. Two of the most actively interested members of the group are Frank and Gina Weston, of Lilungu, Mtwara, Tanganyika, where Frank is a prison governor.

Although these officers are performing a public service, they are doing so in their own time, at their own expense and of their own free will. They neither seek nor expect to receive any reward for their efforts apart from achieving a broader knowledge of their jobs and a better understanding of their colleagues' problems in other countries. Their work is done in the privacy of the living-room or in the office of the country police station. Their tapes go literally around the world, quietly, unobtrusively linking the forces of law in the protection of decent, peace-loving citizens everywhere.

Apart from the more serious side of their visit, the Gilmores were on holiday and I found them to be as determinedly relentless as tourists as they are in waging their own private war against crime. What appealed to them most on their first visit to London?

"Why," says Gil, "everyone's so god-dam polite over here. Even the clerk in the dime store says 'thank you very much' when you give her your money, and derned if she doesn't say 'thank you very much' again when she hands you your goods."

"Another thing," says Gil, "you English all drive on the wrong side of the road like crazy. Scares me to death!"

With gales of laughter we set out on a whirlwind trip seeing the sights of

London, taking in the Tower, the Monument, Madame Tussaud's and the Cutty Sark at Greenwich for good measure, leaving me struggling breathless in their wake. Not that there was anything superficial in their tourism; far from it.

It was most refreshing to find these visitors from the New World treating our relics with a respectful reverence not to be found among our own nationals. When we found that the Tower of London was closed, because it was Sunday, Gil very kindly said: "Oh, well, just like home!" Chloe burned up another reel of film, and we were off again.

I was rather diffident about taking them to eat in a Chinese restaurant, as the Western American seaports are famed for the excellence of their Oriental fare.

After a couple of drinks at the Prospect of Whitby, one of London's oldest riverside pubs, we drove on to a tiny cafe in the heart of Limehouse where we were served with what they described as the best Chinese food they had ever eaten.

How does their life in Los Angeles differ from ours in Britain? They have sun, lots and lots of sun. When it rains it's an event and they go out of doors to enjoy it. They earn relatively more money than we do, which enables them to take full advantage of the climate and facilities of their country. Who but a Californian would dream of going to Mexico to shoot crocodiles—with a bow and arrow?

They work hard and they play hard, making the most of every minute of their lives. Contrary to the popular fallacy in

(Continued on opposite page)

LYDD CARNIVAL FIREWORKS NIGHT

(Continued from page 17)

I soon learned that a firework display was to be held on the village green. As I often help out with sound effects for local operatic and drama groups, I thought that fireworks might one day come in handy as an effect.

Having ensured enough tape was available on the recorder, I went over to see the fireworks. It was somewhat crowded, and I thought I had left it too late to find an ideal spot for recording. Suddenly the fireworks started.

After about three minutes recording, I moved nearer to the display, and stopped near a group of youths who were out to enjoy themselves. Incidentally, the youths did not know a recording was to be made of them. I decided to try a "double event," recording the comments of the youths backed by the sounds of the fireworks display.

The microphone had to be constantly moved to follow the voices, and yet still held at an angle so as to pick up the sounds of the fireworks correctly. A careful check on the volume was maintained to save overloading the magic eye. After twenty minutes of fireworks and laughter from the enthusiastic audience, the display came to an end.

The following day I played the tape back and was very pleased with the recording. The balance was good between the fireworks and the youths, and there was also plenty of the atmosphere present. For another week I continued my object of record-

ing other sounds, until eventually the holiday came to an end. Home once more, editing on the fairground tape began, generators, bumper cars, bingo stalls and other sounds of the fair, were all spliced up into a complete tape.

It was when I replayed the fireworks tape that I first thought it could be entered into the competition and so work started on the editing stage.

Starting with the whoo - - osh of a rocket to open the tape, I selected bangs and crackles and gradually a complete tape was made up.

My main problem was the matching of the volume at the end of one piece of tape to line up carefully with the volume at the beginning of the next, thus avoiding a difference of volume at the splice.

After timing the tape, I found it ran for six minutes. As the time limit in the actuality section was four minutes, more splicing took place, until I had reduced the total run to just under four minutes.

So pleased was I with the finished result, that I decided to enter "Lydd Carnival Fireworks Night," instead of the fairground tape into the actuality section.

How pleased I am at that decision, now I have a good recording to remind me of my holiday, and am also the proud owner of a "first" certificate. This will be framed and placed alongside a certificate won by my father in 1957, the year of the first national tape contest in this country.

TAPE FIGHTS CRIME (continued from page 20)

this country, they are not impressed by glitter, wealth or ostentation; they are far, far happier swapping yarns in a pull-up for carmen than consuming small portions of food for large sums of money in our more snobbish West End establishments. Their real life is not so very different from yours and mine; a matter of cold economics, what we can afford and what we can't, a matter of what we have time to do and what we are prepared to make time to do.

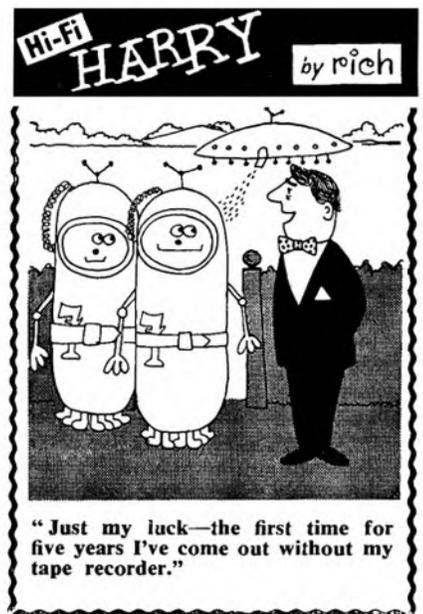
After London, they headed north for Edinburgh, driving, I hope, more or less on the left-hand side of the road and leaving behind them a chain of bewildered waitresses trying to resolve the problem of how to serve tea "cup half-filled, no milk, no sugar, but a cup of hot water on the side."

I should like to leave you with a rather disturbing thought. Do the Gilmores have something that some of us haven't got?

Their boundless energy and vigorous enthusiasm are part of their national heritage, but to these attributes they have added a deeply-felt regard for their fellow-men and a realisation of the vital part that recorded sound can play on the highest levels of international understanding. Having faced this fact, they then went right ahead and did something constructive about it.

The humble police constable has been regarded as a figure of fun by writers of all nationalities through the ages. We all know that this is a travesty of the truth, but how many realise that an ordinary constable's influence might well stretch out from his beat, his district and even from his own country to embrace the whole world, through the use of tape?

We may not be police officers, you and I, but there are countless other avenues for international social service. Shall we seize the opportunity like the Gilmores?



Tape Exchange

It is clear from our correspondence that there are many tape recorder owners who would like to make contact with others of similar interests to exchange news and views by tape.

Not all wish to join organised clubs.

We shall be pleased, therefore, to devote a limited amount of space to listing names of those who wish to establish such contacts.

Send name, address, sex, age, and specify your special hobby or interest (but one only).

It will be assumed that all tape contacts will be made using a speed of 3 $\frac{3}{4}$ i.p.s. If you do not have this speed available specify the speed you prefer.

Send details to "Tape Exchange," Tape Recording Fortnightly, 7, Tudor Street, London, E.C.4.

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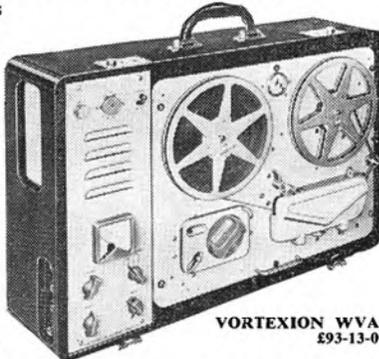
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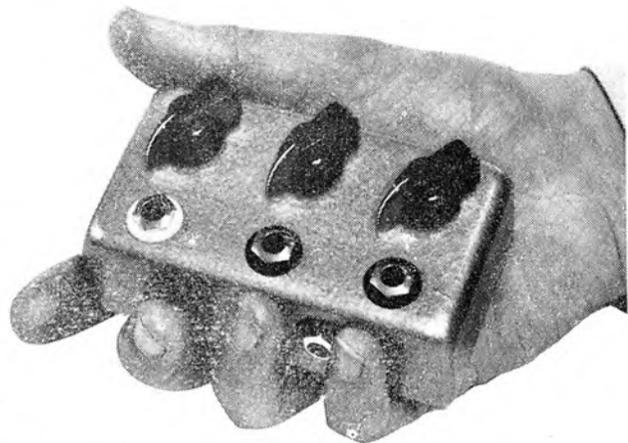
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News from the Clubs

FREDDIE WESTCOTT, Chairman of the **Federation of British Tape Recording Clubs**, has decided to give up active participation in tape recording. A combination of events led to this decision which means that both the Federation and the **West Middlesex** clubs are temporarily without a chairman. In his regular club report, "Sandy" Saunders, secretary of the West Middlesex club, writes, "it is a sad blow to both organisations as Freddie is well liked and has certainly done much for the movement in general, and us in particular."

Calling for a hearty vote of thanks for his past services, Mr. Saunders hoped the club would continue to see something of him in the future. I would like to take this opportunity to wish Mr. Westcott every best wish for the future, and thank him for the assistance so ably and readily given in the past, especially in regard to this year's Contest when he with other members of the Federation carried out the initial hearing of the tapes before final selection.

Following the official announcement of Mr. Westcott's resignation, the West Middlesex members turned to the technical business of the evening which had been selected as a "Gadgets and home-built equipment" night. Many and varied were the exhibits on show, and the club's wealth of technical talents can easily be seen from the following list.

A crystal-controlled audio oscillation generator, a wow and flutter detecting strobe, a tape lubricating guide post sleeve (all from Phil Pratt), two time switches (Ron Topham and John King), a transistorised audio oscillation generator, a co-ax to jack adapter, and a transistorised T.R.F. tuner (Dave Lloyd), a fade-erase unit for the Ferrograph (Cliff Wright), two crystal diode plug-in tuners (Oliver Pickering and John King), a versatile plug and socket co-ax junction box (J. Mitchell), a third-head and pre-amp chassis for the Brenell (Ken Phipps), and a method of sub-amplifier and mixer chassis construction for a four-channel transistorised mixer by the Secretary. In addition, Oliver Pickering demonstrated his Gramdeck with a spring-wound portable gramophone motor.

Their humanitarian side is also well on the up and up. Dennis Marks and Sandy Saunders inaugurated the Hospital Service with a visit to Mount Pleasant Hos-

pital at Southall where they recorded messages by two dear old ladies, one aged 89 and the other 90. The messages were later transmitted to relatives in Belfast, Doncaster and Ickenham.

The following meeting of the club, November 24, was primarily concerned with the election of a new chairman. After the business meeting, there was a film and demonstration by Wilmex Limited.

News of a club that has for some time been absent from this page comes with a report from D. Craig, secretary of the **Glasgow** club. It must be some eight months since they appeared in this column, but I understand they are still going strong and have almost completed their third year in existence.

Prior to their A.G.M. held on October 18, Mr. Lockhart, the club President, asked the secretary for a recording of a subway train entering a station. The location recording was carried out by Jack Malcolm and Pat Copinger, and the recording was eventually used as a background for a show produced at the King's Theatre, Glasgow. Synchronised with moving scenery, the recording proved such a success, that it was used in the show for the rest of the week.

At the A.G.M. members elected the governing officials as follows: chairman, Jack Malcolm; treasurer, J. Gardner. Mr. Craig continues as secretary. Among decisions made during the ensuing discussions were firstly to double club meetings next year, and to compile a complete syllabus for the resulting 25 meetings. Members of the committee are working on this now.

Another suggestion came from Mr. Lerous who wanted the club to be split into groups. These group, he envisaged, would each tackle a particular recording subject and the completed tape would then be submitted to the club's tape editor, Pat Copinger. In this way the club would have a complete library of tapes within a short time—for inclusion in their proposed tape "Glasgow 1960".

At a more recent meeting fun and games were the keynote. Each member was in turn asked to enter an adjoining room where they were asked questions such as "How would you spend £75,000?" "Explain to the members how you lost the club's recorder", and "Should a man have more than one wife?" The tapes were played back in the first room while the next victim went through the hoop, providing fun for all and a fast-moving evening.

A more serious mood followed when Michael Mayors demonstrated his Truvox recorder and illustrated how he used his radio jack and mixer unit.

Another of the Scottish clubs, **Dundee**, also included humour in a recent meeting. This time it was supplied by Harry

Ayers, the club's technical expert and music section winner of the B.A.T.R.C. 1959.

To start the November 21 meeting he provided a lecture on "Studio recording techniques" illustrating his talk with recordings showing correct and incorrect microphone positioning. He concluded his lecture with a recorded skit on the B.B.C.'s *Stately Homes of England* programme. This consisted of a conducted tour of his kitchen and living room and included interviews with members of the family.

Mr. Parrington of Walter Instruments Ltd. had been invited to the December 5 meeting to give his usual talk and demonstration.

Three new members have been enrolled into the **Bournemouth** club, taking the total membership over the 40 mark. Hopes to increase this number should have been realised when an "open meeting" scheduled for November 29 was held. For that meeting each member was to take along his machine which would be demonstrated to visitors.

A drama group has been formed and two one-act plays have been adapted and produced by Mrs. J. Lawson and secretary Hedley Jones. They were played at the November 15 meeting. After discussions on these tapes have been held members will decide on another play which they hope to enter for the B.A.T.R.C. next year.

Members recently heard the tape *Journey so long*, the winning entry in the schools section of last year's contest. The person presenting the tape gave a detailed account of the production of the entry and provided his audience with some idea of the problems inherent in work of this kind.

Tony Townsend, the club's roving member, at present in Monaco, has sent another tape describing some of the local beauty spots. The recording included interviews with local inhabitants, one of which Mr. Jones describes simply as "extraordinary".

Chesterfield members have also been trying their hand at play producing. On November 21 a play written by three members was produced and recorded. It had an all-male cast and the action was set in the smoke-room of a public house. Sound effects had been previously recorded and were dubbed on to the master tape. Members have also been exploring this field individually, and a number have been helping various local amateur dramatic societies with sound effects.

For their meeting on December 12 members' recorders were taken along. Each in turn was used to demonstrate its recording and playback capabilities with the aid of a visiting guitar player. The latter end of the meeting was taken up with a return visit by Mr. Parrington, who showed the latest additions to the Walter range.

Lined up for the New Year meeting is the first of several programmes dealing with the basic techniques of tape recording. The series is to be presented by Messrs. G. Foster and D. Baldwin.

Demonstrations of machines are continuing, the latest being the Telefunken

(Continued on page 25)

Classified advertisements

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News from the Clubs

(Continued from page 23)

85KL recently purchased and shown by Bill Meads. Another recent buy is the Uher stereo recorder. Jim Finlayson is the proud owner and he is to put the machine through its paces at one of the December meetings.

With their third A.G.M. held on December 8, the Coventry club recorded its 64th member. Without wanting to put the cat among the pigeons I think the Coventry members deserve a large pat on the back for what must surely be a record for any locally organised club. Not only this but looking back through the files I find the average attendance for their meetings tops the 50 per cent mark. Good going for a club which meets fortnightly.

Their success has obviously been due to careful programme planning. Regular readers of this section can have no doubt that this club puts its back into tape recording and is reaping the rewards for their single-mindedness of purpose.

A demonstration of the Simon SP4 opened the November 10 meeting. This was used by chairman Roy Penfold who played some electronic music recordings. The interest created by the tape should lead to experiments by members to produce similar recordings of this futuristic music. The meeting continued with a tape from Howard Cardwell-Hill recorded on his Truvox. Experiments were carried out with the differing effects obtainable by adjustment of the bass and treble controls on the Simon recorder. Next came a tape by Mr. Fisher who had taken his Fi-Cord to a Leicester store to

record the comments of children visiting Santa Claus.

The third demonstration of the evening came with the introduction of the Philips EL3541 brought by a newcomer to the club. Howard Freer concluded the entertainment with another of his humorous tapes.

A correction is due regarding the London club. Due to a misunderstanding, in our November 2 issue I reported Terry Devereux as being the new secretary/treasurer. In fact he holds one office only, the new treasurer is Ron Tucker. Mr. Devereux's address is 26 Neverne Place, Earls Court, London, S.W.5, and not as given in that issue.

A talk on splicing and editing was given by Mr. Denys Killick, chairman of the South West London club on November 2. This was followed by a mixing and dubbing demonstration by Peter Lewis. The sessions were followed by an interlude during which members put the tips and hints into practice. Some very amusing results were met, not always intentionally.

On November 16 a "mystery" meeting was held. The meeting was actually to be a carol practice but the committee felt the members might be reluctant to attend if they knew. It was, however, a great success.

The local church organist had kindly offered to play carols on the church organ. These were recorded and the society obtained permission to collect, when carol singing to the recorded tape, for the Royal Putney Hospital for Incurables.

Mr. Wilson of F. A. Hughes Ltd. presented the B.A.S.F. tape demonstration

and film—*The Magic Tape*—at their November 30 meeting.

At the November 24 meeting of the Harrow club 25 members and friends attended and heard Mr. De'ath of Specto Ltd. give a talk and demonstration on the Spectone 161. A few new faces were in the audience and members are hoping to enroll these in the near future.

The December 8 meeting was scheduled as a "bring a tape or else" evening. A small prize was to be awarded to the person presenting the most original tape, and the usual small fine had to be paid by the "unforgivable" ones who did not take along a tape.

A purely social evening had been arranged for the meeting before Christmas.

Rhona and John James have been appointed U.K. representatives of **World Tape Pals**. A letter has been sent to all members informing them of this news, and asking them to advise the James's if they are still interested in W.T.P. Any person not receiving a copy of this letter is requested to contact the new Reps at 45 Boundary Road, Colliers Wood, London, S.W.19 as soon as possible. A complete new roster of members is to be published in the new year.

Writing of the advantages of W.T.P. Rhona and John list the "thrilling ways" of spending one's spare time by international tape contacts. "The Zulu dancers of South Africa, and the Maori dancers of New Zealand, come alive in your lounge, "they say," or, if you like something quieter, the fall of snow(!) in the North of Canada or the trickle of water of the Niagra Falls is yours at the flick of a switch."

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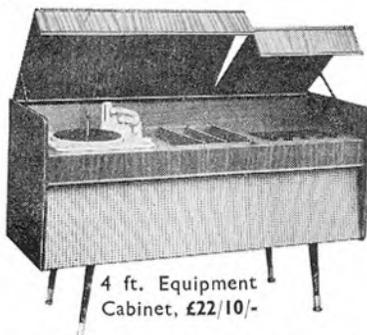
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