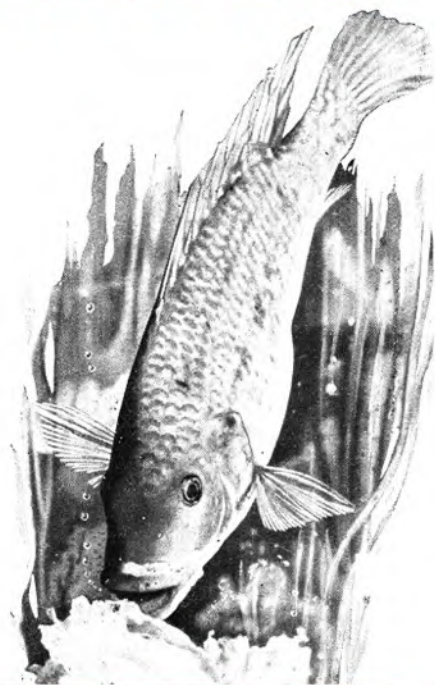


**PREVIEW
OF RADIO
SHOW** pages 14-15

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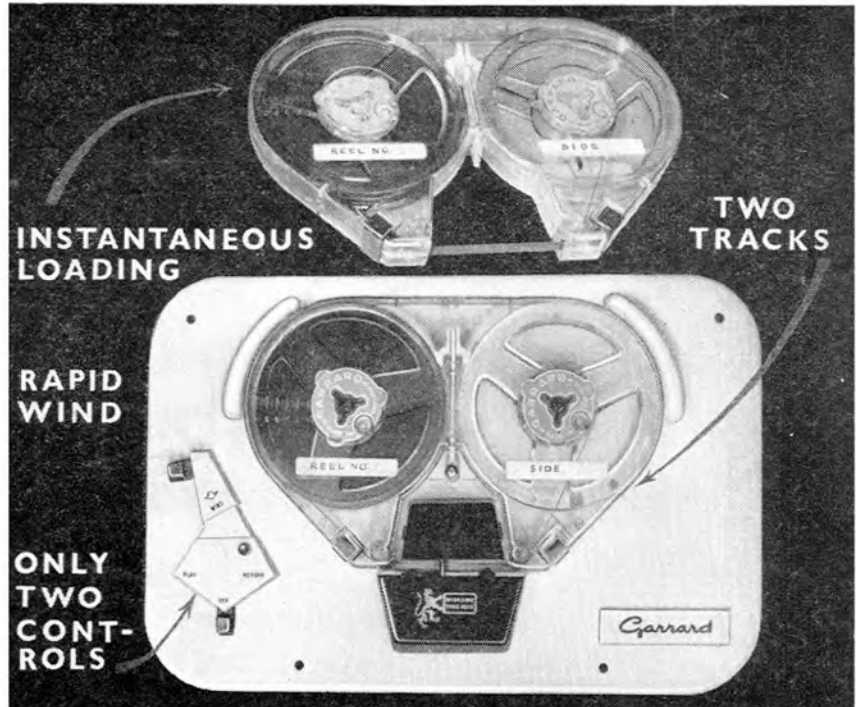
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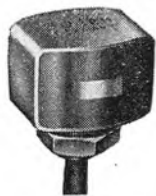


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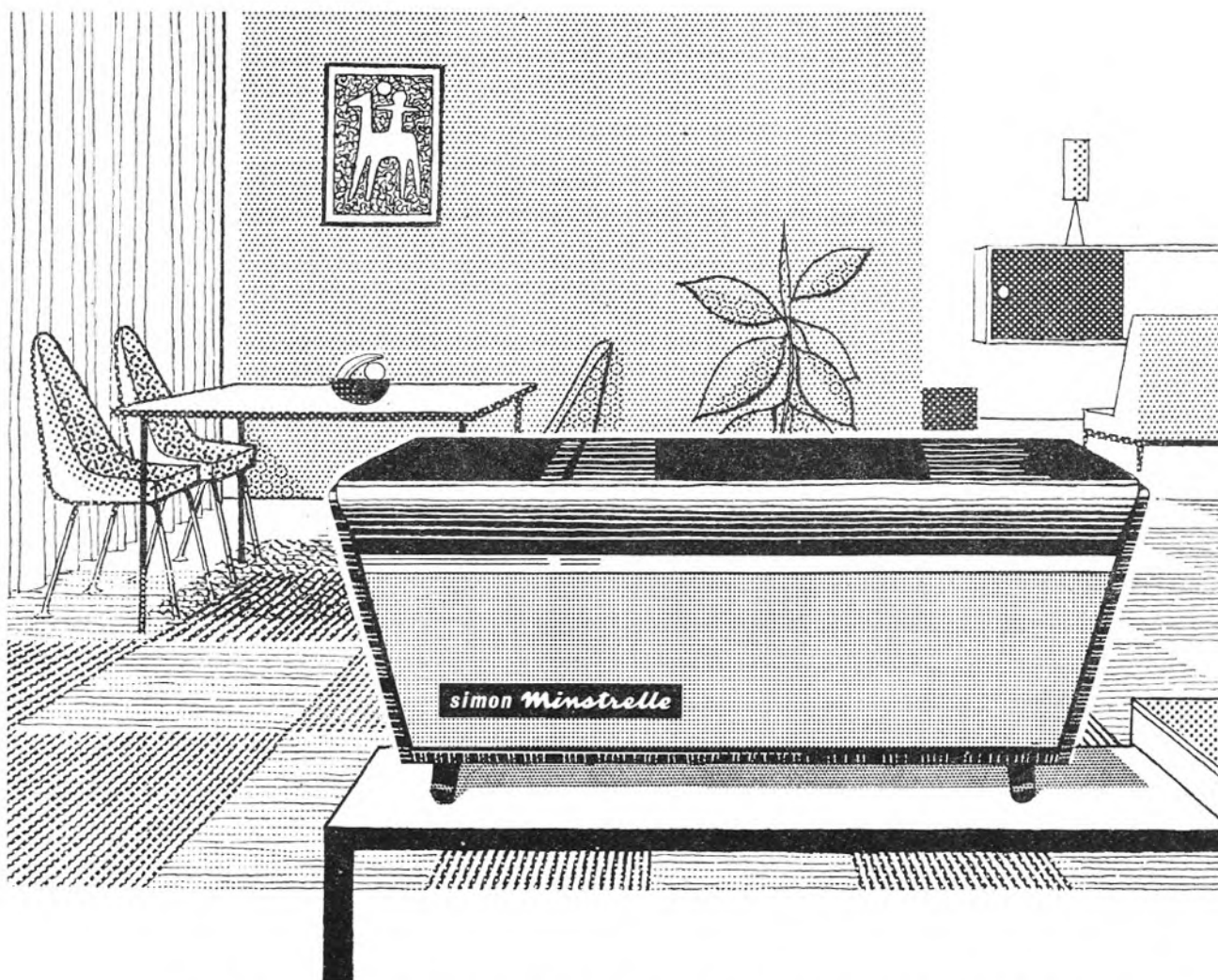
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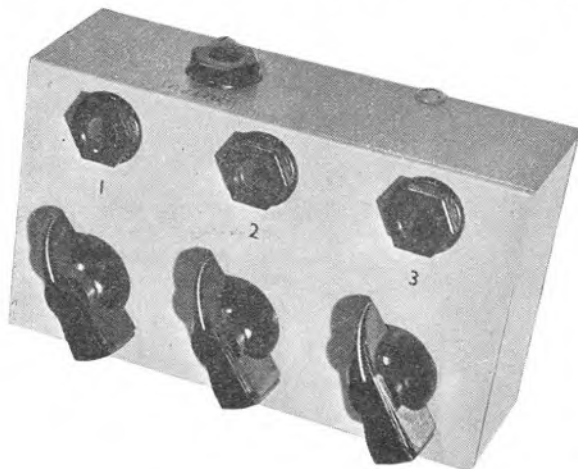
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RECORDING
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Vol. 4 No. 16 10th August, 1960

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We take the view . . .

A DIGEST OF NEWS, COMMENT AND EDITORIAL OPINION

IT looks as if we may get more audio exhibitions than anyone bargained for! News has just been released of an International Audio Festival and Fair to be held at the Hotel Russell in London from April 6 to 9 next year. The Festival Director is Mr. Cyril Rex-Hassan, who has been associated with previous Audio Fairs but who is now setting forth on a new project.

Nearly 40 prominent British manufacturers of audio equipment attended a recent meeting at which it was resolved to form a committee to consider the project, which envisages ownership of the Exhibition by the firms taking part. They will share any profit made by the event.

Firms represented on the newly-formed committee include Acoustical Manufacturing, Ferrograph, Clarke and Smith, Goodmans, The Gramophone Company, Lustraphone, and Multimusic, so that the new venture seems to be off to a good start.

Meanwhile, Audio Fairs Ltd., the organisation which has been responsible for all the London and Northern Audio Fairs to date, is pushing ahead with its plans for further Fairs.

The Autumn Audio Fair is to take place at the Palace Hotel, Southport, from October 8 to 10.

In addition to the usual stands and demonstration rooms, there is one large ground-floor room which may be used as a demonstration room by manufacturers on a co-operative basis, and another large lounge is to be equipped as a Stereo Theatre accommodating 200 people. There will be half-hour programmes of stereo hi-fi, using tape and disc (and, if possible, radio) with the aim of "selling" stereo on behalf of the whole industry, rather than concentrating on particular products.

A dealer convention is also being arranged in connection with the Fair.

The proposed International Audio Festival will embrace a number of new events in large halls close to the Exhibition centre. Technical lectures, demonstrations and a concert will make up special one-hour sessions.

Tape recording is likely to be covered at the Hall of London University, discs at the Royal Festival Hall, and radio at the Woburn Hall.

Meanwhile, the Radio Show is almost upon us and news is coming

almost daily of new products to be introduced there.

This you should hear

IT is not surprising that hi-fi has become the subject of satire; it is proof that the industry has "arrived." It was a compliment, therefore, when the BBC broadcast last Sunday the programme "Hi-fi-fo-fum," presenting a light-hearted glimpse of our affairs. I'm sorry to be too late to remind you not to miss it.

But there is time to draw attention to another programme that all recording enthusiasts should hear: "Singing the fishing," to be broadcast in the Home Service on Tuesday, August 16.

An attentive listener will be able to learn a lot about technique from this programme, which is another in the series of documentaries produced by Charles Parker, with lyrics and music by Ewan McColl. Previous efforts have been the classic "Ballad of John Axon" and the slightly less successful saga of road-building called "The Song of a Road."

The technique is to blend into an artistic whole music and song, interviews and sound effects. Listen carefully.

Folk music

THE British Institute of Recorded Sound has just published a remarkable document—a

complete catalogue of authentic folk music records issued during the last five years. It lists only items performed by traditional singers and instrumentalists, listing them under continents.

It is an astonishing list, to the layman at least. If you want a recording of the drums at a chief's feast on the Ivory Coast, this booklet tells you where to find it.

And what has been added to the recorded folk music of the United Kingdom these past five years?

There are four English records listed, three Scottish and six Irish. It looks as though amateur enthusiasts still have plenty of scope for useful work.

Electronic Olympics

ONE of the most ambitious public relations schemes ever devised is announced by the Italian branch of the Philips concern in connection with the forthcoming Olympic Games in Rome. It includes provision of:—

200 radio sets and 150 TV sets installed in the Olympic Village;

500 personal fans to give relief from the August heat;

300 electric shavers;

100 infra-red lamps to treat minor injuries;

1,500 pocket calculators for currency conversion sums; etc. etc.

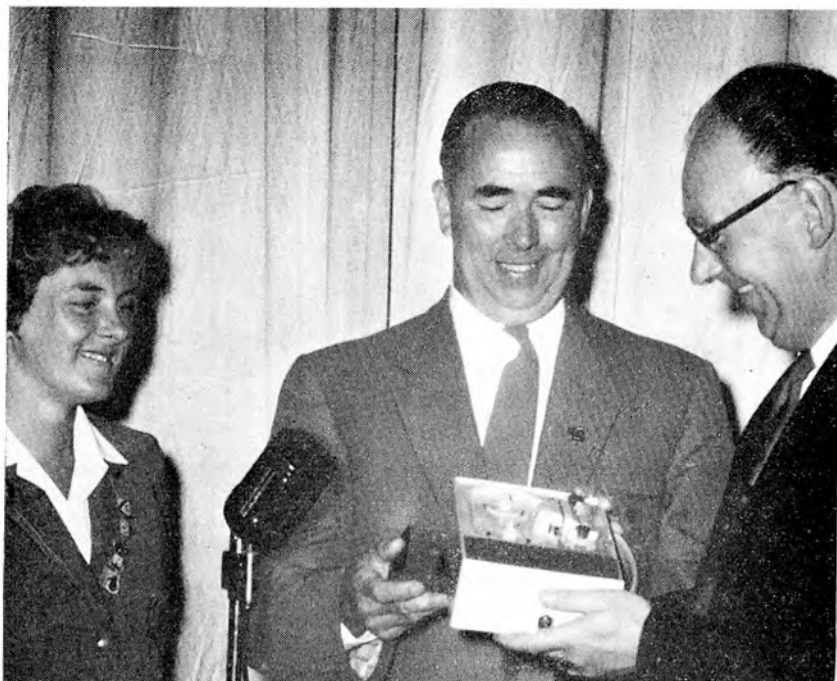
Wot, no tape recorders?

LAUGH WITH JEEVES



"Get ready to scream, so that it sounds like a real bomb explosion."

PRIZE RECORDERS



First prize in the Grundig Command Performance at Butlin's Holiday Camp, Pwllheli, was a Grundig Cub recorder. Above: Mr. Thomas Birch, 46-year-old cotton drawer of "Melroyd," Kirkham Road, Freckleton, Nr. Preston, Lancashire, is being presented with the Cub by the entertainments manager, Mr. C. F. Johnson, while Redcoat Shirley Merrett looks on. Below: Another lucky prize-winner, this time Miss Joanna Dere, who was elected Soho Beauty Queen of 1960 at the recent Soho Fair, receiving a Wyndor Victor recorder. French cabaret star Irene Hilda, currently appearing in *Talk of the Town* at the London Hippodrome, is presenting the Victor; also present is Geoffrey Raynes, chairman of the Soho Fair Association.

Tape to audition "pop" singers

AUDITIONS are to be held every day throughout the Boys and Girls Exhibition (Olympia, August 16-17) to find a new "pop" star. Recording Devices Ltd., who market the Stuzzi range of recorders are organising a sound studio for this purpose and visitors to the exhibition will be able to watch the contestants perform through large windows.

To ensure that all entrants have the best possible chance of making a high quality recording, the studio is being equipped to the standards of Angus McKenzie, managing director of Olympic Sound Studios. His company will be responsible for the technical side of the recordings and BASF tape will be used throughout.

The musical weekly, *Disc*, is sponsoring the competition and its editor Gerald Marks is one of the judges. Other judges include Cliff Richards and his manager, Tito Burns, as well as the recording manager of a leading recording company. (Competitors who are unable to attend the Exhibition can enter by sending a tape of their entry to "Disc.")

The winner will receive a 69 gn. Stuzzi Magnette, a week-end in Vienna for two, an appearance on Austrian radio and possibly television, consideration for a Tito Burns contract and a Television appearance in London, and a recording test by a leading company. Runners-up will be presented with a Mannequin recorder by Recording Devices Ltd.

R.L.S. ON TAPE

EQUIPPED with tape recorder and movie camera, wealthy Captain A. Lippi, a Philadelphia poet, is writing a sequel to *Treasure Island* in the modern, classical idiom.

He has followed religiously in the footsteps of R. L. Stevenson, covering the same ground. He has earmarked 80 per cent of his book and film rights for the foundlings of the R.L.S. Orphanages on the American coasts to give city children a love of the sea.

Moving around the world, Capt. Lippi records with his tape machine and movie camera much of the material for his TV and radio programmes.

The train now arriving . . .

BRITISH Railways are coaching announcers by means of tape recorders and have provided 273 railway stations with public-address systems, together with 250 sets of loud-hailers.

More 4-track models in the coming year

Our preview of the 1960 Radio Show indicates an increase in the numbers of this type of recorder

THE climax of 1960 for tape recording and all other types of electronics enthusiasts is the National Radio Show at Earls Court which opens with a restricted preview for the Press and others on August 23 and ends on September 3.

It is an event which few can afford to miss if they take a keen interest in their equipment and wish to keep in touch with latest developments. New products are featured in these pages issue after issue, but it is the Radio Show which often provides the first glimpse of them "in the flesh."

Although there are facilities in London for hearing the performance of most recorders throughout the year, visitors from the provinces are able to make full use of the many "live" demonstrations of equipment. As well as being instructional this is often a very enjoyable pursuit, for the manufacturers can usually be relied on to demonstrate their products by using the highest of "fi" recordings.

EMBARGOED

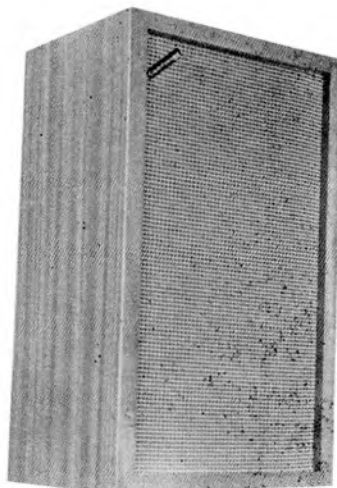
Already in this office we have tantalising information of new products which will be on show. Some of this, alas, is embargoed and our readers will have to wait until the show opens to discover this new equipment. However, we are able to give a selection of information on the new products tape enthusiasts will be able to see.

The headlines as far as recorders are concerned, all deal with 4-track. Quite obviously the manufacturers have decided it is a worthwhile development and are going ahead. Thus, perhaps some lucky person in the future with a 4-track recorder, employing the ultra slow 15/16th ips speed, with large reels carrying double play tape will find himself in the possession of 62 hours of playing time on one spool.

Typical of the movement towards 4-track is the display to be given by Tape Recorders (Electronics) Ltd., who are responsible for the Sound range of equipment. The Sound Studio and the Sound Prince are already established models and they will both now be available in De Luxe 4-track versions. The Studio De Luxe which will give up to 18 hours playing time, has a claimed playback frequency response of 60-15,000 cps and will cost 45 gns. complete with crystal microphone, tape, spools and special radio/gram recording lead.

The Prince De Luxe which offers up to 6 hours playing time will cost 37 gns. complete.

The range also includes two completely new items. The Sound Master is described as a three speed, 4-track professional standard recorder with separate record and playback amplifiers with ultra linear push-pull, rated at 10 watts.



Goodman's latest speaker unit the A.L. 100

A voltmeter level indicator is fitted and a signal-to-noise ratio of better than 45 dB is claimed.

There are full facilities for mixing, monitoring and multiple superimposition. The price is to be announced shortly.

The other addition is the Sound office-master which employs 4½ in. reels and can give up to 100 minutes playing time. All operations can be done by remote control and there is a built-in speaker with provision for headphones or stethosets. The company claim a frequency response which allows it to be used for recording music. The price is to be announced.

A special feature of Amplion Ltd's Marine recorder is that it is the only A.C./D.C. model of its type on the market. This makes it the ideal tape recorder for sea-goers as most ships' electricity supply is D.C.

Equipped with a B.S.R. deck the Marine costs £47 5s., and has input sockets for microphone and radio/gram as well as an output socket for an extension speaker. The microphone and gramophone inputs can be mixed. Superimposition is provided for and there is an automatic stop.

SPEAKER UNIT

Although not specifically recorder equipment, but of interest to the enthusiast who wants better-class speakers than can be supplied with a normal recorder, the Goodman Industries Ltd. new A.L. 100 12-watt high fidelity loud-speaker system is likely to come in for some close inspection at the show.

Priced at £23 10s., it offers a claimed frequency range of 35-15,000 cps. Impedance is given as 15 ohms and the overall size of the enclosure is 24 x 11½ x 14½ in. It is available in walnut or mahogany to choice.

More 4-track developments are to be found in the Elizabethan range. The Elizabethan Model F.T.1. is claimed to be the most modestly-priced machine of the range yet, and by combining 4-track playing with a 5½ in. spool of double play tape used at 3½ ips, over six hours playing time is given.

A frequency response of better than 50-12,000 cps is quoted and there are separate controls for the accurate mixing of inputs. Bass and treble controls are separate and it is possible to monitor while recording. It can be adapted (with extra equipment) for stereophonic playback.

The price is 39 gns.

The more elaborate 4-track Model F.T.3. costs 55 gns. and with a 7 in. reel of double play tape it offers 17 hours playing time. There are three speeds and the frequency response at the fastest speed, 7½ ips, is given as 50-16,000 cps. It possesses all the facilities offered with the F.T.1. and it is supplied with a high gain microphone, 1,200 ft. of tape and a radiogram connecting lead.

REFLECTOGRAPH

The Reflectograph Model A introduced by Multimusic Ltd. earlier this year, will now be available as a 4-track version known as the Model B. Possessing all the features of the Model A such as separate record and playback heads and amplifiers, and electronic specification of the amplifiers in accordance with full C.C.I.R. or N.A.B. professional recommendations, it costs 105 gns.

With an 8½ in. reel of double play

More 4-track models in the coming year

Our preview of the 1960 Radio Show indicates an increase in the numbers of this type of recorder



The Ampion Marine for AC/DC use

tape at a speed of $3\frac{1}{2}$ ips (a speed of $7\frac{1}{2}$ ips is also available) there is a playing time of 12 hours 48 minutes. By adding an external amplifier the Model B can be made to play any $\frac{1}{4}$ - or $\frac{1}{2}$ -track pre-recorded stereo tape.

Multimusic Ltd. will be sharing a stand with Multicore Solders Ltd., and a new product from the latter company which will be on show for the first time will be the Bib Tape Recording Kit costing 27s. 6d. The kit incorporates the established Bib Recording Tape Splicer complete with extra cutters, a reel of Scotch Boy Splicing Tape, a data card containing tape lengths, reel sizes, recording times etc., and a list of 50 well-known classics with their performing times. In addition there is a supply of printed self-adhesive Bib Tape Reel labels enabling the user to write in the space provided the title, composer, reel number, type of tape and the date.

STELLA'S MODELS

Stella Radio and Television Co. Ltd. are also offering two new 4-track machines and single speed ($3\frac{1}{2}$ ips) ST 454 at 37 gns. and the 3-speed ($1\frac{1}{2}$, $3\frac{1}{2}$, $7\frac{1}{2}$ ips) ST 455 costing 59 gns.

The ST 454 has facilities for super-imposing, playback through an external amplifier, and monitoring, and there is an extension speaker socket and a programme indicator with zero reset. With a 7in. reel of double play tape it gives 8 hours playing time. Frequency response

is said to be 50-14,000 cps and the signal-to-noise ratio as better than minus 40 dB.

Power output is rated at 2.5 watts and the weight of the $6\frac{1}{2}$ x $15\frac{1}{2}$ x $12\frac{1}{2}$ in. cabinet is 19 lbs.

A total of 16 hours playing time is offered on the ST 455 which has a claimed $7\frac{1}{2}$ ips frequency response figure of 50-20,000 cps. A safety interlock guards against accidental erasures and there is a playback tone control and a pause button.

A built-in programme indicator is provided with a magic eye recording level indicator. The dimensions are $7\frac{1}{2}$ x $16\frac{1}{2}$ x $14\frac{1}{2}$ in. and the weight 30 lbs. Output power is rated at $2\frac{1}{2}$ watts.

Both machines can be used for stereo playback with suitable additional equipment.

STEREOMIC

A new model of the ribbon velocity Model VR/65 Stereomic is being introduced by Lustraphone Ltd. at exactly half the price. Despite the fact that it possesses the full characteristics of the more expensive Stereomic, the Model VR/65NS Stereolus, as the new mic is called, will cost only 15 gns. This lower price has been achieved by omitting the phase switching and other mechanical features of the Stereomic. Both can be used for either stereo or monaural recording.

Designed at capturing the amateur as opposed to the professional or near-professional market, the Stereolus has a claimed frequency response which is substantially flat between 50-13,000 cps. Sensitivity is given as 90 dB below $1/\sqrt{\text{dyne/cm}^2}$. Length is $7\frac{1}{4}$ in. and maximum diameter $1\frac{1}{4}$ in. Weight is 15 oz.

DAYSTROM RANGE

Additions to the Daystrom Ltd. range of equipment are the TA-1M and TA-1S record/replay amplifiers intended for use with a tape deck and hi-fi amplifying system. The 1M is a single channel model costing £16 14s. and the 1S a stereo version at £22 4s. The monaural model can be converted to stereo by the addition of a converter kit type TA-1C.

Provision is made for matching to any type of tape deck using heads of high or low impedance. Special features include the provision of a 3-position bias level to enable optimum results to be obtained from any type of recording tape. Construction is greatly simplified

by the use of large printed circuit boards and a well-illustrated instruction manual, ensuring that the absolute beginner can assemble the components.

These are just some of the new attractions on the stands at the Radio Show. Others will become public on the opening day. Remember the dates and the venue and keep a day open for this show of shows in the electronic world.



One of the new Sound 4-track models, the Prince de Luxe

WyndSOR Afloat

THE WyndSOR Recording Company recently spent a day in the Pool of London "on location."

With the special permission of the Port of London Authority a production unit filmed a sequence of cases of WyndSOR "Victor" tape recorders being swung into the hold of s.s. *Herdsmen* whilst berthed in the West India Dock.

These were the first shots to be taken of a colour film which is to trace the design, development and manufacture of a WyndSOR tape recorder. True to the topsy-turvy conventions of the film industry, this was the closing sequence which came to be filmed first. "The Story of a WyndSOR" is being produced in colour by the Managing Director of WyndSOR Recording Company, Mr. H. M. Creek, who has been a cine enthusiast for many years.

Read it all over again, Grandpa

The electronic baby-sitter



THE NEW TECHNIQUE

by F. J. G. Hodge

I DECIDED the bulge in my pocket wasn't too noticeable—it looked as though I was carrying a book, and, considering I had the thing hidden away inside a "dummy" book, I guess you could say I was carrying a book in my pocket. I'd never used one of these things before; in fact I had never even carried one, and now here I was all set to go out and use one on someone I had never even seen or met before.

The Boss was no fool and I suppose I should be proud that he had chosen me to do the job. It was a new technique and this was to be the first time it was tried out.

I knew that if I made a good job of it the Boss would be pleased, but if I failed, then . . . in our game the weakest go to the wall, and I was darn sure it wasn't going to be my back against that wall.

I made a final careful check of things. I tested the remote control release (no use warning your victim by having to put your hand in your pocket). I fixed the false flower in my lapel, smoothed down my coat, put my hat on, and left.

While I was driving, I got to thinking about what I had to do. The plan was that I should walk down the path, ring the bell, and when she came to the door start talking and carry on talking until I

judged the right moment had come, then a gentle pressure on the remote control and . . .

After driving around for a while I found the street I was looking for. I slowed down and cruised to a stop.

There was no one in sight as I walked down the path. I pressed the bell, and waited. I hoped she wasn't a cute blonde: I have a weakness for cute blondes, and this was no time for weakness.

She opened the door and said "Good morning"; she was quite something to look at. I smiled and said "Good morning, I represent the Nowoik Cleaning Company, we're doing a survey of the district. . . ."

I stood there talking, and she seemed to be getting interested in my sales patter. I decided that this was the moment I had been waiting for. She didn't suspect a thing as I gently squeezed the remote control release . . . slowly the spools started to move and the rest of our conversation was being recorded for the Boss.

The idea was that our sales technique and the listener's reactions and questions were to be recorded and then, later, in the office, we could play them back and make a study of them. We could analyse the questions that were asked and prepare answers. We could spot the weaknesses in the sales patter, we could hear how the salesman dealt with on-the-spot difficulties, in fact we hoped that with this new technique we could increase our sales a hundredfold.

These miniature tape recorders are marvellous. Isn't science great?

PARENTS of young children who are lucky enough to own a tape recorder have an unlimited supply of uses for it. What interest there is in keeping a record of sounds—Baby's gurgles at three months, laughter and crying, first words, first sentences, first recitation, first little song and so on! These will become precious memories through the years.

I am a grandmother and I have found even more uses for my Grundig.

Recently my daughter had a new baby and while she was in the nursing home, I had her little daughter, Janice, who was nearly four, staying with me. Before she came, my daughter said: "She loves 'Listen with Mother' on the radio, and that will give you fifteen minutes peace—I wish it were longer!"

Well—it could be longer! For some time before Janice came, I recorded "Listen with Mother" every day until I had one side of a reel of it. How useful it was! Young children love to hear the same stories over and over again and Janice would play for hours while I was busy with my housework, listening to this tape.

One day my husband brought in a paper for Janice. She was thrilled and sat on his knee while he read it to her. At the end she said: "Read it all over again, Grandpa." When I heard the same page for about the tenth time it dawned upon me what an unnecessary waste of Grandpa's time and energy. I turned on my Grundig, put the mike near, and my husband and I took turns, reading a page each to her in front of it. At the end came the usual cry: "Again, please," and I played it back to her.

Janice sat alone by the tape recorder, enthralled, following every picture as it came, while I got on with my cooking and Grandpa with his gardening. She was with us for three weeks and by that time we had a whole reel.

Parents—and grandparents—will think of other uses, such as recording Mummy's voice saying: "Goodnight, darling, go to sleep now," and perhaps telling a bed-time story or singing a lullaby, for the use of baby-sitters. The recorder could be just outside the door and might save many a heart-broken cry for Mummy.

Yes, it is a *grand* mother's help!

DOES THE FUTURE LIE WITH FOUR-TRACK?

Is the best means to tape economy a narrower recording track—or yet slower speeds?

IN Vienna recently I was invited to take part in two functions which provided an opportunity to hear the views of engineers and traders there on a number of tape recording problems, particularly concerning four-track recording systems.

The Stuzzi Co., in Vienna, had invited certain sections of the trade for a works visit and the response shown by wholesalers and retailers was extraordinary; indeed most of them did not leave the premises until 11.30 p.m., because they became engrossed in discussion on technical matters.

A similar thing happened at a meeting of the Vienna Radio Club at which I was invited to speak.

In both cases quite decided views were aired by engineers, dealers and wholesalers alike, particularly on four-track recorders.

It was taken as read that the quarter-track system was originated in America for the express purpose of providing economical stereo on quarter-inch tape, so as to allow the stereophile to enjoy the same length of playing time from a reel of tape as the monaural user normally obtains. It was the consensus of opinion in Vienna that, for stereo at $7\frac{1}{2}$ i.p.s., the four-track system was able to give good quality. They further agreed with the views of the American originators that, at $3\frac{1}{2}$ i.p.s. stereo recordings could be played at a level of quality which was acceptable for domestic recordings.

GIMMICKS

Some continental companies, however, have taken things a step further and have utilised the quarter-track system to make four single track recordings on the tape and then to include such gimmicks as playing back from one track while recording on another, all within the same head block.

From an engineering point of view, this practice was considered by those I met in Vienna to be quite unsound. Those dealers who had sold equipment of this kind confirmed, to a man, that they were having trouble from each customer who owned such a machine, irrespective of make.

At .040 in. the width of the track on

These are controversial questions and the experts do not offer a unanimous view.

Tape recording enthusiasts are directly interested in their views, for they will determine future designs.

We print here one individual view—that of K. Short, D.L.C.(Hons.), A.M.I.E.E., A.Inst.B.E. He has recently discussed the subject with engineers and dealers in Austria—and he reports their opinion.

Further contributions to this debate will be welcomed.

a four-track system is considerably less than half the normal track width as used on a half-track system, i.e. .095 in. and, therefore, the signal-to-noise ratio is bound to be worse by at least 8dB, to start with.

STRINGENT DEMANDS

The track is now so narrow that quite small and normally permissible vertical movement of the tape now results in severe fluctuations of the signal level.

The four-track system also makes much more stringent demands on the tape itself. Imperfection not noticeable on a half-track machine may lead to a complete drop-out on the very narrow quarter-track; experience has shown the drop-out situation to be very much worse.

Nor is this all. The separation between the tracks is narrow and, as the tape may wander a little, there is a constant danger of the adjacent track breaking into the one actually in use. Dealers declared that they could generally adjust heads and guides so that a passable performance might be obtained on one reel of tape on one particular machine, but interchanges of tape between different users become very difficult and even different makes of tape made a difference on one and the same machine.

All these things affect the effective signal-to-noise ratio and it was con-

sidered that the effective deterioration was somewhere around 15 dB.

Further difficulties are experienced as a result of recording and replaying with in the same head block. On the replay side, accurate filters are used to stop the bias coming from the recording head and being picked up by the replay head from swamping the amplifier.

It was argued, too, at these Vienna gatherings that four-track systems are not satisfactorily compatible with the internationally standardised half-track.

The picture is different when considering four-track stereo. Here we have two channels with basically similar information, and a drop-out on one channel is much less likely to be noticed in the presence of the second channel still playing. In practice it has been found that four-track stereo is practicable.

QUALITY

In the Stuzzi system, the engineers have gone a different way to try to obtain economy of tape and yet retain good quality. They have halved the tape speed yet again, to 15/16 i.p.s., but have kept the track width constant.

Halving the tape speed also leads to a deterioration of signal-to-noise ratio, but it does not need a mathematical genius to see that conditions are much more favourable for this system (i.e. approx. 6 dB), provided that the problems of wow and flutter of the tape transport and frequency response of the head at these speeds can be solved.

At the Stuzzi works I saw demonstrated that a frequency response of 4,000 cycles was readily achievable at 15/16 i.p.s. This is the sort of response obtained by the normal radio set on AM. The wow and flutter content has been held down so low that it was inaudible even on piano music at 15/16 i.p.s.

The consensus of opinion among those who met in Vienna appeared to be that it was preferable to go down in tape speed when looking for long playing times and tape economies, rather than to reduce track width. This view was shared by all the Austrian engineers present and all the dealers and wholesalers. At the Vienna Radio Club they played a tape message recorded by a German engineer whose views coincided with those of the Austrians.

THE STUDIO AND ITS ACOUSTICS



How do the professionals do it? In a series of three articles, ALEC NISBETT describes the techniques of recording used at the B.B.C. He calls the series—

THREE LINKS IN A CHAIN

One microphone, six speakers. "The Critics" are here working to an AKG C12 condenser microphone, which is being used in its cardioid condition. They are seated well into the mike, and the studio is a fairly dead one, but there will still be rather a lot of studio "atmosphere"

For the amateur, recording can be a pretty tricky business. Striking a reasonable balance between noise levels on the one hand and overload or peak distortion on the other may take so much time and effort that the best part of the programme is lost while the right answers are being found: actuality material has gone for ever, or the life and spontaneity of a "studio" recording has evaporated.

Such luxuries as proper monitoring facilities are rarely possible, and altogether the achievement of a successful recording becomes a rather hit or miss affair—even when good material is there.

For professionals in the business of broadcasting and recording, this sort of arrangement is no use at all. Each recording, with its individual problems, should be technically sound on the first "take," so that the production team can concentrate entirely on working the programme material up to its best possible standard, knowing that they can catch it at its peak . . . that's the ideal, anyway. And for anyone who has worked under amateur conditions the extent to which this can be achieved seems almost miraculous.

At B.B.C. studios there is no single standardised layout of studio and equipment. But the most usual one uses three acoustically separate rooms: the studio, the control cubicle, and the recording room.

In this series of articles I shall describe the facilities to be found in each of these, and explain how they are used. Some of the techniques described should be of interest to the amateur; others, using complicated apparatus and acquired skills, will be of more interest to the hi-fi or radio enthusiast who wants to know "how it's done."

The first article will deal with the first link in the chain—the studio and its acoustics.

LET'S take a look at a B.B.C. studio, with its treated walls and carefully measured reverberation time and frequency characteristic. For a discussion studio, the size will be about that of a fairly large living room; and there will be a good carpet on the floor.

There's a story, whether true or apocryphal I don't know, that in one of the B.B.C.'s more distant "regions" a suite of studios was built using all the most advanced theories of the time. As soon as the designers departed, a local executive walked in, pronounced that this wouldn't do for V.I.P. use at all—and promptly ordered an expensive carpet: when the designers heard about this they were horrified, and sped back with their measuring instruments, only to find that frequency characteristic was vastly improved. That's the story anyway.

The treatment on the walls will probably do very little more or less than the curtains and furniture of your own sitting room. And since the frequency characteristics of most living rooms is often flatter than you would think, the similarity may be very close—except that the studio has no windows on to the outside world, unless you count the double-glazed view of the control cubicle next door.

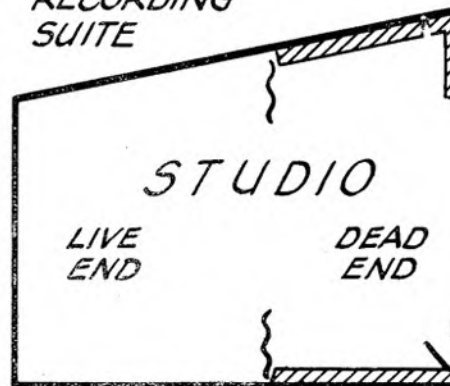
Many different types of absorbers may be seen on the walls and ceilings of broadcasting studios, and they fall into various categories: low, mid-range, and high frequency absorbers, and combina-

tions of these. Acoustic tiles, such as those used for many modern offices and restaurants, are good for absorbing the highs, but, used by themselves, could leave a great deal of ambient low frequency sound. Wooden panels can be tuned to accept particular frequencies, and, suitably damped, will absorb them. A music studio in Swansea has on the walls banks of boxes which act as Helmholtz resonators, and are used in the same way. There are many other types of treatment.

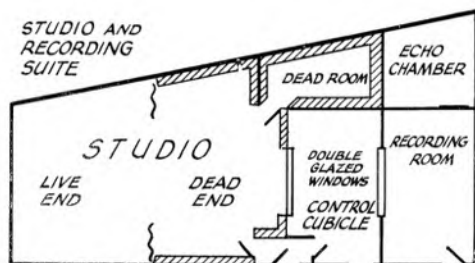
The other difference between a studio and any other room lies, of course, in the microphones mounted on their heavy stands or booms. To a certain extent, the type of microphone to be used influences the choice of acoustics used either in the construction of the studio or in the layout of its absorbent or reflecting screen.

A discussion in which six speakers are grouped round a cardioid or omnidirectional mike (e.g. "The Critics") requires deader acoustics than one with a smaller number of speakers and a ribbon mike, which picks up less of the studio reverberation, and the coloration that may go with this.

STUDIO AND RECORDING SUITE



THE STUDIO AND ITS ACOUSTICS



Acoustic treatment of Maida Vale Studio One (home of the BBC Symphony Orchestra). The scattering elements on the ceiling, and boxes on the walls, break up the sound waves

Coloration, which presents the most awkward problem in studio design, is at its worst in studios of the smallest size, because the main resonances of length and width are well within the audio range. This is sufficient to put a nasty "honk" on any voice which sounds off the resonance. Making the studio an irregular shape will help. Breaking up the acoustic treatment of the walls into many segments with reflecting surfaces at different levels is a method used where space permits.

But in small studios some measure of defeat has to be accepted and, with it, the relatively simple remedy of working closer to the microphone. As ribbon mikes are nearly always used for speech, this means that bass correction circuits are required, and in small talks studios they are usually built in as standard equipment.

One of the smallest studios, one which is handled in just this way, is that used for many record programmes, such as "Housewives' Choice," "Pick of the Pops" and "Pete's Party." Another, rather larger, studio which is used for "Woman's Hour" can at times be particularly difficult for certain male

voices—not all that serious in "Woman's Hour" but troublesome when it is used—as sometimes happens—for "Today" and "Five to Ten."

But coloration, within limits, is not necessarily a bad thing; a natural-sounding "indoor" voice always has some. It is partly because of what might be called "monophonic effects" that it has to be watched carefully—remember that even on a single voice there's a world of difference between mono and stereo. With mono all of the reverberation and studio coloration is collected together and squirted out from the same apparent source as the speech.

The answer might at first appear to be to do away with reverberation entirely and broadcast speech from entirely "dead" studios. But listening tests have indicated that most people prefer a moderately "live" acoustic with broadcast speech.

What is the ideal reverberation time for a studio?

Obviously, it depends on whether we are listening to speech or music. For any particular type of sound the ideal time (i.e. preferred in listening test) seems to vary with the size of the studio. Small studio: short reverberation time; large studio: long reverberation. It is possible to plot a line on a graph, and to

see that the best studios and concert halls seem to be those which don't depart too much from the line.

As with studios for speech, a studio which is too bright or too dead for its size can be apparently altered by the choice of microphone and its distance. For example, the Royal Festival Hall, which has very little reverberation, can have the sound improved by using an omnidirectional mike pretty high up. Of course, the Royal Albert Hall has quite different problems!

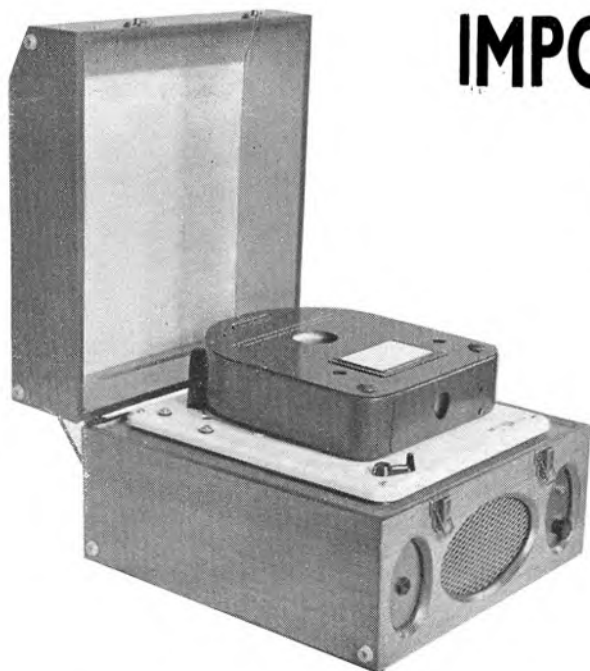
But to get back to "dead" acoustics, there is one case where the almost completely dead sound really is ideal: the occasions, in radio plays, when we wish to represent an out-of-doors acoustic. This is a common enough requirement, but very difficult to achieve indoors, in a studio.

In the open air—in a field, say—there may be no reflecting surfaces nearby at all. The nearest approximation in the studio uses the other extreme, a closely confined space. This has sound-absorbent walls; it's either a "tent" of absorbent screens or a "dead-room." This contrast to nature often confuses actors new to radio.

The theory here is that the reverberation can be kept to an absolute minimum

(Continued on page 30)

THE MOST IMPORTANT INVENTION SINCE BRAILLE



Tape recorders are becoming increasingly evident in all walks of life and none more so than in the world of the blind. Below are details of a new machine which has as its keynote the much needed facility for this type of work—simplicity. Also on these pages are examples of the methods adopted both in this country and abroad to expand the use of tape in the service of the blind.

AN entirely new type of British-made tape recorder has enabled the Royal National Institute for the Blind to announce a tremendous step forward in service to the blind.

Lord Frazer, chairman of St. Dunstan's, speaking at a London Press Conference to launch the recorder, called it "The most important invention since Braille that has come into the blind world."

Although it is a tape recorder, there are several major differences between it and the normal domestic model. It has been manufactured by Clarke and Smith Manufacturing Company Ltd., expressly for the use of blind people and its keynote is simplicity in operation.

Unlike anything that has gone before, the playing material is housed in a metal cassette which also contains the replay head. The spools are mounted one on top of the other and the tape is gradually fed down from the top spool to the bottom. The speed varies because a non-linear system, depending on how much tape there is on each spool, is employed, and the bottom spool actually pulls the tape downwards past the recording head.

The tape is half an inch wide and it has been possible to compress 18 separate tracks on to it, giving something like 20 hours-plus playing time. When one track is completed the blind person merely lifts the spool off *in toto*, re-locates it on the main recorder drive spindle, and presses a button within the cassette.

That basically is the system employed but more ingenuity is encountered on the

actual recording of tapes, which are devoted to books read by professional readers. For speed of operation 12 cassettes are recorded simultaneously, each at six times the playback speed. To avoid any overlaps from the tracks, which are only 0.015 in. wide with a space of 0.012 in. between them, the same recording head that will be used for the actual playback, is used. Thus the characteristics of the recording and playback are exactly maintained.

In the past, the blind have had to rely on the specially-cut LP disc for their "talking books." There are, obviously, many advantages in the new system. The tape recorder controls have been reduced to one on/off volume switch and one start/stop lever, combined with the simple button in the cassette for track changing. The necessity of placing a gramophone stylus on a record or the threading of tape on to spools and between heads, has been avoided.

The quality of the recording can be maintained indefinitely since possible damage to it has been almost eliminated. The weight of a loaded cassette, which measures $8\frac{1}{2} \times 10\frac{1}{2} \times 2$ in., is $6\frac{1}{2}$ lb., compared with the $9\frac{1}{2}$ lb. weight of an equivalent book or disc, and thus postage charges are reduced. The recording can, of course, be erased when no longer required and the tape re-used, and there will also be a reduction of the time-lag in getting tape "books" into the library.

In addition, two safety devices guard against accidental damage to the tape if the listener's attention is distracted when the end of the track is reached. First a high-pitched note recorded after the announcement brings into operation a circuit which automatically switches off the drive. Secondly, in the unlikely event of the circuit failing, a "slipping clutch" comes into play at the end of the spool, so preventing the tape from being pulled off.

Talking books on long-playing records have played an important role in the

lives of the blind in past years. One of the reasons for this is that about 60 per cent of blind people are afflicted in middle- or old-age and many of them find it particularly hard to read Braille. The membership of the library exceeds 6,500 and the circulation figure for the last financial year was well over 2,000,000 individual discs.

The two systems, disc and tape, must for some time be run in parallel but it is estimated the change-over will be completed in approximately five years. The tape recorder as it stands is the outcome of almost 25 years research and development by the R.N.I.B. and St. Dunstan's.

Issue of cassettes to blind people will be free of charge although tape recorders must be bought at a cost of about £20. Free servicing in the future will be given by members of the British Sound Recording Association and the Radio Society of Great Britain.

Speaking at the Press conference, Lord Frazer said the Institute were on the threshold of being able to make the service available to 10,000 or 20,000 blind people. Interest had been shown in the scheme in other countries and the Australians had ordered 1,500 machines and the New Zealanders 1,000. The Canadians had asked for models and the Americans had "asked to have a look." He added here with a smile that he was "confident we are ahead of the Americans" in this matter.

In order to test the recorders under proper working conditions, 100 machines had been lent out to blind persons, and they were now satisfied that the machines would work under the conditions for which they had been designed.

The eventual plan was to get books circulating at the rate of one a fortnight although they would have liked it to be one a week. Book titles would be selected from a comprehensive list, and not just from the "classics" or "who-dunnits" and although professional readers would be employed, they would be instructed not to "act the book." The author's writing should speak for itself and in the same way that sighted people would not wish to read passages of their novels printed in red, blind people might be distracted by over-dramatised readings.

THE MOST IMPORTANT INVENTION SINCE BRAILLE

Talking books provide fairy-tales or philosophy for the blind in Holland

THE use of tape for talking books has already made an immense difference to the blind in the Netherlands. Recording by this new method is extremely simple and a great deal cheaper, and any mistakes in reading can be readily corrected. Copies are easily made and tapes are less liable to transport damages than records.

The costs of making a tape recording are considerably lower than those of a gramophone record. Departments of social affairs gave permission to build the necessary reading studios, whilst sympathetic and benevolent people collected the money to buy tape recorders for the blind unable to afford one themselves.

Manufacturers were found prepared to supply tape recorders at reduced rates. All this made it possible for 25 per cent of the Dutch blind including children

and old people, to buy their own tape recorders within the first three years. Soon, it is hoped, every blind person will have his own tape recorder.

At present hundreds of talking books are being distributed throughout the country. The voices belong to a variety of people: authors, actors, a well-known flier, but also to housewives, businessmen, students or teachers. Contributing to the talking-book library has become their hobby, and they gladly assemble every week for the elocution lessons given by members of the staff of the Dutch Radio Broadcasting Union.

There is no difficulty in finding suitable people to read the books; on the contrary, people willing to do the job easily outnumber the available tapes.

Convalescent patients of the students' sanatorium "Hooglaan" have given part of their spare time to select the

texts or to read and record lectures, interesting magazine articles, or special books.

All these readers do so as a hobby and without charge, but they are carefully selected for reading technique and microphone-voice.

The library at Grave now has available about 85 regular readers, the majority of them teachers, who succeed in adding about 15 new books monthly to the library. Apart from novels, the library has books on every possible subject, from fairy tales to philosophy, from religious works to papers on racial discrimination.

Every day about 180 tapes are sent off to the large number of subscribers (the Dutch Post Office charges special cheap rates), packed in specially-designed boxes with six raised dots indicating that the box contains the first tape of a certain book. Two groups of six dots indicate the second tape, and so on.

An average of one tape in a hundred comes back damaged.

The 7,000-tapes library at Grave contains a total of 530 titles and has 550 regular listeners.

A spoken weekly magazine—*The Tape*—with 400 subscribers, is published at Grave. Not every library can afford a luxury of this kind, because the studio equipment for producing a magazine is far more elaborate than that needed to make a talking book. All subscribers of the weekly receive the same text, which means 400 copies every week.

It is true that the blind can keep themselves informed of what is happening in the world by listening to radio news bulletins, but they lack the contemplative element offered to the sighted by newspapers and magazines, weeklies and periodicals. Commentaries and art reviews, also are often beyond the scope of radio.

In 1958 the Dutch Under-Secretary of Education opened a modern recording studio for the Dutch Library for the Blind in The Hague. The same year the society known as "Friends of the Dutch Library for the Blind" was founded in Amsterdam. In co-operation with the Braille Department of the Municipal Library and the Protestant Library for the Blind of Amsterdam, and the Dutch Library for the Blind of The Hague, the society published the *General Spoken Weekly* to provide an exhaustive selection of weekly news. Here, too, talking books can be borrowed.

And talking newspapers are not without an audience

MAGAZINES in sound for the blind are, of course, already a strong feature in many parts of the country and recently extracts from a tape magazine run by the Jewish Blind Society were presented in Ilford's talking newspaper *What Goes on Here*.

Representatives from the Pacific Service of the B.B.C. were there to listen to the recording and interview members of the audience on what they think of the idea. Their comments are to be featured in a special programme, to be broadcast in Australia called "New Ideas from Britain."

What Goes on Here which is presented as a voluntary service to Ilford Blind Welfare Association has been so successful that it is to be developed into a national "sound magazine for the sightless" called *The Blind Bulletin*. It will be available to blind groups and individuals throughout the country.

At the meeting referred to, members heard producer-editor-commentator Walter Gillings interviewing Mr. S. Marcus, assistant secretary of the Jewish

Blind Society, telling how he produces *Tape Magazine* and introducing extracts from it.

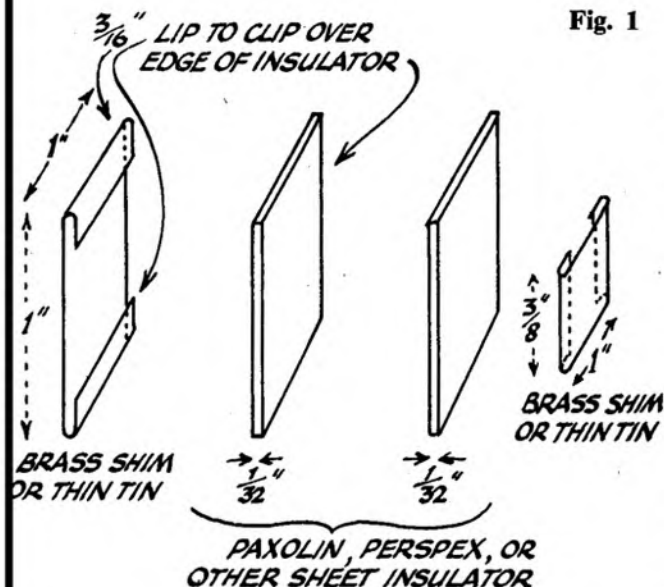
Tape Magazine which has been running about 18 months has a listening audience of nearly 1,000. It is presented to Jewish blind clubs in various parts of London, in three provincial centres, and at the Society's homes at Bournemouth and Dorking.

Mr. Marcus, who is also the Society's chief welfare officer, said it had been found that the recording had a definite therapeutic value in encouraging newly blinded people to overcome their handicap. "Though the idea was received, at first, with some scepticism, it has become very popular with everybody and each edition is looked forward to."

The recording features interviews with blind people who are successful at their jobs as well as with famous Jewish personalities and a woman's section gives household hints by blind housewives from their own experiences.

The extracts featured at Ilford includes interviews with Lady Karminsky, wife of the judge, and comedian Bernard Bresslaw. Lady Henriques, wife of the well-known magistrate, was also heard talking to the Blind Club which meets at 241, Mile End Road.

MODIFYING THE CLARION RECORDER FOR QUICK OPERATION



WHILE, in itself, the "Clarion" Transitapec recorder is a very useful instrument for recording out and about, it suffers from one or two slight drawbacks that can easily be overcome. The first of these is that the cover must be removed and placed in a safe place before commencing operations, and once the cover is off, the machine must not be held by its carrying strap, otherwise the reels are liable to fall off the spindles.

So one is compelled to hold the recorder balanced by the palm of the hand and the forearm. This is not a position which it is comfortable to hold for long. Usually, therefore, the machine is carried by its handle, with the cover on, and set up for action when required—an operation taking at least half a minute. That is quite long enough to ensure that all "local colour" has dried up before you can switch on.

The modification described ensures the minimum time delay in bringing the machine into operation, together with

Can a flat response increase your double-play?

ONCE I was an ordinary, harassed, happy, contented, overworked, nagging wife. My husband was a darling, lazy, lovable, untidy, appreciative man—not really mechanical, but he could change a tyre if he had to, sort out the children's toys when they wouldn't work and keep the fuses in order.

Sometimes we went out—mostly we stayed home. Life was a sweet, peaceful harmonious experience: a patchwork of small unrelated, everyday pleasures, blending into a nicely balanced whole.

Today only the hole remains—the great empty void which is all that is left of the life we knew before my rival was heard of, and even that void probably presents itself as a darn good echo chamber.

It started when he first made a spool of himself over this thing.

I could scarcely believe he was on the level, but it gradually became clear that we weren't going round together—he had found something much tweeter than I to take up his time and it would only have been a super imposition on my part to present interference.

I tried not to flutter, to appear as though all this impedance was normal. The night he handed me his feed back I said to myself, "Pause, control that urge to blow a fuse. Amplifying your feelings won't help."

Somehow I switched off. I stopped in my tracks, took up a newspaper and read the print through. It was badly edited.

Meanwhile my husband kept talking about a pick-up—a pick-up he wanted to tape. So let him, I thought, if that was how he felt. Perhaps I could get hold of Mike or Jack.

What magic I could work with an extension of the set-up.

Strange how sound affects you—as the hum of his voice went on I almost felt as if I could see the heads together; hear the volume as the cycles speeded up; feel the bias as the inn puts out the signal that the deck is clear.

There was nothing to gain by further disc-ussion. The new device was obviously a wow.

My husband goes out, puts a magazine under his arm and turns off the high road.

I pinch myself and look around. The room is empty, bare—but this is real life—this is no dream. He has erased the past to connect up with the future.

Next week we get stereo.

LILLIANNE BEARMAN

MODIFYING THE CLARION RECORDER FOR QUICK OPERATION

A do-it-yourself article describing an external switch which will ensure a minimum time delay in bringing the portable recorder into operation.

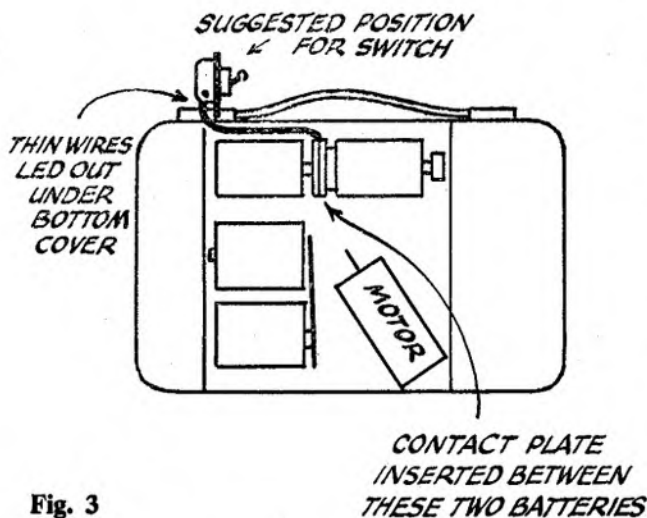


Fig. 3

an inconspicuous approach. Basically, the machine is set up to record and the supply voltage then cut off by an external switch. The cover is replaced, the reels being held on the spindles by a simple friction clip, and the machine carried by its strap, the microphone either in the other hand or clipped to the clothing.

This is all done immediately before a recording session is anticipated, the record level being set to an average setting for the job in hand. This can only be established by experience. As soon as the session is finished the controls are returned to their normal positions and the external switch closed.

During the session it is only necessary to flick the switch with the thumb and the machine is instantly recording until the switch is flicked off again.

The contact for the external switch merely consists of two pieces of brass or tin suitably insulated from each other and inserted between the contacts of two of the batteries, while the switch, a small single-pole ON/OFF type, is mounted on a tinplate bracket gripped under the front handle retainer.

The wire, PVC insulated and as thin as possible, comes out under the edge of the bottom cover, so no drilling or

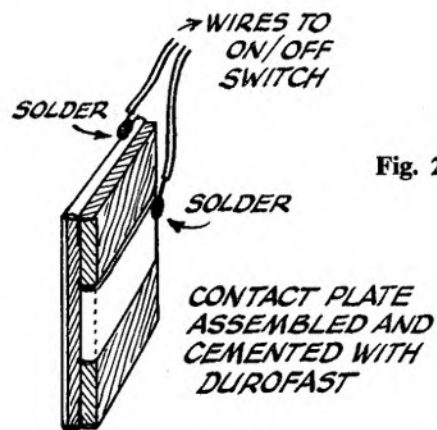


Fig. 2

structural alterations are required to adapt the "Clarion" to this system.

The tape reels are prevented from slipping off the spindles by a thin brass or tin clip which fits in two of the driving slots and grips the centre shaft of the spindle. This is not a solid locking but it does prevent the reels from slipping, even when the recorder is run in the inverted position.

Figures 1 and 2 show the way I constructed my own contact plate, but no doubt others will improvise with materials that are to hand.

Figure 3 indicates the way the contact plate is used and the position I have found most suitable for the switch; but, again, others may have different ideas.

The tape spool retaining clip, shown in Figure 4, must be individually tailored to suit each reel, as manufacturers vary in size and depth.

It is important that the wire to the switch be as thin as possible, so that no unnecessary strain is put on the flange of the plastic bottom of the recorder. The whole modification should only take about half an hour, while the machine may be returned to its original condition in less than two minutes, should it be desired.

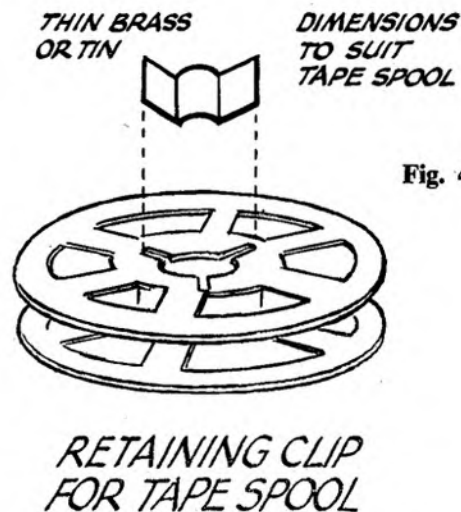


Fig. 4

RETAINING CLIP
FOR TAPE SPOOL

Sound Effects

By Alan Edward Beeby

SOME time ago, when we were discussing location effects, I mentioned Background Noises and I said that these were used to give an impression of a certain scene or location. Now I want to describe a different type of Background Noise: the type known as a "Scenic." A scenic differs from a background effect proper in that its function is to portray not merely an impression of the scene but more especially the *action* which is taking place there; so it is really two effects in one.

Where dialogue is to be included in a scenic effect, the scenic itself is faded down slightly, just before the speech begins, and then brought up to full strength again immediately afterwards. This, again, is different to the case of a normal background effect, where the level remains constant throughout.

A good example of a scenic effect is that of mutiny aboard an old-time sailing vessel. Let's list the effects needed for this item.

First of all, remember that mutinies mostly occurred while the ship was actually at sea, so you'll need a pretty strong wind effect, and also the sound of the water lashing at the ship's sides. A natural follow-up to this would be the creaking of the mast-timbers and the flapping of the huge sails. Finally would come the shouting and fighting of the crew, the clashing of swords, the explosions of the muskets, and the clattering burst of cannon-fire.

Composite effects such as this are best superimposed over each other in the required order of prominence and you'll find that the volume-loss usually encountered in each successive item can be evened out somewhat by recording each of the items at a slightly lower level than that of its predecessor.

Now to the effects themselves. **WIND:** Draw the breath *in*, with the forefinger pressed horizontally against the lips, allowing the air to enter at each side of the mouth. **WAVES:** "Drag" water from one end of a bath to the other, recording the sound at double speed. **CREAKING TIMBERS:** Rub two pieces of resined wood together. **FLAPPING SAILS:** A large handkerchief flapped in the face of the microphone and recorded at double speed. **SWORD FIGHTS:** A number of dinner forks struck together in pairs. **MUSKET FIRE:** A quick, tight-lipped "spit" across the face of the microphone. **CANNON FIRE:** Same as for musket fire but recorded at double speed.

* * *
An EARTHQUAKE effect is probably one of the most ill-represented of them all! Time after time I've heard

Perhaps you are one of those readers who has considered it too difficult or too troublesome to seek to create sound effects with your recorder?

If so, this article gives you a chance to "jump in at the shallow end" and to discover the interest and amusement quickly and easily.

Put your forefinger horizontally across your lips and draw in your breath, allowing the air to enter at each side of the mouth. If you listen carefully, you will realise that it might well be the sound of the winds playing over an ocean.

Now you are away. With some pieces of wood, a handkerchief and some dinner forks, you can record a realistic mutiny aboard an old-time sailing vessel. Go on, try it!

this item portrayed by a sudden welter of earth-shattering sound and ear-splitting screams. This is way off the mark.

The Earthquake effect is done in four parts. Start with a low, shuddering rumble, bring up the gain slowly, hold for a few seconds, then drop it back almost to zero. Make the sound itself by shaking two rubber balls around in a cardboard box and recording it at double speed or, if you are able to do so, recording at 15 ips and playing back at 3½ ips. Having recorded the first part of the 'quake (or "prelude," as it is known), follow on with one or two crockery smashes and mix in once more to the rumbling sound, louder this time.

Now bring in a sudden sliding, crashing sound, with a tearing metallic "ring" about it. This can be achieved by dropping a quantity of small stones on to the sloping lid of a cardboard box. The lid should be held about a foot above the table surface with a glass jam-jar (lying on its side) at the lower end of the slope. The sound-sequence thus is that the stones strike the lid of the box, slide down its surface and brush against the side of the jam-jar before coming to rest on the table top. Before the end of this portion of the effect, mix in shouting and screaming, but—important this—*only faintly*. Lastly, fade in the rumbling sound once more, hold for a second or two, then fade out.

Incidentally, a most uncanny yet convincing effect of brooding silence can be obtained between the individual sections of activity by recording *very faintly*, the sound of distant voices alone.

* * *

The effect of a BUILDING ON FIRE is another frequently used scenic. A good fire engine sound can be made by superimposing the ringing of an alarm clock's bell (played at half speed) over that of a fast moving lorry. Crowd noises should be brought in at fairly low level in the background and the sound of water-splashes introduced from time to time.

The sound of the fire itself can be presented in two ways, depending on whether the flames are supposed to be near the listener or some distance away. In the first case, the effect would consist of a low, roaring noise (a lighted gas-jet turned on full and recorded at double speed) and the crackling of the flames (a handful of old recording tape "rustled" close to the microphone). When heard from the distance the effect would consist of a more subdued

(Continued on page 30)

PLAYING TIMES OF MUSICAL PERFORMANCES

Adam

Giselle, 9 minutes; *Si j'étais Roi Overture*, 8 minutes.

Ansell

A Children's Suite, part 1, 11 minutes; *Part 2*, 17½ minutes.

Auber

Overtures: *The Black Domino*, 8 minutes; *The Bronze Horse*, 7½ minutes; *The Crown Diamonds*, 7 minutes; *Marco Spada*, 9 minutes; *Masaniello*, 8 minutes.

Bach

Tocatta and Fugue in C Minor, 9 minutes. *Passacaglia and Fugue in C Minor*, 16 minutes.

Bach-Gounod

Ave Maria, 5 minutes.

Balfe

The Bohemian Girl Overture, 8½ minutes.

Beethoven

Piano Concerto No. 4, 34 minutes. *Overtures*: *Fidelio*, 9 minutes. *Leonora No. 3*, 15 minutes. *Piano Sonatas*: *Pathétique*, 15 minutes. *Moonlight*, 12 minutes. *Appassionata*, 19 minutes.

Berlioz

Symphonie Fantastique, 51 minutes.

Brahms

Symphonies: No. 1, 43 minutes. No. 3, 34 minutes. *Violin Concerto*, 40 minutes. *Variations on St. Anthony Chorale*, 16 minutes.

Berlioz

Hungarian March, 5 minutes.

Bizet

Jeux d'Enfants Suite, 9 minutes. *L'Arlesienne Suite No. 1*, 14½ minutes; No. 2, 17 minutes. *Patrie Overture*, 12 minutes.

Boieldieu

Le Calife de Bagdad Overture, 7½ minutes.

Brahms

Hungarian Dances Nos. 1, 5 and 6, 9 minutes.

Britten

Matinees Musicales, 13 minutes. *Loirees Musicales*, 11 minutes.

Chopin

Polonaise, Op. 40, No. 1, 4½ minutes.

Coates

Miniature Suite, 13 minutes.

Coleridge-Taylor

Petite Suite de Concert, Op. 77, 14½ minutes. *Hiawatha, Suite from the Ballet music, Op. 82a*, 18 minutes.

Delius

Fantastic Dance, 4 minutes. *The Walk to the Paradise Garden*, 8 minutes.

Dvorak

Slavonic Dance No. 8, 4 minutes.

Elgar

Pomp and Circumstance Marches Nos. 1, 2, 4 and 5, 5 minutes each.

Glinka

Russlan and Ludmilla Overture, 6 minutes.

Gounod

Ballet music from Faust, 16 minutes.

Grieg

Norwegian Dances Nos. 1—4, total 16 minutes. *Peer Gynt Suite No. 1*, 12 minutes; No. 2, 15 minutes.

Handel

Largo from Xerxes, 5 minutes. *Minuet from Berenice*, 4 minutes. *Occasional Overture*, 9 minutes.

Haydn

Symphonies: No. 45, 30 minutes. No. 85, 25 minutes. No. 92, 27 minutes. No. 94, 20 minutes. No. 97, 30 minutes. No. 100, 25 minutes. No. 101, 25 minutes. No. 104, 38 minutes. *Trumpet Concerto*, 14 minutes.

CONTINUING the lists of playing times of well-known pieces of music, we remind readers that these times may vary quite considerably according to the performance and the conductor.

These times are supplied by readers, and where conflicting times have been given for the same item we have quoted the longest. Even so, it is advisable to add a reserve of tape of two or three minutes.

Herold

Zampa Overture, 10 minutes.

Holst

"The Planets" Suite, 47 minutes.

Keler Bela

French Comedy Overture, 8 minutes. *Lustspiel Overture*, 5 minutes. *Rakaczky Overture*, 10 minutes.

Khachaturian

Waltz and Gallop from Masquerade, 3 and 2½ minutes. *Leyghinka, Lullaby, Flower Girl Dance, Gopak, and Sabre Dance, from Gayaneh*, 3, 4½, 3½, 3 and 2½ minutes respectively.

Liszt

Hungarian Rhapsody No. 2, 12 minutes. No. 6, 6 minutes. No. 14, 12 minutes. *Liebestraum*, 4½ minutes. *Les Preludes*, 15 minutes.

Mendelssohn

A Midsummer Night's Dream Fantasia, 16½ minutes; *Overtures*: *Midsummer Night's Dream*, 10 minutes. *Athalie*, 8 minutes. *Fair Melusine*, 10 minutes. *Lon and Stranger*, 6 minutes.

Symphony No. 4, 26 minutes. *Overtures*: *The Hebrides*, 9 minutes. *Ruy Blas*, 7 minutes.

Meyerbeer

Les Patineurs Ballet Suite, 12 minutes.

Mozart

Concerto for Oboe and Orchestra, K314a, 19 minutes. *Overtures*: *Così fan Tutte*, 5 minutes. *Don Giovanni*, 6 minutes. *Idomeneo*, 5½ minutes. *Impresario*, 3½ minutes. *Lucio Lilbra*, 10 minutes. *The Magic Flute*, 8 minutes. *Il Seraglio*, 8 minutes. *Il re Pastore*, 4 minutes. *Titus*, 5 minutes. *Symphonies*: No. 29, 18 minutes. No. 38, 27 minutes. No. 38, 27 minutes. No. 39, 28 minutes. No. 40, 25 minutes. No. 41, 28 minutes. *Piano Concerto No. 23*, 25 minutes.

Nicolai

Overture, The Merry Wives of Windsor, 9 minutes.

Offenbach

Overture Orpheus in the Underworld, 10 minutes.

Paganini

Violin Concerto No. 1, 29 minutes; No. 2, 28 minutes.

Ponchielli

Dance of the Hours from La Gioconda, 11 minutes.

Rachmaninov

Piano Concerto No. 2, 32 minutes.

Rimsky-Korsakov

Symphonic Suite "Scheherazade," 42 minutes.

Saint-Saens

Symphony No. 3, 34 minutes.

Schubert

Overture, Alfonso und Estrella, 6½ minutes. *Ave Maria*, 7 minutes. *Rosamunde Ballet Music, Nos. 1 and 2*, 13½ minutes. *Rosamunde Overture*, 11 minutes. *Two Entr'actes from Rosamunde*, 14 minutes.

Symphony No. 8, 48 minutes.

Schumann

Piano Concerto, 30 minutes.

Sibelius

Tone Poem "Finlandia," 8 minutes. *Suite "Karelia,"* 14 minutes.

Smetana

Overture, The Bartered Bride, 7 minutes; *Suite from the same opera*, 16 minutes. *Vltava Symphonic Poem*, 16 minutes.

Suppe

Overtures: *Light Cavalry*, 7 minutes. *Morning, Noon and Night*, 8 minutes. *Pique Dame*, 7 minutes. *Poet and Peasant*, 10 minutes. *The Wanderer's Goal*, 7½ minutes. *Tantalus-Qualen*, 8 minutes.

Tchaikovsky

Capriccio Italien, 16 minutes. *Casse-Noisette, Part 1*, 10½ minutes (*Overture*, 4 minutes; *Arabian Dance*, 3 minutes; *Danse de la Fee Dragee*, 2 minutes; *Russian Dance*, 1½ minutes). *Casse-Noisette, Part 2*, 15½ minutes (*Marche*, 3½ minutes; *Chinese Dance*, 1½ minutes; *Flower Waltz*, 8 minutes; *Dance des Mirlitons*, 2½ minutes). *Swan Lake, Suite from the Ballet*, 22 minutes (*Scene and Waltz*, 8½ minutes; *Dance of the Swans*, 2 minutes; *Scene*, 5 minutes; *Hungarian Dance*, 2½ minutes; *Scene*, 4 minutes). *Symphonies*: No. 2, 31 minutes. No. 4, 44 minutes. *1812 Overture*, 17 minutes.

Thomas

Overtures: *Mignon*, 6 minutes. *Raymond*, 7 minutes.

Wagner

Overtures: *Tannhauser*, 14 minutes. *Tristan und Isolde*, 21 minutes. *Siegfried Idyll*, 17 minutes.

Weber

Overtures: *Euryanthe*, 8 minutes. *Der Freischutz*, 10 minutes. *Oberon*, 9 minutes. *Peter Scholl*, 8½ minutes. *Invitation to the Dance*, 10 minutes.

New Products

TWO NEW BRITISH RECORDERS



**Portable
for
29 gns**

**Four-track
at 55 gns**

CASIAN LTD. have introduced a battery portable, the Trav-ler, costing 29 gns. Measuring 10 x 8 x 5 ins, the Trav-ler weighs 9 lb. It has a single speed of $3\frac{3}{4}$ ips and a quoted frequency response of 150-5,000 cps, plus or minus 3 dB. Wow and flutter are given as better than .4 RMS using the G.B. Kalee Meter, and the signal-to-noise ratio as 30 dB.

The power is provided by three Vidormax T6009 or their equivalent. The price of the batteries is an extra. Battery life is rated at 50 hours.

Mullard transistors are used as follows: OC78 (three), OC71 (two) and

OA81 (one). The output is 400 milliwatts through a high flux 7 x 4 in. elliptical speaker.

Using a 3 in. spool of double play tape, the recorder gives 44 minutes playing time. Rewind time for this amount of tape is $2\frac{1}{2}$ minutes. A pause control is fitted as well as the normal controls and a loudspeaker switch allows the operator to monitor while recording. The microphone supplied is a Lustraphone L. D66.

A waterproof canvas carrying case in navy blue or wine with zip fastener and white piping costs £2 2s. 6d., with an optional shoulder strap at 3s. 6d. A mains converter unit costs £3 15s.

Casian Ltd., 37, Grafton House, Golden Square, London, W.1.

CLAIMED to be the first all-British four-track machine, C.Q. Audio Ltd. announce their new C.Q. Conquest. Costing 55 gns, the Conquest uses a Collaro Studio deck specially adapted for four-track use.

Two inputs for radio and high impedance microphone are provided by means of standard jack sockets, the two inputs are capable of simultaneous use.

Independent bass and treble controls give plus 6 dB and minus 10 dB at 50 and 12,000 cps, and the frequency response is given as 40-16,000 cps plus or minus 2 dB at the fastest speed on the deck, $7\frac{1}{2}$ ips. Signal-to-noise ratio is quoted at 45 dB at $7\frac{1}{2}$ ips.

Grundig announce new Stenorette

A NEW version of the Stenorette dictating machine—the Stenorette “M”—is just announced by Grundig (Great Britain) Limited. Similar in appearance to the Stenorette “T” the new machine incorporates a number of improvements.

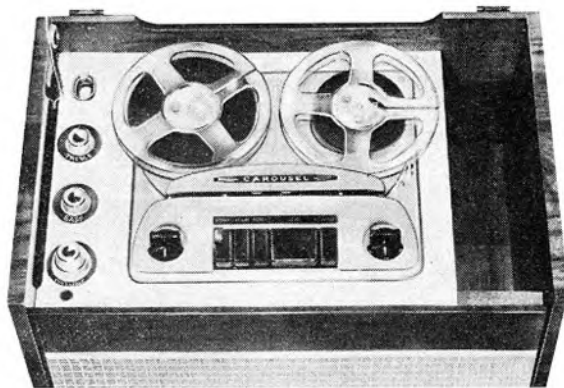
The G.D.M. 515 microphone has a special recording button in addition to the stop/start and backspace button to prevent accidental erasure when ear-phones are used.

Backspace facilities are flexible so that the dictator is able to backspace as little or as often as he wishes without fear of

partial erasure. A telephone selector button on the new style keyboard allows a telephone adaptor to be permanently fitted and telephone conversations can be recorded by simply pressing the button.

Apart from the microphone and S.E.4 earclip, which have new type plugs to prevent damage to connecting leads, all accessories are interchangeable with those of the Stenorette “T.” The price, including basic accessories is still $61\frac{1}{2}$ guineas.

Grundig (Great Britain) Ltd., Newlands Park, Sydenham, London, S.E.26.



Left: The Carousel Radiotape, described in our May 18 issue, with a Collaro Studio deck, $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$ ips, and a host of other facilities. The recorder is housed in a veneered walnut cabinet standing on 18 in. legs, and retails at 39 guineas

Separate gain controls are provided for recording and replaying, to allow monitoring. A three-position record/replay switch includes a straight-through amplifier position. Other facilities include superimposition, and external speaker and high fidelity outlets. Track change is accomplished by a three-position control giving record and replay on tracks one and four or two and three or stereo replay.

C.Q. Audio Ltd., No. 3 Factory, Bush Fair, Tye Green, Harlow, Essex.

THE WORLD OF TAPE

COSMOCORD Ltd, of Waltham Cross recently opened their new tape recording studio and Johnny Carson, the young Fontana artiste, was the first recording star to try it out.

In view of the greatly increased popularity of the "record-it-yourself" programme Cosmocord installed this studio to study recording techniques in a domestic environment. Studio equipment in use besides the Acos recording installation, is the kind of equipment an amateur is likely to have in his home, and the studio is being used to explore the kind of recording techniques available to the amateur in informal recording sessions.



Johnny Carson and his group—The Carsonaires—made a number of experi-

mental recordings, using Acos monophonic and ACOStereo microphones, and the programme included some of Johnny Carson's Fontana hits.

For . . .

THE major share of the equipment supplied for recording, replay and monitoring for the new £1,000,000 Associated Rediffusion Studio 5 at Wembley was supplied by EMI. All equipment was built to Associated Rediffusion's specification and made up in special cabinets. The basic recording unit was the EMI TR90 of which 11 were supplied.

. . . against

TAPE recorders were the subject of a controversy at a debate of the Ayrshire Education Committee. The recommendation before the committee was that no contribution should be made towards the cost of a tape recorder for Prestwick Primary School. Mrs. Helen A. F. Nisbet, defended their use by citing them as a means for teaching poetry and as an aid to the improvement of speech among children. "It is as well," she said,

Hi-Fi HARRY by Rich



"I can see what this holiday's going to be . . . all you know about the hotel is that it has AC and DC plugs in every room."

"that we should hear ourselves as others hear us."

The Rev. J. C. Glennie supported this view, having found them useful in teaching singing and pronunciation. Despite these statements, however, the motion was carried by a large majority.

Amateurs! Let's have some ideas

WHAT are the amateur back-room boys of stereo doing? Owners of stereo tape recorders up and down the country are putting in a lot of recording hours and finding out a great deal about stereo one way and another, but they are being a little too modest about their activities.

Perhaps the big achievement of the recording companies induce a feeling that they are trailing along behind. If so they are quite mistaken. As we have found in the case of monophonic recording, the professionals never get the time to start on half of the things that the amateur can experiment with to his heart's content.

Remember, other people are interested in your efforts, even if you fail to bring off the things you set out to do. At the very least, your ideas will stimulate others. In any case, someone else may be tempted to attempt the more difficult jobs, just for the hell of it, and possibly find an answer.

It would be a good thing if all stereo tape recorder owners would adopt the attitude of scientific workers and report on their activities from time to time.

You may, for example, be planning

Stereo Notes

By D. W. Gardner

a holiday in Austria and thinking of trying to make some recordings of yodeling or national dancing. A brief note of the fact, and any ideas you have on the way of setting about it, could be sent to this column and other readers might be able to offer suggestions or comments.

One might be reminded of a ski-lift trip in 1950, with church bells ringing on two sides, and could pass on details in case they should come in useful.

A third reader might be stimulated by the second to try recording "answering" church bells in a meadow between two villages near his home.

A fourth, bound for a holiday in Italy, might be led to think of recording a gondola trip during a festival in Venice.

Later, reports of what proved successful and what turned out to be disappointing would add to the general picture of the possibilities inherent in amateur stereo recording.

One tip for readers who feel that it is not much good trying to record in stereo with the more expensive microphone: don't hesitate! The cheaper microphones have a useful range, and if you experiment with their placing, both indoors and out you will find that very good effects can be obtained.

Always bear in mind the tremendous

asset that you have in the unlimited "expendability" of tape. You can experiment for days without wasting an inch of it or using any other material except a modicum of electrical power.

Go to it stereo recordists, and write to this column about everything—your plans, your near-misses and your successes.

MY views on technicians were horribly misrepresented by Mr. Archer in his letter in the issue dated July 13th.

By reading a comma that was never there, and missing the general trend of my argument, he conjured up the sordid notion that I believed that all technicians ignore musical content.

All I said, in fact ("Stereo Notes," June 15th), was that we should exclude from our hypothetical survey of changing taste "technicians (*no comma*) who spend most of their time listening for specific features regardless of musical effect."

There are some technicians whose work is quite legitimately too specialised in just the way I indicated to contribute useful evidence of general reaction. Noting this small point is very far from the sweeping condemnation that Mr. Archer tried to pin on me.

I naturally acknowledge the tremendous contribution to music made by audio technicians as a whole, and I hope that none of my technician friends will have been misled by Mr. Archer into suspecting otherwise.

DO WE NEED A CLUB TO PROTECT THE CUSTOMERS?

Letters to the Editor

WHEN is a club going to be formed to protect the interests of the recorder-owner? That such a club or organisation is necessary is proved by the experiences of some of our members. As there is much interest in stereo now, perhaps greater detail is called for.

Let us take member "A", a stereo-enthusiast. He purchased a 4-track machine, priced at about £100. He exchanged really good monaural equipment as part of the deal, and this is what happened. The new machine was delivered, but on using, it produced very poor results. A dealer was called to examine his amplifier, pick-up, etc. Fault traced back to recorder. Member played hell, and got another machine of the same type—which blew its transformer within 24 hours! Member by now ready to hit roof. Dealer supplies another (still same make) and this plays stereo beautifully. Won't record it happily, though. Member contacts dealer and manufacturer. Dealer won't return money or the original equipment. Manufacturer displays indifference, and refuses to take the matter seriously. Member helpless—six months in time, about £100 in cash. Net result: two fairly reasonable tapes.

Let's try member "B". He already has Tandberg, and the stereo bug. Also buys same machine as member "A", but from a different dealer. Machine ar-

rives; not a sausage from the left channel. Calls dealer, who delivers another machine, which has faulty speakers.

We can also quote other members' experiences with this so-called "stereo" machine. All that we can do, as a club, is to boycott this make of equipment, and ask for support from fellow-enthusiasts. This does not, however, help our members who have lost good cash and also equipment.

Come on, clubmen, what about it? Such an organisation isn't difficult to

form. I'll gladly do the secretary's job, and even foot the bill from my own pocket. With such a group in existence, these indifferent dealers, manufacturers, etc., could be made to listen.

If any other clubs would give us support in our present action, we would be only too pleased to give the full details.

D. WISEMAN

Secretary,
Acton Tape-Recording Club,
London, W.3.

TAPE SPEEDS—the importance of 15 ips

READER Ken Richman wants to know what is the use of testing a recorder's tape speeds. The answer is that it is only of real value for cine synchronisation, where a film with tape may be sent away for showing elsewhere—for competition, etc. Assume that the recording at a precise 7½ ips should be 15 minutes (900 sec.), then if the second machine is a mere 2 per cent slow the tape will overrun the film by 18 seconds; even one-quarter of this would be hopeless for good sync.

Once the recorder is known to be precise it is easy with a tape-moved strobe to set the electrical control of a fixed speed projection to a precise 16 frames a second; and this can be tested later by running the film through a footage counter to check on one foot every 2½ seconds. The measurement of 16mm film is easy with such a counter, and I note Mr. Desmond Roe has designed his new Cinecorder with a seconds measurement instead of meaningless "units" on the deck. Otherwise, tape measurement is difficult.

Another point is that if one is using two or more machines for cine work it is often essential to have them all running the same speed. On some machines the speed can be varied within narrow limits by certain methods.

I can also imagine that for hi-fi musical use the speed of a machine ought to be standardised.

STANLEY JEPSON

Jersey, C.I.

I FEEL I must write to correct Mr. Ken Richman's letter in your July 13 issue. In fact, the B.B.C. are using 15 ips for all master recordings and copies, and 7½ ips are only used for

sound effects and on-the-spot interviewing, where quality is not essential.

It may be of interest that all my own masters are done on 15 and I understand that EMI consider it necessary to record on 30 ips for their classical recordings, to obtain sufficient signal-to-noise ratio and to ease editing problems. No professional recording studio would ever consider making a master on 7½ unless there was a special purpose for recording at this speed.

With reference to the speed of recorders, if your correspondent's deck is a non-synchronous, then a speed other than 7½ ips is not surprising. If, however, the deck is fitted with a synchronous motor and is not running properly at 7½ ips, there is most definitely a fault on this deck and, in my opinion, it should be returned to the manufacturers.

ANGUS A. MCKENZIE

Olympic Sound Studios,
London, W.1.

WHAT is all this argument about tape speeds? Surely it is a question of what the machine is used for, and, I must admit, certain of your correspondents make me wonder just what they do use their machines for.

Your correspondent, Mr. Richman, should be reminded that the B.B.C. use 15 ips for most purposes, and not just to spend more licence money on tape. Many master tapes are recorded at 30 ips.

Perhaps I might learn of a cure for an occasional nightmare in which I am faced with the task of editing the master tapes of *Das Rheingold* recorder at 1½ ips. Come to think of it, it would sound a bit odd even before I started on it, and it wouldn't be Wagner's fault.

London, S.W.15. D. C. COMPER

Oh, those special offers!

TOTTENHAM Court Road possesses at least its fair share of shops dealing in tape recorders and associated equipment, and many of these are, as I know from experience, highly reputable.

There are others, however, about whose integrity I must reserve judgment. I noticed this week in one dealer's window the following: "Special Offer—Brand 'X' Tape Recorder. Normal Price 120 guineas—our price 79 guineas."

Knowing my advertisements as well as I do, from frequent perusals of *Tape Recording Fortnightly*, I sensed an inaccuracy and, sure enough, a check revealed that the "normal price" of this machine is, in fact, only 79 guineas, and not the fanciful figure quoted.

I suspect this notice has been in the window a long time—I hope it remains there very much longer, for such an obviously misleading sales approach deserves no success and reflects little credit on its originator.

F. WESTCOTT

Ashford, Middlesex.

Have you an idea, a complaint, or a bouquet to hand out? Write to us about it. Letters not for publication should be clearly marked.

Why not a national sound magazine on tape?

THE POETRY OF TAPE

MY brother and I have "tape-written" for several years, since he lives in Scotland, and our meetings are rather rare. We are both busy parsons and find this method of keeping in touch very convenient, since, for one thing, we can discuss our problems at much greater length than would be possible by letter.

Unfortunately, owing to pressure of work, the gaps between tapes sometimes get rather long, and the poem below was sent to me after I had been guilty of a particularly lengthy silence.

The receipt of it makes me wonder how much "poetry" the tape recorder has inspired. Perhaps in 1984 someone will publish an anthology of "Poems of the Tape Recorder." You might like to keep this one on your files for such an eventuality!

R. I. P.

(To a long expected but unrivied tape recording)

*Brittle, tenuous, but living thread,
Entwining sounds of voices far apart,
Bearing them silent in firm but gentle grasp,*

Yielding your message to the pressing head:

*Where are you lying—boxed, neglected,
unmagnetic, dead?*

Shall you once more be cradle to our voices,

Your measured movement giving substance to the thought

*That passes in electronic variations
From family to family, in busy living caught?*

With mesmeric revolutions hypnotise once more,

Delight us with off-pitch attenuated sound,

Let your metallic and synthetic convolutions

Round our common work and way be wound?

BRIAN H. BUTLER (Rev.)

Leyton, E.10.

THANKS

I WISH to record my thanks for a very fine publication on recording. I have found it very useful and helpful, as I am a new recorder fan.

W. HALL

Woodford Green, Essex.

IN your issue of July 13 ("We take the view"), I was most interested in your comments on the possibility of a national sound magazine on tape.

The Jersey Tape Recording Club, from its foundation in January 1958, did not consider the tape recorder a novelty, or simply a form of amusement, but a tool for the production of sound entertainment, i.e., plays, comedy series, and items of a general nature. We had in mind the production of a sound magazine for playback on our club nights, but mainly for distribution to people outside the club.

So, in February 1958, the first edition of our "Audiomag" was produced; it was such a success with club members that today it has reached its fifty-fourth edition.

Soon after, a special edition of the magazine was sent to Mr. Charles Standen, of London, for distribution among his blind circle; this was also a great success, and these editions are still being produced. With the object of getting a wider distribution, this year we started a small tape circle, and each month a sound magazine is sent to each member. Recently we have started sending a sound magazine to Mr. Maurice Chambers, of Birmingham, for his "Tape Programmes for the Blind."

The material used in these programmes has been original: plays written by members, short stories, and accounts of members' travels, etc. All these magazines have, we are pleased to say, been enjoyed by all who have received them.

So now for my suggestion. Could not some body be set up to produce a national tape magazine for distribution among owners of tape recorders, who would pay an annual fee. Advertising, as mentioned in your magazine, would also play its part in meeting the cost. I realise the amount of work this would entail, but, if it were possible, recorded programmes could take their place in the world of entertainment.

It would also provide a link between owners of tape recorders, and encourage others to take part in using the recorder as a means of creative art. At the same time, it would prove that the recorder is not just a novelty, or "for amusement only."

I suggest that the source of supply could well be the clubs themselves. There are eighty or so, with an average of twenty members each. These members are experienced in the use of the recorder, and their recording should be of a good sound standard. Members of the clubs could set about the writing and production of plays. We ourselves have done this for almost three years, with a small club of, on average, six members.

The items produced by the clubs would be sent to the producers of the magazine, whose job would be to sort out the material received and to edit it into a balanced programme.

My club has a large library of recorded material, and we would be the first to help in making this available, and helping in any other way possible.

GRAEME A. AHIER

President,
Jersey Tape Recording Club.

A MESSAGE FROM NEW ZEALAND

I FEEL I must write to compliment you on *Tape Recording Magazine*. After borrowing several of last year's copies I arranged to have it sent to me regularly from the beginning of this year. Even in that short time I have noticed improvements from good to excellent—keep it up.

My copy now does the rounds of a dozen local enthusiasts and will, no doubt, encourage many to seek their own copy. The balance of contents—advertising, technical, stories—is just about right, but, oh, those prices!

Sets made in the U.K. sell at a figure more than double the U.K. price, and servicing is always a problem, mainly due to import controls.

So far I have not even seen a stereo recorder, although stereo radiograms are common. Likewise, I have not seen a portable and cannot find a suitable converter.

How I wish I could have attended the Audio Fair. Alas, I am dependent on your descriptions.

NIGEL McCRIMMON

New Zealand.

Not even a by-your-leave

I HAVE just returned from a village in Cornwall which possesses a wonderful male voice choir, and I was amazed to hear from one of its members that people unknown to them have taken to bringing their tape recorders to concerts and taking them down without so much as asking permission beforehand.

To crown all, somebody came to a concert (with professional soloists on the programme) with a van and proceeded to unload elaborate equipment, set it up and recorded the whole proceedings!

The choir members have decided it's high time they took a firm line, and I heartily agree. I believed that all recording enthusiasts, like myself, knew that at the very least one should ask.

(Mrs.) N. JARMAN

Brough, Yorkshire.



Ribbon microphone in use. There's just room for four at the table—and nobody gets too close. The microphones are S.T.C. 4038s

The studio and its acoustics

(Continued from page 19)

by short paths with frequent reflections and heavy absorption. The snag is that unless the absorbers are very thick—several feet, say—there is a sort of hang-over in the bass; we get an unpleasant woolly effect.

Really heavily padded dead-rooms are not used for drama broadcasting in this country; but the Germans, who are traditionally meticulous, have tried the idea. They found that actors loathe working in them to such an extent that it is arranged to feed a continuous tone into the rooms by loudspeaker in order to reduce the feeling of isolation and claustrophobia. This tone then has to be filtered from the studio output.

Over here we make do with half measures. At any rate, the tent of screens provides a *different* acoustic from that of a living room. But other solutions are possible. For example, to represent a man

describing his feelings, while suspended from a helicopter, I placed an apple-and-biscuit (a robust omnidirectional moving-coil microphone) in the angle of a padded armchair. The actor got as close as he could and shouted and shouted his head off. Result: vastly more realistic than the same man actually suspended from a helicopter with throat-mike and portable recorder!

This was a rather unorthodox technique, but one which many amateurs could use.

To complete the recording, effects—the helicopter—were mixed in, and the composite sound controlled and monitored at the "panel" in the control cubicle next door to the studio.

The facilities available in this second room will be the subject of the next article in this series.

GRAEME EDWARDS, an Australian journalist who has been blind since infancy, determined some time ago to visit Great Britain alone for an indefinite period. He arrived in London early this year, since when he has been sending back tape recorded items and feature articles for broadcasting and newspaper publication in Melbourne.

In the BBC Home Service on the evening of August 16, he will tell what living without sight means to him, illustrating his points with specially made recordings. This is a thoroughly personal impression of a widespread disability—one man's feelings about the fears, consolations and resentments—with some account of his own solutions to the many problems which face him.

He has been reporting for the *Melbourne Herald* for ten years. Whilst in London he has explored—sometimes unaccompanied—the sort of places which attract any visitor, taking down his impressions in Braille shorthand and on a tape recorder. He edits the recorded material himself and dubs it on to another tape recorder for despatch to Melbourne in the form of complete magazine items. Such subjects as Petticoat Lane, Goodwood, street music, and fashions have been covered.

Sound effects

(Continued from page 24)

roar, the sound of the pump-engine (the microphone held in *direct contact* with a running vacuum-cleaner and recorded at double speed), water-splashes, and a more pronounced crowd noise.

* * *

A HORSE RACE MEETING can be imitated in the following way: First, fade up the general crowd noise, hold for a few seconds, then bring in the voices of the bookies calling the odds. As the runners line up for the start, fade down the crowd noise slightly, hold until the gate bell sounds, then bring up suddenly, almost to maximum level.

The sound of, say, two dozen horses thundering along calls for a departure from the normal method of using a

coconut shell. Instead, obtain a cardboard box, approximately a foot square, and place inside a small rubber ball. Make the sound of the hooves by sending the ball round and round the inside of the box with a fast, circular motion. About half a dozen of these items superimposed over each other is quite sufficient to give a good impression of a large number of horses galloping together over a turf surface.

Here, the continuous tape loop may be used on a second recorder, the sound of the approaching hoof-beats being faded up in careful synchronisation with the mounting excitement of the crowd as the race draws to its climax.

These are just four of the many scenic effects used in sound effect work. If you have a particular problem in this field, or, indeed, on any item of sound effect composition, don't forget that we're here to help you.

News from the Clubs

Edited by
FRED CHANDLER

ALTHOUGH the amount of activities a club goes in for depends probably on the number of members and their enthusiasm, the activities themselves will not differ much whether the club is located in Wick or Winchester. Members speak about and play back their experiences, technical lectures are heard and charitable services are discussed and arranged.

There is one type of club where proceedings are of a different nature, or at least, of a more specialised type. This is the tape organ club.

Articles about the **Organ Music Enthusiasts** have appeared in this magazine before and in the *American Tape Recording* magazine. The result has been increased interest in the club and many new members have joined. The club librarian, George Bancroft, of High Elm, Haworth, Keighley, Yorks, will shortly be distributing the "special organ programmes" made by members and available for the first time in this country. Members wishing to have this material should contact George for further details.

A number of members also belong to the Theatre Organ Club and they have been allowed to make recordings at private recitals in cinemas. These never fail to create interest if they feature full demonstrations of various theatre pipe organs. The procedure is for the organist to go right through the organ, showing the pipe ranks and effects, together with a spoken commentary explaining the proceedings, given by the organist or an officer of the club.

Club member Stanley Whittington has recently fallen in love with a new Hammond Extravoice organ. Having tried one recently and recorded his own playing on it, he intends to buy one himself. Stan is well known in the Midlands as a cinema organist and has thrilled many members of the organ club with his handling of the Mighty Wurlitzer organs.

An American member reports the installation of his own cinema organ in his home. A four manual instrument, it is established in three chambers in the basement and to obtain height for the 16-foot pipes, the floor of one room above the basement has been removed.

The organ, which is larger by far than many British cinema organs, will soon be providing recordings for the many tape friends of the owner, Robert C. Jones, of Edmonds, Washington.

Lists of all members and their equipment are circulated by the tape club and any person interested in organ music is welcome to join. The membership secretary is Don Knights, 39, Warren Road, Whitton, Twickenham, Middlesex.

Following the article which appeared in our July 27 issue on tape recording in Australia comes news from the Australian section of the **World Tape Pals**.

August 12, 1960, marks the first birthday of the section as it is now constituted. Many advances have been made and these include the institution of round robin and slide/film shows. Countries covered in this scheme include Canada, USA, Sweden, Germany, South Africa, the United Kingdom and many others.

A monthly *Tape News* is published and radio programmes are being extended. The latter consume a great deal of material and any recordist having taped contacts which they believe would be of interest to others, is invited to write to Nevill Pellitt, P.O. Box 205, Shepparton, Victoria, Australia.

Among tapes produced is one entitled "Education in the outback," which shows how children "attend" school over a distance of 500 miles. The section has active members in every state in the Commonwealth. Perhaps somebody can help out member Max Hull who wants to know where he can obtain a parabola for recording.

The first part of the evening of the last **Coventry** club meeting was devoted to another session by Henry Hopfinger who described recordings of civic events and illustrated his talks with blackboard and recordings. The two most recent functions were the opening of the Herbert Art Gallery and the Freeman Court.

After the raffle, in which both tapes were won by Frank Gibson, a demonstration of the new Walter 404 mains/battery machine was given by Mr. J. F. Parrington of Walter Instruments Ltd. This included the handing round of a head of Walter manufacture, for inspection by the audience.

The next meeting will be on July 21 at Rotherham's Social Club and among the items on the agenda is a tape provided by Peter Warden of an interview with the two sergeants who walked across America.

Celebrity recording has formed part of the activities of the **West Herts** society in recent weeks. John Grainger recorded the fête at Rickmansworth which was opened by Mr. Stanley Unwin. After

the opening ceremony Mr. Unwin allowed John to interview him and this tape was heard by members at Watford on June 29.

Also at this meeting the recorded voice of Peter Sellers was heard when he opened the Croxley Green Fête. Dennis Millard, accompanied by his Telefunken, was unable to get a personal interview, although the opening ceremony provided some interesting and amusing comments such as: "You see, I'm not really like I appear in my latest film (adding the name at this point) although I have scared a few of the old ladies away from Chipperfield" (where he has recently moved).

At Hemel Hempstead on July 13, Peter Walmsley gave a short demonstration of his Philips recorder. Later, sound effects were created for any amateur theatrical group which may require help in producing difficult sounds. A large list had been drawn up, but time prevented its completion. A few were tried but only "thunder" passed the test.

The programmes for the local blind clubs continue to be produced by three members on the Watford side of the district. Recently they visited the opening of the subscriber trunk dial system and now have recordings of machinery operating for calls as far afield as Scotland and the West of England, including very good descriptions of the mechanism given by the engineers in charge.

The **Ipswich** club is pleased to announce that two new members have been enrolled and all members have been busy at recording sessions. Malcolm Wilding, secretary, gave a talk on the Federation's annual congress which he attended in London. Contrasting musical recordings have been made by two members. John Glover made a recording of the Bury St. Edmunds Bach Choir in the Bury St. Edmunds Cathedral, while the president, John Cooper, recorded a "trad. jazz" group in Norwich.

Members' unusual recordings were demonstrated at the July 19 meeting of the **Ilford** society. Jimmy Hunter had been active on the Norfolk Broads with his Fi-Cord and the resulting tape was played. The passage of a speedboat and a 4 a.m. recording of the birds' "morning chorus" demonstrated the versatility of this machine.

Dave Bolton played what is considered to be the most dramatic recording of all time, the Hindenburg airship disaster of the 'thirties. Members re-lived the event as American commentator Herb Morrison attempted to describe the breaking up of the giant liner over New Jersey. Dave then presented sounds of the Woolwich Ferry made on the Clarion.

Chairman Percy Ager has coupled two of his hobbies together, namely, photography and "tape-ography." With the aid of his projector he showed how a recorded commentary with music can give life to slide viewing. Percy's recent holiday at Hastings was the subject of the showing. Members and visitors alike were quick to comment on the "hi-fi" definition of the colour transparencies.

Tape recording club and amateur dramatic society members worked in close co-operation when the **West Middlesex** club met the Old Hamptonians' Dramatic Society for a recording session

(Continued on page 34)

SPECIAL OFFER — *Half-a-crown to find a ready buyer or a willing seller*

IF YOU HAVE SURPLUS EQUIPMENT YOU WISH TO SELL, OR IF YOU WANT TO BUY ITEMS SECOND-HAND, YOU WILL GET RESULTS BY USING OUR CLASSIFIED COLUMNS. TO PROVE THE POINT, WE ARE OFFERING READERS A SPECIAL RATE UNTIL SEPTEMBER 1st NEXT—2s. 6d. FOR UP TO TWENTY WORDS IF YOU USE THE FORM BELOW

Classified advertisements

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

Try our bargain offers. Send us details of the machine you want and let us make you one of our bargain offers. Send s.a.c. You will be pleased. The High Fidelity Centre, 61, West Street, Dorking.

Tape—Tape—Tape. BASF—Irish—Scotch. All types in stock. Send for price lists. C.W.O. Post free. Tape Recorder Centre (Halifax), 17, Rawson St., Halifax.

Fidelity "Argyll". Good condition with 5" LP tape. Superimposition, Mic. List Price £30 9s., nine months old, accept £20. UPPer Clapton 1555.

Really first class tape recorder wanted with all the "gear." I have complete Leica Outfit. M.2(1959) Enlarger, swop for above. Mr. V. Griffiths, 75 Ribblesdale Road, Streatham, S.W.16.

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

W.A.L. Booster pre-amplifiers, the transistorised WAL GAIN, for tape heads (Gramdeck, Fi-Cord, Ferrograph, etc.), Mics (Reslo, etc.), p.u.s. (Garrard, Ortofon, etc., Decca fss, etc.). Many applications including Mixing. Mono Wal Gain £5, Stereo £7 10s. The new WALTRAK, pocket audio oscillator with 1,000 cps signal, transistorised. Ideal for circuit checking £6 10s. The WAL BULK TAPE ERASER "cleans" reels of tape in 30 secs. £7 18s. 6d. Ask your dealer or send to us for full Technical literature. Wellington Acoustic Laboratories Ltd., TRCDG Dept, Farnham, Surrey.

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

For Sale.—Grundig Four Channel Mixer, little used, under one years old, 10 gns. Hooker, 5/20 Northwood Hall, London, N.6. Mou 5014.

Wanted.—High Quality Loud Speaker, Goodman Axiom 300, Wharfedale Pre-recorded Tapes. Classical Gram Turntable. Parry, Denmark Court Hotel, Exeter, Devon.

WANTED.—Information about how to echo-proof a large upstairs room. Kendrick, 3 Artillery Close, Paulsgrove, Portsmouth, Hants.

Tape Recorder repairs, all makes; also trade servicing—Telefunken service agents. Tape Recorder Centre (Halifax), 17, Rawson Street, Halifax. 66832.

Ferrograph 4 A/N's, 808's, Vortexion WVA, WVB, Simon SP4, Reflectograph "B," always in stock and ready for immediate delivery; as well as over 200 latest 1960 Recorders at London's Largest Tape Recorder Specialists. The best, lowest H.P. terms and the finest selection of new and S/H Recorders, from £18. Generous P/E allowances. Essex Tape Recorder Centres, 2 Maryland Point Station, Stratford, E.15, and 205, High Street North, East Ham, E.6.

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

Tape Recorders, players, radios, etc. (modern) wanted for cash. Callers or particulars Cook's Store, 159 & 187, Praed Street. W.2 (opposite Paddington Station). Tel.: PAD 6464.

TAPE TO DISC—ALL SPEEDS; s.a.c. for leaflet. OMEGA RECORDING COMPANY, 112, Sunnysbank Road, Potters Bar, Middx. Tel.: 6428 evenings.

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News from the Clubs

(Continued from page 31)

on July 12. The play was *The Tinkling Bell* and the purpose of the meeting was not only to give recording practice, but also to render assistance to the actors and producer so that they could hear the recording, or some of it, and judge their mistakes. The two teams in operation were: Tom Pasmore and Ken Phipps who ran a stereo set-up, and Dave Lloyd and Phil Pratt with a mono arrangement. The Dramatic Society members were very pleased with the results on partial playback and a complete and edited version incorporating sound effects has been promised them in due course.

At very short notice on July 14, the club were paid a visit by Angus McKenzie and "his cohorts," who put on one of the liveliest demonstrations members had ever heard. The material was all stereo except for a short tape made at Silverstone on a 7½ ips Stuzzi which Angus nevertheless switched through the two stereo channels. "Never before," says secretary H. E. Saunders, "have we heard Formula L cars disappearing up Hampton High Street in a cloud of tyre smoke."

After a talk from Angus his expensive microphones were examined and many members made envious noises over these £100-plus instruments.

It was later discovered that a pile of pennies on the bar downstairs was in danger of falling over from the sheer volume of noise, probably coming from Angus's special train noises at Seven Kings Station.

Attendances at **Dover** club meetings have been low since May 16. To combat this the club are having a recession of activities until September 8, during which time future programmes will be planned, and publicity for the club will be increased.

At the last meeting a recording of Kit Keen and his skiffle group was made, as the group had been asked for a tape by Decca. This was completed despite the fact that the original machine broke down.

At the September 8 meeting a visit to the ITA station at Hougham is planned. Afterwards, meetings will be held at Priory Hotel and will be fortnightly. G. Newey, the secretary, says that the club is "wide open for suggestions." His address is 2, Westcliffe Cottages, Westcliffe, nr. Dover.

Taking over from the now defunct Windsor Youth Theatre Company, the **Phenix Drama and Tape Recording Society** was formed recently, with the object of producing stage plays and plays on tape and submitting them for consideration by the BBC.

Mr. P. L. Whitehurst, editor of the *Windsor, Slough and Eton Express*, who was elected president at the inaugural meeting, praised the enthusiasm of the members of the new society, which, he said, had every promise of becoming a first-class organisation. He added that the first aim of the society would be to bring together people who were interested in all aspects of tape recording and amateur dramatics; the second would be to produce recordings of a high technical and acting standard for playback to interested concerns and for eventual submission to the BBC.

Formerly chairman of the Brighton club, H. H. Guernsey has resigned and is now secretary of the newly formed **Hove and District T.R. Group**, accompanied by two other former Brighton members, Mr. E. Pembroke and Mr. Graham Watkins.

As reported in our May 4 issue, Mr. Guernsey was interested in gathering names of clubs willing to participate in an Inter-club Tape Exchange. A number were circularised and nearly twenty clubs have said they would be interested in such a scheme, which also incorporates the passing and receiving of tape messages for Voluntary Services to Hospital Patients and Old People.

Mr. Guernsey wishes us to point out that his new group has no intention whatsoever of "commercialising its social activities" just in case any misconceptions may have arisen over a statement made in *Club News* on July 13.

Stop press news of a new international association for tape enthusiasts. The name is **ESTRA**, standing for English Speaking Tape Respondents' Association, and although it is international the headquarters are here in Britain.

The secretary Robert Ellis, Schoolhouse, Whitsome, By Duns, Berwickshire, says that the club is being run by a group of tape enthusiasts who feel the need for a club of this kind and whose only object is the interests and welfare of tape respondents and tape-responding.

The club officially came into being on August 1 and at present there is a small nucleus of some 30 members. The annual subscription will be 10s. and it is the association's aim to send out a well printed directory of members in September of each year with duplicated supplements to the directory in December and April. The directory will list members' names, addresses, occupations, recording equipment details and interests and hobbies.

A future possibility is the formation of a Teenager Group and it is hoped before long to have a representative in the USA.

CLUB MEETING DIARY

ACTON: Every Friday at 8, Woodhurst Road, Acton, W.3.

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 (Next: Aug. 23.)

BRIGHTON: Every Tuesday 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. (Aug. 22.)

COVENTRY: Alternate Thursdays at Rotherham's Social Club. (Aug. 18.)

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

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

GRIMSBY: Alternate Tuesdays at the RAFA Club, Abbey Drive West, Abbey Road. (Aug. 16.)

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

HUDDERSFIELD: Fortnightly, alternate Thursdays and Fridays at the Congregational Church Schoolroom, Great Northern Street. (Aug. 11.)

ILFORD: Alternate Tuesdays at the RAFA Rooms, Cranbrook Road. (Aug. 11.)

IPSWICH: Fortnightly Saturdays, alternating at the Art Gallery Committee Rooms (Aug. 13) and The Kings Arms Hotel, Cornhill. (Aug. 19.)

KEIGHLEY: Alternate Wednesdays at the South Street Sunday School Rooms. (Aug. 12.)

KETERING: Alternate Wednesdays at the Rising Sun, Silver Street. (Aug. 17.)

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

LEICESTER: 2nd and 4th Friday at Bishop Street Reference Library.

LONDON: 2nd Thursday 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.

MIDDLESBOROUGH: Every Tuesday at 130, Newport Road.

NORTHAMPTON: Alternate Thursdays at the Co-operative Educational Centre, Broad Street. (Aug. 11.)

RUGBY: Alternate Thursdays at the Red Lion, Sheep Street. (Aug. 11.)

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

WALTHAMSTOW: Alternate Fridays at 26, Church Hill, E.17. (Aug. 12.)

WARWICK: Alternate Wednesdays in Room 18 of the Royal Leamington Spa Town Hall. (Aug. 24.)

WEST MIDDLESEX: 2nd Thursday at the Co-operative Hall, 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, Abbotisbury Road. (Aug. 24.)

WINCHESTER: Every Friday at The Ship Inn.

YORK: Every Thursday at 25, Broadway Grove, York.

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

Is your club included in this list? If not, send details on a postcard, including date of next meeting. The list will appear in future as space permits.

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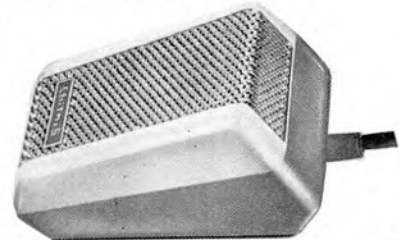
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**THE RADIO
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see
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TAPE

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from Elizabethan

see page 19

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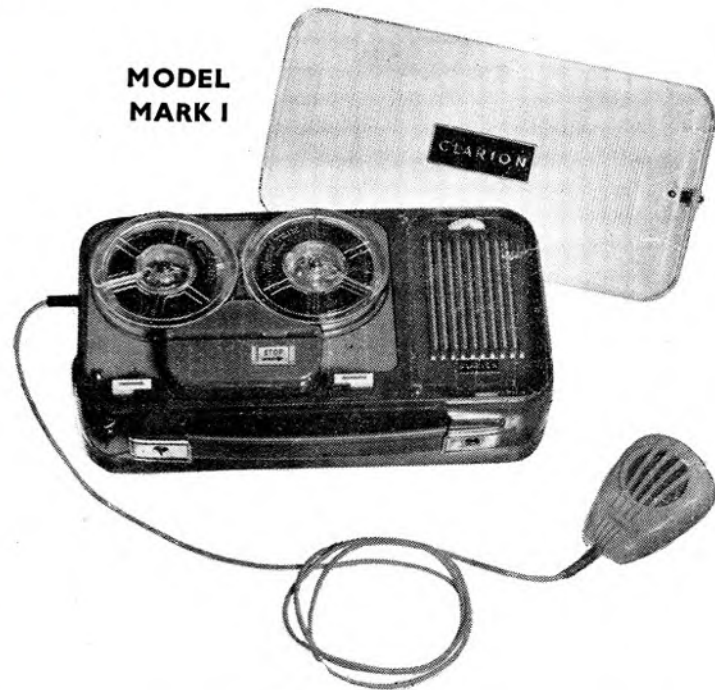
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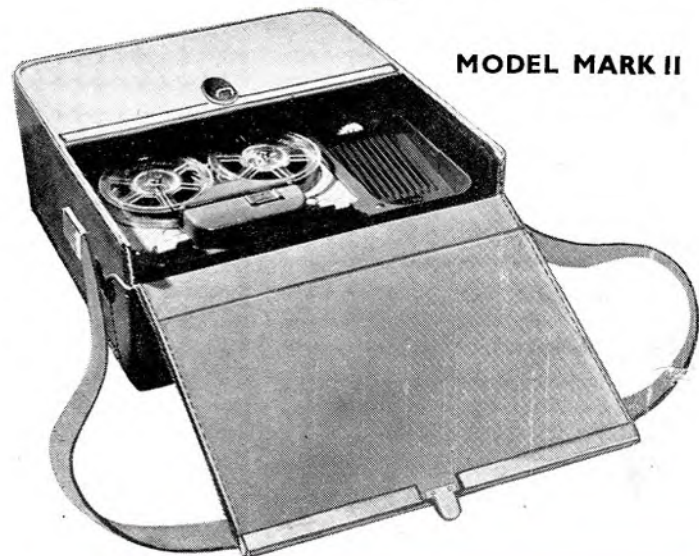
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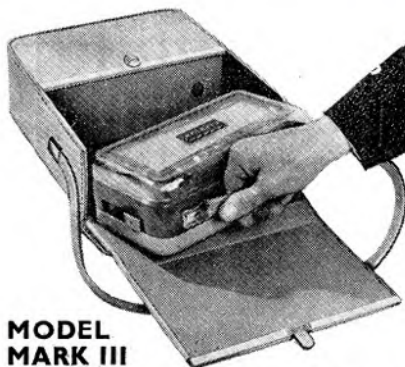
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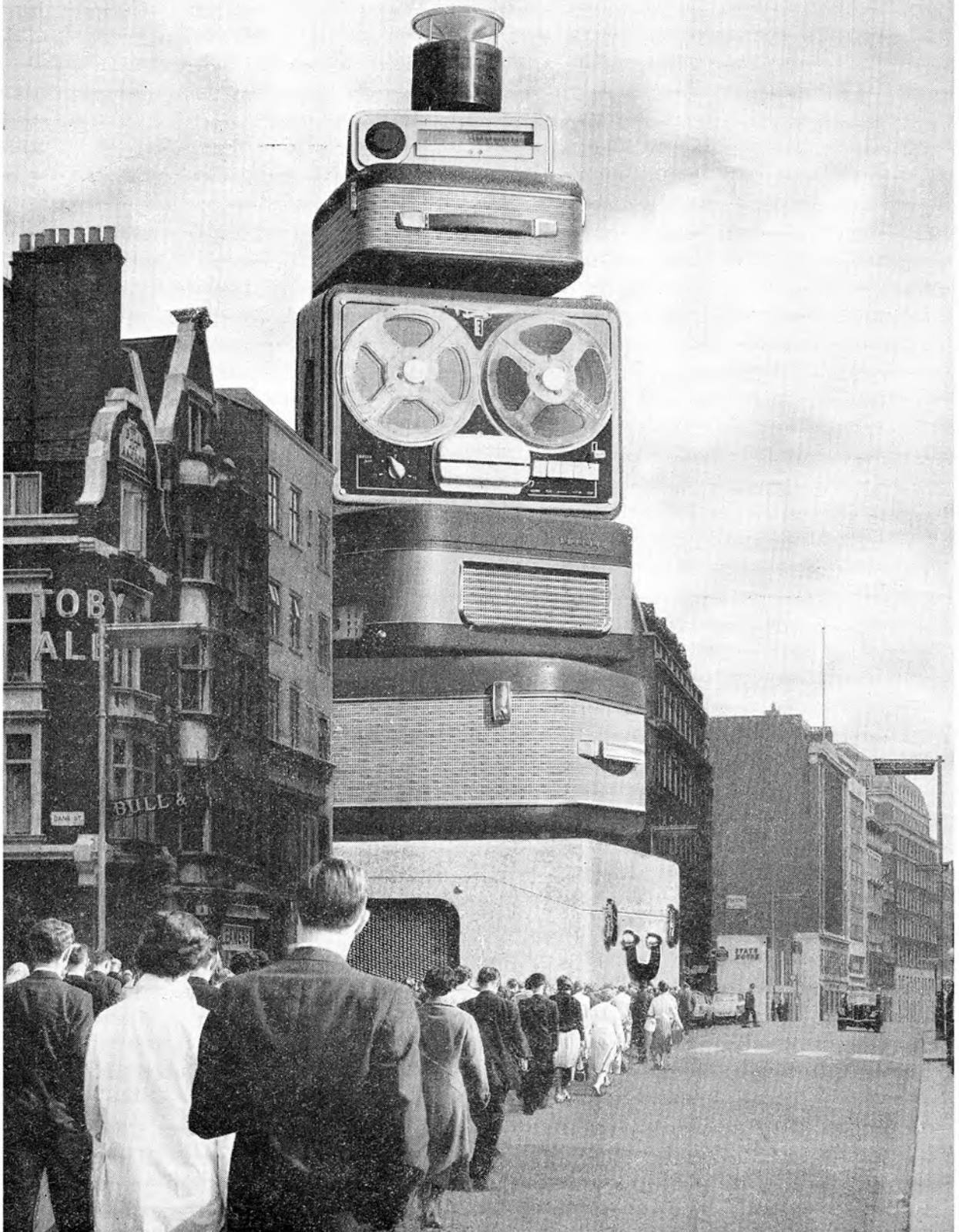
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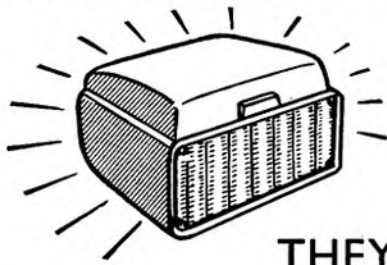
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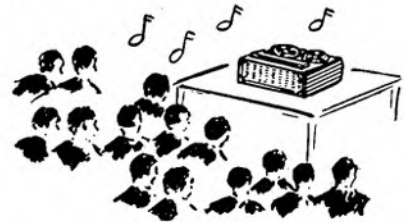
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Collaro Studio Deck. Microphone and Radio/Gram inputs each with separate gain controls for mixing. Separate bass and treble controls. ± 12 dBs at 50 cycles and 12 k/cs. Adjustable monitor volume control independent of record level. Peak signal level meter 2 1/4" square. Record safety device. 600 ohms Cathode follower output. 2% total harmonic distortion on peaks. 200/250 volts 50 cycles or 100/120 volts 60 cycles. Valve line up: 1 EF86. 2 ECF80. 2 ECC83. 1 ECC82. 2 EL84. Metal rectifier, contact cooled.	

Weight 30 lbs. Price: 2 track 56 gns. 4 track 66 gns.

Reps (Tape Recorders) Ltd., 118 Park Road North, London W.3



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A DIGEST OF NEWS, COMMENT AND EDITORIAL OPINION

THE time has come for a special effort to co-ordinate the activity of those who are seeking to provide tape recording services for the blind and I am happy to be able to report that steps are afoot to this end. Mr. F. C. Gazeley, of 12, Bromley Road, Beckenham, Kent, who has been a leading figure in this work, is anxious to hear from all individuals, clubs and other organisations who would like to be associated with the work.

In our last issue we reported some of the work already being done—including the development of a new type of tape reproducer for talking books. There will, however, continue to be a vast amount of work to be done by amateurs, using orthodox domestic tape recorders.

What is needed now is a strong national organisation co-ordinating the efforts of amateurs and supplying an efficient service to the blind. This service will be the free supply to the blind of material on tape which cannot be otherwise obtained.

Mr. Gazeley is in touch with the Royal National Institute for the Blind and he is a member of the committee of the Federation of British Tape Recording Clubs. He tells me that he and Mr. Charles Standen, who has organised a tape reading service for the blind for some time past, have recently been in conference with Mr. Angus McKenzie of Olympic Sound Studios who is himself a registered blind person.

Between them, they have begun to make plans. A meeting will be called this autumn. *Tape Recording Fortnightly* will give every possible support, and will print information about all future moves. Meanwhile anyone who is prepared to help, by making tape equipment available, by donating tape or by reading material on to tape, should contact Mr. Gazeley.

National Contest

THE next issue of this magazine will contain the full results of the 1960 British Amateur Tape Recording Contest, with an appreciation of the outstanding tapes submitted.

I have not had the opportunity to hear them all myself, but I have been enormously impressed by the standard

of those I have heard. It is well above that of any previous contest. The winning tape is of such quality, dramatically and technically, that it could go out in a B.B.C. transmission immediately and none would be likely to detect its amateur status. The winning entries in the Clubs and Schools sections also have outstanding merit.

It has been a tremendous pleasure to see the progress in amateur recording represented by these entries. Readers who would like to share that pleasure may do so at the public presentation of prizes at the Radio Show on Saturday, August 27. Details will be found elsewhere in this issue.

New books

THE literature of tape recording is now in full spate and some excellent books are coming to hand. Two of the latest have come to my desk from Holland. One of them, "Bandrecording," by A. van Maaren, of the Netherlands Radio, is printed in Dutch—and I am no linguist. I must judge it, therefore, by its illustrations and by such chapter

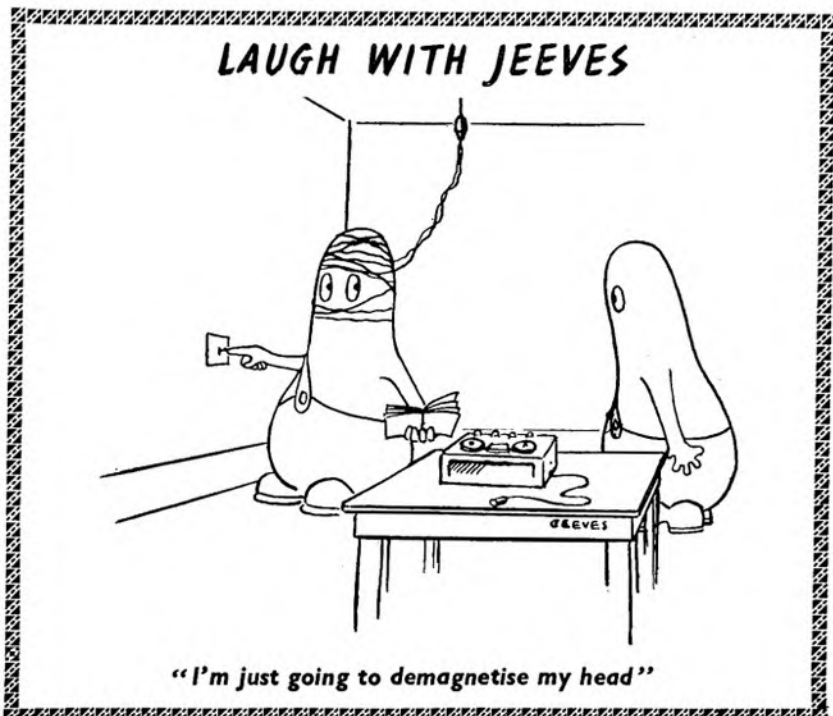
headings as I can translate. Clearly, it is a most authoritative and complete technical outline of tape recording.

The second book comes in an English edition, and so I am more at home with it. This is "Magnetic Sound Recording—The theory and practice of recording and reproduction," by D. A. Snel. It is a volume in Philips Technical Library and is published in this country by the Cleaver-Hume Press Ltd, at 25s.

It is, without doubt, one of the best books of its kind to appear to date. Of particular value are the practical chapters on microphone placement for various types of recording and on "fault-finding."

The book is extremely well illustrated and is a substantial work of 230 pages. Although it should be intelligible to the layman, the author does not make too many concessions to the popular market, and the expert technician will find it an invaluable textbook to have to hand.

I would like to see it, in fact, as a compulsory textbook for the staff in every dealers handling tape recording equipment.



GRUNDIG'S SPORTING CHALLENGE

A SERIES of thirteen programmes have been booked on Radio Luxembourg from September 23 to December 16 by Grundig (Great Britain) Ltd.

Called "Grundig's Sporting Challenge," the programmes will be broadcast at 8 p.m. on Friday evenings. Grundig have signed up famous ex-England soccer captain Billy Wright, to put questions to "Memory Man" Leslie Welch covering the whole field of international sport. Listeners and members of the audience will be able to put questions either by post or in person, and any who succeed in stumping the Memory Man will get £5 worth of Premium Bonds.

The show is being taken on tour of the Midlands and the North, two shows being recorded at each stop. Members of the public are invited, tickets obtainable from Radio Luxembourg at 38, Hertford Street, W.1.

The proposed itinerary is: Wulfrun Hall, Wolverhampton (Aug. 31); Co-operative Hall, Derby (Sept. 1); City Hall, Sheffield (Sept. 2); Blair Hall, Liverpool (Oct. 12); Houldsworth Hall, Manchester (Oct. 13); City Hall, Newcastle-on-Tyne (Oct. 14) where the three final shows will be recorded.

An added attraction will be the mobile exhibition of the full range of Grundig tape recorders which is being staged in each hall.

TAPE IN THE SURGERY

A NOVEL scientific use of a miniature tape recorder has been made by a doctor engaged in investigating the noises which can be heard, by means of a Soniscope electronic stethoscope, in the heads of patients suffering from certain forms of neurosis.

It was necessary to record these noises for further hearing and consideration by other doctors, and it was clear that the best instrument for this purpose would be a tape recorder, preferably a compact, lightweight portable which could be used conveniently under clinical conditions.

A number of machines were tried, and the doctor concerned finally asked for the loan of one of E.M.I.'s miniature dictating machines—the Minifon "Attache." A suitable attenuator circuit was assembled between the electronic stethoscope and the tape recorder.

The findings from these interesting experiments were the subject of a paper read before the recently-held Third International Conference on Medical Electronics at Olympia, London.



Colliery comedian wins Grundig Cub

The humorous patter provided for his workmates several miles underground by Durham miner Alfred Johnson, led to his being awarded a Grundig Cub during his recent holiday at Butlin's Holiday Camp. In our photograph, top left, the recorder, first prize in a contest judged on the most amusing true life story told by a competitor, provokes a happy smile from Mr. Johnson who lives at 65, Grantham Avenue, Deanside, Seaham. A smile also from Mrs. Betty Scrivener of 20, Prest Avenue, Welbeck Colliery Village, Mansfield, Notts. Mrs. Scrivener held the winning ticket in a raffle for a Grundig Cub on her eighth wedding anniversary at Butlin's Skegness Camp. Our third prize-winning smile is supplied by former Welsh Guardsman William King of 6, Griffiths Road, Grangetown, Middlesbrough. Mr. King, a steelworker, is seen receiving his prize from Butlin compere Denis Redhead (left) after winning the "Voice of the Week" contest.

AMATEURS PRESENT FILM SHOW AT LOCAL CINEMA

by *Hector Paroussi*
of the Dursley Camera Club

TAPE recording and photography very often go together and are undoubtedly complementary. The value of such a connection was recently shown when the Cam and Dursley Camera Club was given the opportunity of collaborating with the cinema manager in exhibiting an eleven-minute programme of still colour slides at the Dursley "Regal" Cinema during the week following the town's "Gala Day."

The programme was accompanied by a tape recorded commentary and the whole production of taking and processing the films, producing the tape recording and screening was undertaken by club members—all amateurs.

Six members were detailed to secure the colour photographs on the day. Each was responsible for a section of the day's events, the procession, the sideshows, horse jumping, horticultural entries, etc. Another member undertook to tape record the Town Silver Band as it headed the carnival procession through the town on its way to the Gala Ground. A team of three developed the colour films, Ferraniacolor being used because of its facility for amateur processing.

Some 72 2½ in. square transparencies were processed, but having decided that the maximum number to fit the permitted time would be only 55, this number was selected, mounted between standard 3½ in. square glass and arranged in a logical order.

Using the recording of the band for the section covering the procession, the recording of the master music tape was commenced. Suitable music for the remainder of the slides covering a wide variety of events from a police dog display to a barbeque then followed until the music tape was the exact length and recorded exactly in accordance with a precisely timed recording script to suit the various pictures. In order to avoid monotony the time of showing each slide was varied according to the number of persons shown on the slide and was between five and twenty seconds.

The commentary was then recorded



The home-built tape recorder described in this article

by mixing the music tape with the live speech on to another tape recorder, care being taken with the balance. The commentator, who used a script, was able to see the slides projected if he wished, but he was also cued silently by means of a cue light by another member.

Recording of the band was on a commercial Truvox recorder, whilst the music and main recordings were made on a home built recorder with a Collaro Mark IV Transcriptor deck. This equipment was composed of main amplifier built from a Stern kit of the Mullard Five/Ten amplifier. The pre-amp. stage was also built from a Stern kit, as was the tape amplifier; the former is fitted with a selector switch, bass and treble and volume controls, whilst the latter includes the record/play switch, equaliser switch and level indicator. A four-channel mixer unit of Mullard design (but modified to suit the owner's particular requirements) is also fitted. Recording was at 7½ in. per sec. using Scotch IIIA tape.

The club members were invited to

carry out the screening in the projection room of the cinema every evening and this was carried out with precision timing by a team of four. Two were occupied with feeding the carbon arc still projector with the slides, while another attended to the tape recorder and a fourth member cued the other three with a cue light. The output of the recorder was fed directly into the cinema amplifiers. Whilst this was perfectly satisfactory to the average listener, special hi-fi reproducers would have given full justice to the recording. It was, however, obviously not practicable to install this equipment for four performances totalling only three-quarters of an hour.

The programme was very well received, the audiences indulging in hearty clapping, a thing rarely heard in cinemas these days. The great amount of local interest evoked by this unusual type of reportage in a small country town was not only gratifying to the cinema proprietors but also publicised the activities of the Camera Club.



1960 RADIO SHOW

With the Earls Court display offering us a window on the world of electronics, it is not hard for us to share the enthusiasm of Hi-Fi Harry, below. As a guide to the show, here is a special report on the exhibits which will concern our readers.

FOR tape recording enthusiasts the big news from the show is—four-track!

A glance around the displays will confirm anyone that there is scarcely a large manufacturer who has not at least one four-track machine among his products. It seems reasonable to expect even more during the coming year. For getting double the value out of a length of tape, and for more compactness in a collection of tapes, the advent of this type of machine seems particularly welcome.

Elsewhere among the exhibitors are additions to ranges designed to enable you to get more out of your recorder—loudspeaker assemblies, separate amplifiers and various other devices.

That the display is a brilliant one cannot be questioned. For tape “fans” it is also an instructive and entertaining one.

Walter Instruments (72), apart from showing their ever-widening range of mains recorders, will also launch their new transistor tape recorder.

Offering mains/battery operation for the first time in a popular priced recorder, this instrument gives over 2 watts output through the 7 x 4 in. speaker on mains or battery, and up to three hours’ playing time with 5½ in. reels.

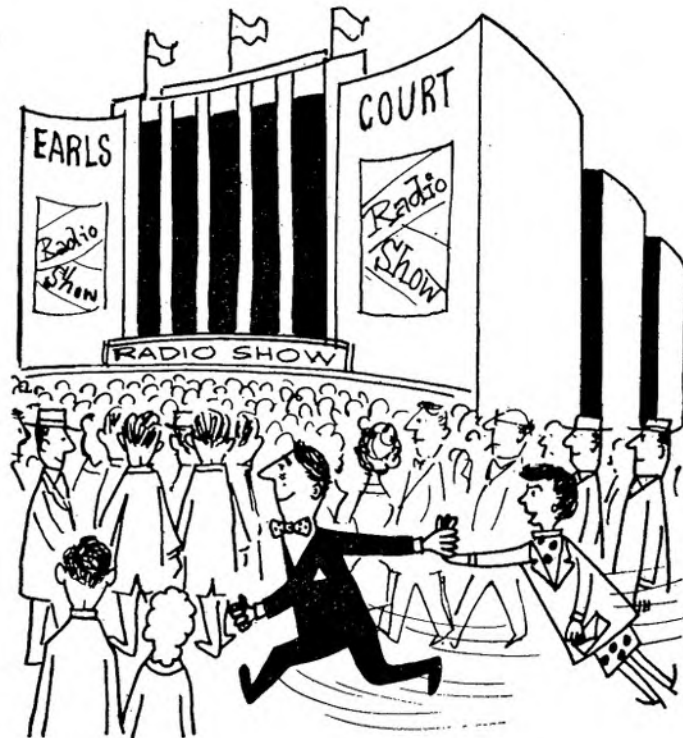
Detailed specifications of the recorder were given in our June 1 issue, but a brief recap will give some guidance.

The quoted frequency response is 50-9,000 cps ± 3dB, with wow and flutter less than .2 per cent and signal-to-noise ratio better than ± 40 dB.

Facilities include magic eye, digital rev. counter, safety erase button, superimposition, monitoring, tone control, mixing and pause control. The dimensions are 17 x 15½ x 5½ in. and the weight is 19½ lb. The price is 55 guineas.

Loudspeakers varying in size from 1½ in. to 18 in. in diameter form part of the Stentorian range (69 and 304).

Hi-Fi
HARRY
by rich



“Harry, I don’t trust you—you seem too keen to take me to this Ideal Homes Exhibition.”

These units are available with a variety of cone construction, speech coil impedance and magnet strength to meet all requirements.

For stereophonic reproduction the W.B. 8S amplifier has been modified after many improvements. The main

amplifier has a power output of 8 watts per channel and the pre-amplifier is designed to work with both crystal or low output magnetic pick-ups and tape and radio.

(Continued on page 16)

1960 RADIO SHOW PREVIEW

(Continued from page 15)

The W.B. 12 and W.B. 8 single channel amplifiers are continuing in production and a 200 milliwatt Transistor Amplifier using printed circuits is particularly suitable in the portable sound reproduction equipment field.

GOODMAN

As mentioned in our preview (Aug. 10 issue) the latest addition to the Goodman range of speakers is the A.L. 100, 12 watt loudspeaker system costing £23 10s. Other established highlights of the range include the Axiom 110, a 10 in. loudspeaker with a power handling figure of 10 watts and the Axiom 112 speaker which has a frequency response of 40-15,000 cps and a power handling of 12 watts. The Triaxiette 8 in. triple radiator speaker has a frequency range of 40-20,000 cps from



Goodman's Axiom 112

three co-axial elements. Power handling is rated at 10 watts.

The popular A.L. 120 system will also be on show (220 and 316). Power handling is rated at 15 watts and the frequency range is given as 35-20,000 cps.

COLLARO

Collaro (38) will be exhibiting their full range of equipment and of particular interest to tape enthusiasts will be the C. 60 Studio deck. Offering three speeds (1 $\frac{1}{2}$, 3 $\frac{1}{2}$ and 7 $\frac{1}{2}$ ips) the recording head gives a quoted frequency response of 50-12,000 cps. Space is provided so that a third head for monitoring or stereo can be fitted.

Rewind and wind-on of 1,200 feet of standard tape can be accomplished in approximately one minute. Due to a servo action which ensures that the trailing drum always has more braking torque exerted in it than does the winding drum, spillage on braking is virtually unknown.

COLAUDIO

The wide range of loudspeakers displayed by Rola Celestion (213 and 312) will include models from 2 $\frac{1}{2}$ to 15 in. diameter and ellipticals 6 x 4, 8 x 6 and 10 x 6 in.

These have been specially selected to meet the ever-widening demand for reproduction that will satisfy the most discriminating listener both for monaural and stereophonic reproduction.

Of special interest to the music lover is the world-famous Colaudio 1550 loudspeaker which embodies two distinct techniques to provide a smooth response from 30-15,000 cps.

Special features of the Colaudio 1550 are 15 in. cast housing, massive magnet system, annular type dust-proof suspension, 3-inch voice coil and two high frequency units in adjustable column.

A.E.I.

Both domestic and industrial high-fidelity sound reproducer equipment are



The Elizabethan FT 1 (top) and FT 3 (below), both described in our last issue, can be seen on Stand 26



being exhibited and demonstrated by AEI Sound Equipment Ltd. (308).

The domestic side will consist of the stereo and mono hi-fi amplifiers and control units in the unique coffee-table console, as well as other forms of furniture, together with high-quality loudspeakers.

A small selection from the range of equipments manufactured for the industrial market will be shown, including the 30-watt power amplifier for public address systems. One such exhibit is a portable unit for clubs, canteens or small halls. Similar equipment is available for larger installations in industry.

CONTEST AWARDS

The Fourth British Amateur Tape Recording Contest reaches its climax at the Radio Show on August 27. On that date, prizewinners, manufacturers, the national and technical press will gather for the presentation of prizes and the playback of the winning tapes. Drop in, we look forward to seeing you—tickets are not needed, although normal payment for entrance to the Radio Show will be required.

AUGUST 27 IS THE DATE, THE SOUTH RESTAURANT, THE PLACE, AND 7-30 P.M., THE TIME.

P.S.—Look us up at Stand 321 in the Audio Hall.



Acos Cup



Emitape Cup for the Tape of the Year



Wyndors Gold Medal for the best technical performance



Grundig Cup for the Schools Contest



Three of the new recorders on show at Earls Court. (Left) is the 37-guinea Studio De-Luxe, four track version of the earlier Sound Studio. (Above) The Marconiphone TR 2, three speed recorder at 39 guineas and (at the foot of the page) the Marconiphone TR 1, the second machine to be introduced at the show by The Gramophone Co. The price is 42 guineas.

GAINSBOROUGH

Three recorders by Gainsborough (307) will be exhibited—the Mks. I, II and IV. All are 3-speed machines, $1\frac{1}{8}$, $3\frac{1}{4}$, $7\frac{1}{2}$ ips, with frequency responses quoted as 40-12,000 cps at the top speed, and 50-4,000 cps at the slowest, each ± 3 dB.

Supplied with 1,200 ft. of tape, a splicer, crystal microphone and recording lead, the Mk. II version retails at 49 guineas.

Provision is made for mixing and monitoring with separate volume controls for mic. and radio/gram inputs. Other facilities include tone control, superimposition, recording level indicator and extension speaker socket.

Output through the 9 x 5 in. elliptical loudspeaker is given as $3\frac{1}{2}$ watts.

Valves used are EF86, two ECC83 (recording amplifier), EF86, ECC83, EL84 (playback amplifier) and EL84, EZ80 (oscillator unit). Mains voltage is 200-250 v. AC, 50 cycles, 115-watt consumption, or 110 v. 60 cycles on the export model.

The Mk. I price 39 guineas including crystal microphone, incorporates the



The Gainsborough Mk. II

same basic facilities plus a pause control. Output is rated at 4 watts using a 9 x 5 in. internal speaker.

The third model, Mk. IV, also has the same basic specifications of the Mk. II version. Two main differences are the built-in 10 x 6 in. loudspeaker, and the volume controls which incorporates separate bass and treble lift and cut. It is supplied with 1,800 ft. of tape and a splicer. Although the microphone is

added extra, a price has not yet been fixed.

H.M.V.

The Gramophone Co. (46 and 323) will exhibit for the first time their Marconiphone recorders MTR/1 and MTR/2. Both are three-speed machines— $1\frac{1}{8}$, $3\frac{1}{4}$, $7\frac{1}{2}$ ips.

The latter model has a magic eye level indicator, digital rev. counter, pause control and safety erase lock. Inputs for microphone and radio/gram are included in each model.

The MTR/1 has a 7 x 4 in. elliptical loudspeaker and a power output of $2\frac{1}{2}$ watts. The dimensions are 18 x 17 x $6\frac{1}{2}$ and the weight is 28 lb. Finished in blue rexine with a gold stripe and two-tone deck, it will retail at 42 guineas.

The MTR/2 weighs 26 lb., distributed within its 18 x $15\frac{1}{2}$ x $6\frac{1}{2}$ in. frame. The price is 39 guineas.

Also on show at this stand will be the HMV DSR 1, the £50 two-speed ($3\frac{1}{4}$, $7\frac{1}{2}$ ips) model introduced late last year.

E.A.R.

Electric Audio Reproducers (319) will display among their range of record players the Bantam tape recorder employing the BSR Monardeck. This incorporates a number of refinements, including bass and treble boost control, monitor and superimposition facilities, mixing and two inputs.

It is expected that two new models, one incorporating the Garrard and the other the Collaro studio deck, will be available in time to be shown at Earls Court.

DYNATRON

Dynatron (52 and 313) will introduce their first tape recorder—the Cordova



The Dynatron Cordova

1960 RADIO SHOW PREVIEW

(Continued from page 17)

TRP1. This 3-speed recorder, $1\frac{1}{2}$, $3\frac{1}{2}$, $7\frac{1}{2}$ ips, can accommodate a 7-inch spool providing four-and-a-quarter hours' play on standard tape.

A large elliptical speaker is incorporated, and the other features include digital rev. counter, superimposition facilities, pause control and fast rewind.

The Cordova is housed in an attractive case of unusual design, finished in two-tone fabric, and costs 39 guineas.

TRUVOX

The **Truvox** range (317) will consist of two tape recorders (R. 6 and R. 7), a tape deck (Mark VI) and a tape recording amplifier (type M).

The R. 6 is a 2-speed half-track machine and the frequency response at the higher $7\frac{1}{2}$ ips speed is claimed as 30-15,000 cps. Provision is made for "flat" amplification for use with radio tunes, crystal pick-ups and microphones.

Recording and playback facilities in both directions are offered on the more expensive R. 7 for which a frequency response of 30-17,000 cps at $7\frac{1}{2}$ ips is claimed. A unique feature is the cali-



Truvox R.7

brated sliding volume control which gives "professional" fading in and out of programme.

The record/replay head of the Mark VI

Right: The $3\frac{1}{2}$ and $7\frac{1}{2}$ ips Clarissa Mk. III by Perth Radios at £39 19s. 6d.

Below: The Daystrom TA-1S record replay amplifier described in our previous issue. This unit is the stereo version (£22 4s.) of the single channel model, TA-1M, £16 14s. Both can be seen on Stand 112.



tape deck is of new design and has a .00025 in. gap. Total wow and flutter is said to be .2 per cent rms. at $7\frac{1}{2}$ ips. The power pack on the Type M amplifier is separate so that it can be installed for minimum hum conditions.

Other accessories offered include half-track stereophonic tape recording heads, radio jacks, which act as miniature tuners for radio reception and tape recording from BBC light and home programmes, stethoset headphones and telephone attachments.

SOUND

The comprehensive range of **Tape Recorders (Electronics) Ltd.** (3) tape recorders and accessories includes a model for every pocket from the versatile Sound Belle to the professional Sound Master.

The popular Studio and Prince are to be shown with new features and 4-track de-luxe versions will now be available for maximum tape economy. For example, the Studio de-luxe gives a maximum of 18 hours recording time.

In addition, an office dictating machine with remote control for every function will be shown. This Officemaster can also be used as a normal tape recorder for musical reproduction.

The Sound Master, 3-speeds, 4-tracks, has separate record and playback amplifiers, 10-watt output, comprehensive bass and treble controls, full facilities for mixing, monitoring and multiple superimposition. Loudspeakers are a 10 in. and a 4 in. moving coil tweeter mounted in a loaded reflex enclosure. The price has still to be announced.

A frequency response of 65-10,000 cps \pm 6 dB is claimed for the four-track de-luxe version of the Sound Prince. The price is 37 guineas complete with crystal microphone, spool of tape, spare spool and recording lead.

The 4-track version of the three speed Sound Studio has the following additional features: Frequency response 60-15,000 cps \pm 6 dB at $7\frac{1}{2}$ ips, and amplifier frequency response 20-20,000 cps \pm 6 dB at the same speed.

Its dimensions are 18 x $14\frac{1}{2}$ x $7\frac{1}{2}$ and including the same accessories as the Prince, it will cost 45 guineas.

Perth Radios (205) will display the

third recorder in the Clarissa series. The Mk. III has two speeds, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips, and using double play tape on its $5\frac{1}{2}$ in. reels, will provide up to three hours recording at $3\frac{1}{2}$ ips.

A frequency range of up to 9,000 cps is provided, and facilities include monitoring, superimposition, tone control, magic eye, and a built-in elliptical speaker which is automatically muted when an extension speaker is used. An output of 3 watts is claimed.

Weighing 17 lb., and housed in a slim, blue carrying case with gilt fittings and white grill, it measures $15\frac{1}{2}$ x $12\frac{1}{2}$ x $6\frac{1}{2}$ in. The price, complete with crystal microphone and tape is 29 $\frac{1}{2}$ guineas.

TRIX

The equipment to be shown by **Trix Electrical Ltd.** (37) comprises a range of record reproducers and domestic tape recorders, as well as examples of high quality sound reproduction units for public address systems.

On their stand will be the Everest, which uses the Collaro studio deck operating at $1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips. This 49 guineas machine has mixing, monitoring facilities, magic eye, digital rev. counter and a 7 x 4 in. elliptical loudspeaker. Its younger brother, the Comet, incorporates the Garrard Magazine loaded deck with a single speed of $3\frac{1}{2}$ ips, and costs 35 guineas. Provision for superimposition plus tone and volume controls are included in this designed-for-simplicity model.

Even lower down the price scale is the Trix Companion, the B.S.R. Monardeck equipped, single ($3\frac{1}{2}$ ips) speed machine priced 29 guineas. Each of these prices includes microphone, tape and spare reel.

E.M.I.

E.M.I. Sales and Service Ltd. will have its own stand separate from that of its parent company, E.M.I. Ltd. It will exhibit a complete range of Emitape magnetic recording tape for amateur and professional users, including the two-inch wide videotape as used by the BBC and Independent Television Companies. The Stand will also show a complete range of Marconi valves.



ANNOUNCING

SENSATIONAL

ELIZABETHAN



TRACK

THE GREATEST DEVELOPMENT IN TAPE RECORDING

- DOUBLE THE PLAYING TIME!
- DOUBLE THE VERSATILITY!

MAKE TRACKS FOR ELIZABETHAN

NEVER BEFORE SUCH VALUE... SUCH FEATURES!

This Autumn, Elizabethan switch to 4-track. Fabulous 4-track. Double the playing time. Double the number of features. Double the *potential*—for Elizabethan 4-track opens up new recording vistas never practicable until today. Yet you get all this at *twin-track* prices—the sort of value that enthusiasts everywhere have come to expect from Britain's greatest tape recorder manufacturer.

Two outstanding new models incorporate Elizabethan 4-track. Specially designed micro-gap recording heads and up-to-the-minute electronic techniques set each machine at the top of its class. Both machines can (with simple add-on units) be easily converted to stereo. Both set record-breaking standards in performance and value for money—even for Elizabethan.

This Autumn, everyone's going Elizabethan 4-track. As an enthusiast in this newest of sciences, you mustn't miss out on a development like this. Get your dealer to demonstrate Elizabethan 4-track for you right away.

Note for the man with an existing tape library

Not only can you play your present twin-track tapes on an Elizabethan 4-track machine—you can actually *add two more tracks!* Thus you can literally double your own collection of recordings without buying a single foot of new tape!

4-TRACK AT ITS ECONOMICAL BEST!

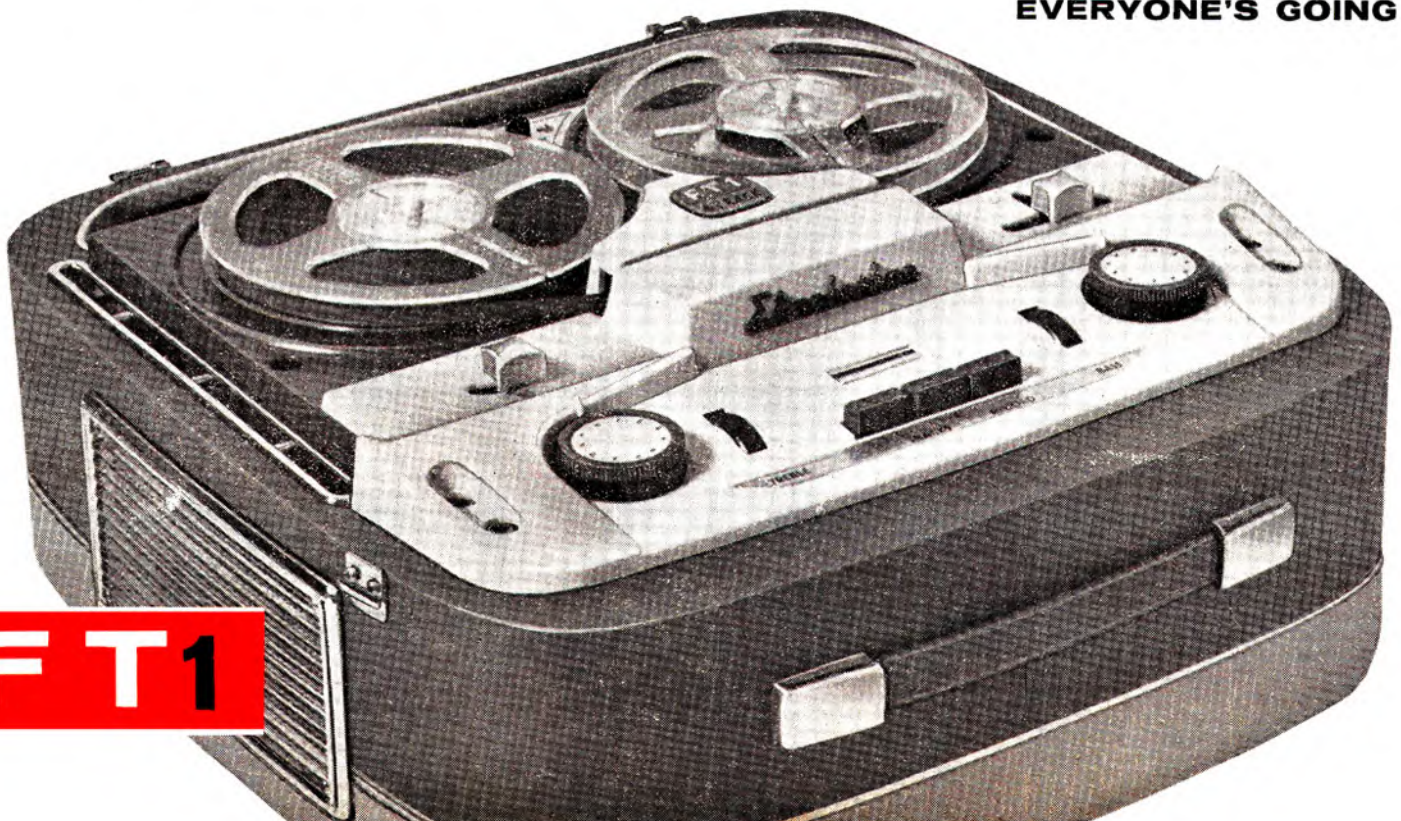
The Elizabethan FT1 offers 4-track at an irresistible price. Yet although well within the popular budget, it carries a real thoroughbred high-performance specification, packed with "extras". Over six hours can be recorded onto one tape, while frequency response is from 50 to 12,000 cps. Luxuriously housed in a contemporary camber-style cabinet with two-tone finish and brass trim, the FT1—even by Elizabethan standards—represents unbeatable value.

LOOK AT THESE TOP-FLIGHT FEATURES!

- 4-track (over six hours' recording time on 5½" Double-Play tape at 3½ ips)
- Simple press-button track selection
- Frequency response better than 50-12,000 cps at 3½ ips
- Separate controls for accurate mixing of inputs
- Independent bass and treble controls
- Monitoring through speaker whilst recording
- Magic eye recording level indicator
- Safety interlock prevents accidental erasure
- Stereo playback facilities (with additional equipment)
- Provision for microphone and tape storage

ONLY 39 GNS
including microphone,
tape, etc.

EVERYONE'S GOING



FT1



TRACK

UP TO SEVENTEEN HOURS ON ONE TAPE!

Unbelievable, but true. The Elizabethan FT3 offers this fantastic playing time. More than this, the FT3 incorporates practically every facility the recording enthusiast looks for. Three speeds, giving at 7½ ips the splendid frequency response of 50-16,000 cps. And as probably the greatest feature of all, the FT3 is simply adaptable to provide *complete stereo recording and playback*.

MAKE TRACKS FOR STAND NO. 26

Be sure to visit Elizabethan Stand No. 26 at the Radio Show. See for yourself—hear for yourself—the models that are going to steal the show and continue to lead the TR field. Take our word for it—this year it's really something special!

NEVER BEFORE SUCH A SPECIFICATION!

- 4-track (up to 17 hours' recording time at 1½ ips)
- Simple press-button track selection
- Frequency response 50-16,000 cps at 7½ ips
- Three speeds, 1½, 3½ and 7½ ips
- Independent input controls for full mixing
- Separate bass and treble controls
- Monitoring through speaker whilst recording
- Programme indicator and magic eye recording level
- Safety interlock prevents accidental erasure
- Can be used as an independent hi-fi amplifier
- Handsome two-tone portable cabinet with facilities for microphone and tape storage
- Complete stereo recording and playback facilities (with additional equipment)

ONLY 55 GNS

complete with high-gain microphone, 1,200 ft. of tape, etc.

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Romford, Essex. Romford 62366/7



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**TO ELIZABETHAN (TAPE RECORDERS) LTD.
BRIDGE CLOSE, ROMFORD, ESSEX**

Please send me your full-colour brochure with details of the new 4-track recorders and accessories.

NAME

ADDRESS

FT3

THE CONTROL DESK



Studio 8 Broadcasting House: This is the desk that was used for the recording described in the text. Note that rotary faders are used; they can be switched to one or other of two group faders, if it is necessary to fade more than two at once. The studio manager is setting one of the echo-mixture switches, and above these are the "distort" switches. The microphone is for talkback to studio or recording room.

THE nerve centre of any broadcast or recording is the control desk. It is here that all the different sound sources are mixed and controlled. In a live broadcast, it is here that the final sound picture is created, and it is the responsibility of the studio manager to see that no further adjustments of any sort should be necessary before the signal is broadcast.

The facilities available in the studio's "control cubicle" can be very wide. For a start, there may be mixing facilities for up to twenty or more sound sources: and this mixing will nearly always be "high-level" (the output of each microphone will be pre-amplified before being fed to the mixer and the faders themselves will be balanced, so that they show a constant impedance whether faded in or out).

Then there will be disc and tape reproducers, "echo" and "distort," and lines fed in from sources outside the studio. There will be green light cueing facilities. And a high quality loudspeaker.

That loudspeaker is the kingpin of the whole business, because all balancing is done by ear. This is so obviously the only way good balance can be achieved: yet the cartoon image of the man with headphones and a meter still persists.

There will be a meter (which is logarithmic over the main working range of 16 dBs, and "slugged," but to indicate peaks only, not average volume). And

it is used—for three purposes: to indicate maximum output levels; to set the *average* levels which different types of programme content seem, by experience, to require; and to check (with 1,000 cps tone of a standard volume) that what starts out from the studio is what reaches the recording room or transmitter. But a meter cannot be used to balance one voice against another, or speech against music.

For the simplest programme, say a single speaker or a one-microphone discussion programme, a simple balance and minimal control may be all that is necessary. But often a great deal more is needed. For example, here is the set-up using no less than six microphones which I used for a quarter-hour playlet recently.

The main action was a trial scene at the Old Bailey, and this took three mics. in the "live" end of a drama studio.

Counsel and witnesses worked to mic. 1 at various distances; and slight "echo" was added. The people working farther away were picked up also on mic. 2, which was about five feet above mic. 1 and given a stronger dose of echo: perspective effects were made more real by this arrangement. A record of courtroom "atmosphere" completed the picture by providing an occasional cough or shuffling noise. An intermittent whispered discussion in the gallery had to be superimposed on the main action; for

How do the professionals do it? In a series of three articles, ALEC NISBETT describes the techniques of recording used at the B.B.C.

second of:—

THREE LINKS IN A CHAIN

this, mic. 3 was 10 feet to the side of mic. 1. (No echo, working close.)

Flashbacks to the scene of the crime took us to mic. 4, in a "tent" representing the open air ("outside a garage"). Mic. 4 could also be used with a filter switched in circuit for the far end of a telephone conversation. Mic. 5 was for the car door (a real car door mounted on a frame) and "body" falling (not a real body—there were no volunteers!). Taken on the same mic as the action, the car door would have been too loud and the "body" too soft.

Mic. 6 at the "living-room" end of the studio, represented a room in a house in Parkwood Hill. (Some readers' wives will by now be able to identify the drama as an episode in "Mrs. Dale's Diary.")

Use of these six microphones gave a very wide range of acoustics, and varying the combinations of microphones and echo even made some "tracking shots" possible.

For most background effects in dramatic reproductions (as in this one), 78s are still perfectly adequate. The quality may not be high, but this is not so important as ease of operation and robustness in



THE CONTROL DESK

use—and it means that the B.B.C.'s vast library of effects can still be used (though tapes of all new additions are kept).

Unlike the amateur, the professional rarely has time for the construction of sounds on the workbench, and extensive editing. Many effects are created, live, in the studio; and here as everywhere the premium is on skill and speed. The effects man becomes one of the actors.

For cases where perfect timing of the start of a record is necessary the "drop-start" is used. This is a device which lifts the disc from the moving turntable. It may be set up exactly—say, half a rev. or less before the first sound required—then at the appropriate moment the record is dropped, and after it spins up to speed the fader is opened.

For high quality record reproduction the B.B.C. uses a moving coil pick-up with an optical groove locating device, a commercial transcription turntable with three (variable) speeds, and again, a drop-start.

The drop-start technique is also used for record programmes; in fact for nearly all cases where discs are used, as it does give absolute control over timing.



Playing tape into a programme. The author with a trolley mounted E.M.I. TR/90. In the background is a turntable desk for playing 78s. Its remarkable "drop-start" mechanism gives the skilled user the means to perfect timing of disc programmes. For some purposes its versatility makes disc recording operationally superior to tape—still! However, its parallel-tracking arm imposes a minimum limit on playing weight—a severe disadvantage as far as quality is concerned



A BBC-designed record player. Like its predecessors it has a "drop-start" and prefade on headphones, so that records can be set up without fading up. It has windows for the optical groove locating unit and speed selection indicators. If the wrong stylus is chosen they all light up together and flash! Unlike earlier record players, the stylus of the RP/2 cannot easily be seen; a slight disadvantage when time is pressing. But the quality from the moving coil pick-up is excellent

The amateur who wishes to try this can easily do so. Simply set-up your record with the motor off, and then switch on and carefully lift the disc a fraction of an inch above the turntable, which is allowed to run up to speed. Then, slightly anticipating the cue, drop the disc onto the turntable and fade up.

It goes without saying that for recording purposes, tape is used whenever possible. The standard high quality of tape and its relative ease of fine editing are only two of its more obvious advantages. All mixer studios have tape reproducers available: "Today" for example, has three.

Nevertheless there is one purpose for which tape has yet to prove itself, and this is the recording of news dispatches. Items of the Radio Newsreel type have, up to the present time, been almost invariably recorded on disc. This is because no tape system that we have today is anything like so versatile as disc when working against time.

For perhaps ninety per cent of cases there would probably be time for the spooling involved in sorting out and setting up tape. But often selection of in and out cues has to be made perhaps only

seconds before the recording is played or faded out. And in this case, tape is clumsy.

With disc one can lift the stylus from place to place, either to find the material that is wanted, or—as a last resort—while it is actually being played on the air. (This last procedure is called a jump-cut and shouldn't take more than a couple of seconds. To have to do more than one, live, can be pretty unnerving.)

So far I have been describing what goes into creating a programme in the studio. What happens to it after this?

Many, of course, are still broadcast live—and it is a rule that programmes that are recorded, or contain recordings, are announced accordingly. The live broadcast seems to have a greater sense of occasion; the once-for-all feeling brings out the best in many people—repeated takes for a recording may never reach the same standard.

But recording (on tape) does have so many advantages that can't be ignored, that pressure for more recording and editing "channels" is always mounting.

In the next article I shall be describing how B.B.C. tape recordings are made and edited.

The 'Masters' of your are made favourite LP records on

Emitape

Amid the wealth of skill that goes into modern LP recordings is one vital factor—Emitape! For to-day the great majority of original 'master' recordings are made on Emitape magnetic recording tape . . .

Emitape is used because it offers the highest possible standards in recording quality, consistency and durability.

Emitape is chosen by world-famous recording companies—like H.M.V., Capitol, Columbia, Parlophone—for recording the greatest artistes of our time . . . It is also the choice of the B.B.C. and I.T.V. for recording every kind of programme every day and of the research workers for countless applications in industry and science. And, of course, Emitape is made by E.M.I.—leaders in sound recording for over 60 years . . .

Here then is good reason for *you* to choose Emitape for your own tape recordings. With Emitape you can always be sure of the finest possible recording quality—remember, the Emitape you buy is the same .0015" PVC base Emitape used by professionals the world over.



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(RECORDING MATERIALS DIVISION)

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the complete tape range

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EMITAPE "100"

Double play (Polyester)



NEW

EDITING AND LEADER TAPE PACK

New, colourful plastic containers of high impact material, are now being used for EMITAPE on 3" and 3 1/2" Spools, Empty Spools and Leader Tapes. The Leader Tape container (illustrated) has a specially designed inner section which enables it to be used as a non-spill dispenser. Prices are unchanged.



E.M.I. SALES & SERVICE LTD

(RECORDING MATERIALS DIVISION)

HAYES · MIDDLESEX

TAPE AND THE COURT OF ENGLISH LAW

THE tedium of waiting for a case to be reached and the tortoise-like pace of proceedings are often the chief impression received by a visitor to an English court of law. Nowhere does an English trial "drag its slow length along" more tediously than before the average bench of justices. In other courts, such as at Assizes or at Quarter Sessions a shorthand writer enables evidence to be taken near the normal rate of speech but, even when he has dispensed with the inkwell and graduated to fountain

or ball-point pen, the longhand note-taking of their clerk is still apt to set the pace before the justices.

One cannot blame the clerk; shorthand writers are expensive, yet notes must be taken, particularly in cases of matrimonial disputes where either party may appeal and demand a transcript of the evidence and, in committal proceedings, the accused must, of course, have a copy of all the evidence which forms the case against him. Anticipating conflicts of recollection when they retire to reach a deci-

sion, the justices themselves will also take notes—sometimes the more voluminous in that they do not know the aspects of the evidence which advocates will reply on until they address the court at the close of proceedings.

At long last the obvious has happened and the magistrates' courts committee for Nottingham has, during the past year, been experimenting with a tape recorder. In one of the courts in the city they installed a Dictaphone "Conference" machine. In this system grooves are cut into plastic belts, the recording is

Special moments of delight

IT is sometimes difficult to satisfy people who ask for the plain facts about the advantages of stereo over mono. It is difficult in the same way that it would be difficult to give the plain facts as to why listening to a Beethoven symphony is to be recommended more highly than listening to a circular saw.

Fortunately it is normally only people who are already civilised enough to prefer Beethoven to a circular saw who are interested in the relative merits of stereo and mono, in any case, so that we can usually begin the argument with certain advantages.

Stereo certainly stands or falls on its ability to give us more satisfying music, and the difficulties that remain for the stereo advocate are mainly those of drawing attention to the various ways in which stereo scores over mono musically.

In addition to the obvious constant advantage of localisation in detail against the broad canvas in general, giving a closer approximation to the truth, I believe that there are special moments of delight that play a decisive part in

Stereo Notes

By D. W. Gardner

converting each individual to stereo, and keeping him well contented with his twin-channel lot once he has established an efficient system.

These moments may occur only once or twice on any record, and they may vary from person to person, but they are of a quality that one tends to define as priceless.

If stereo has hitherto been resisted "in spite of its obvious advantages" on grounds of extra cost, the trouble of conversion or the problem of fitting everything into the drawing room, then it is these moments that break down the defences and leave the music lover concerned solely with the question of "how soon."

Music is not simply a matter of

logic. I have endured much discomfort for music (including standing at Proms), and I have listened patiently through works which attract me very little in general for the sake of four notes of pure rapture somewhere about the middle of the second movement.

In the same way, it is probably the great moments of stereo that make it a necessity, whatever the cost, as distinct from its run-of-the-mill superiority that makes it simple highly desirable.

It would be nice to collect examples of these special moments. A recent correspondent in *The Gramophone* drew attention to two of them: "the entry of the solo violin from a particular spot in a continuous band of sound" and "when the piano cadenza, dead centre, has finished, the sound of the orchestra spreading in from both sides."

I think I first became a stereo addict when a few bars of silence was followed by a faint, growing whisper of all the strings of the orchestra sweeping forward and flowing over me like a gentle wave.

Can you add to these?

TAPE AND THE COURT OF ENGLISH LAW

by
ANDREW PHELAN

irremovable and the belts almost indestructible. The machine has two units, with a belt on each, and changeover is automatic, providing a continuous recording for about thirty minutes without changing a belt. Putting on a fresh belt takes a few seconds and can be done without interrupting recording. Four very sensitive microphones were set up—one on the bench, one on the clerk's desk (for his voice and those of advocates), one on the witness box, and one by the dock. At first there was trouble from "feed back," producing a howl which seemed difficult to cure, but this was eventually eliminated by a more suitable placing of the microphones.

In case of doubt as to the identity of voices a "key sheet" was used for each case on which the clerk wrote the names of the justices, of advocates and clerk, and also any special remarks about the hearing. A more frequent use of names, when the court addressed a solicitor, was found to be desirable.

When a speaker was installed in the justices' room uncertainties of the type "Don't you agree the husband admitted to us, in so many words, that he had no intention of returning to her?" no longer teased the bench. Not only what was said but the full emotional content of what was said was available at the touch of a switch. It was almost too good to be true.

During the proceedings the clerk felt the same. Normally his work is most exacting and tiring but now every word uttered in court was permanently recorded and he was free to concentrate on other aspects of his work, e.g., checking points of law, preparing papers in the next case, completing routine forms.

After six months the recordings were examined and found to be in perfect condition. Indeed, the machine, in recording every sound impartially—a rustle of paper, the whisper of a fan, the mumbling of the justices—sometimes left the low voice of a nervous witness difficult to isolate and understand. Sometimes, unhappily, a nod or gesture had apparently been accepted as evidence and the tape was silent! It was realised that, if a human transcriber is doubtful of his hearing he asks for a word to be repeated but a machine can make no query and may render an imperfect recording of certain words which, at the time, were apparently clearly understood in the court.

Assistants who had transcribed some recordings also felt unfamiliar place names were difficult to understand. Notes

of evidence, when produced in the higher courts, e.g., on appeals, have to be certified as correct, but in some cases the typists were not sufficiently confident of the accuracy of transcripts to guarantee correctness. On behalf of the machine it could be reasonable, therefore, to introduce some slight changes in procedure in courts where it is used to replace the human notetaker.

It might be a fair comment that even a tape recorder with these defects is still likely to be a more accurate record than the average note in longhand. When shorthand is used High Court Judges have occasionally asked for the production of the shorthand notes, and there seems no reason, in principle, why a tape recording should not also be produced to help the appellate court.

Though the committee at Nottingham decided not to continue the use of a tape recorder at the present time they felt that it would be very useful if certain lessons were applied. The clerk should repeat the witnesses' answers in a clear voice and, when a witness had finished his evidence, it should be played back to him and he could then declare it to be a true record of his speech. The system, it was felt, would be particularly useful in the often tedious proceedings for committing a person for trial and, indeed, in the case of purely formal witnesses bound over conditionally to give evidence at the trial, their evidence could even be played back to the jury at the actual trial.

There are hundreds of justices' courts throughout this country but, though the taking of depositions in court on a typewriter is now a little more common than a few years ago, this is highly-skilled work demanding speed and training if



the note is to be accurate, legible, and to contain only admissible evidence. Good depositions taken on the typewriter are rare, and in busy courts dealing with dozens of committal cases each month the strain on these assistants is very great.

Surely it is time that we were "kicked into the twentieth century," time that the wonderful possibilities of some of the most efficient office equipment and business methods in use in other places should be applied in the teeming courts of our big towns and cities.

Hartley on Hi-Fi

THE first booklet in a new series that is likely to become known as "Hartley on Hi-Fi" has just been published by Bernard's (Publishers) Ltd., The Grampians, Western Gate, London, W.6. Titled *Realistic High Fidelity*, its declared aim is to show the layman how to achieve hi-fi quality without loading him with too many technical problems.

This is quite well done in 96 pages of readable text, with an adequate sprinkling of diagrams and charts. The book begins with a consideration of the nature

of sound waves, considers room acoustics and reverberation and speaker curves, and then gets down to a detailed consideration of speaker design and performance. There is a final chapter on amplifier-speaker matching.

The author, H. A. Hartley, is well known in this field. He is proposing in later booklets to broaden his scope, with publications on tape recorders, amplifiers, pick-ups and tuners.

Realistic High Fidelity is published at 5s.

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Sound Effects

By Alan Edward Beeby

Instead of the usual subject article for this issue, I've taken a selection of your own queries and suggestions that reach me from time to time. Let's begin with the queries.

(E. Morris, Reading.) *Which is the best speed for sound effects?* It depends on what type of effects you are dealing with and how you intend to use them. I standardise most of my own items at $3\frac{1}{2}$ ips, which is quite suitable for the normal type of effect. I've used a playback speed of $1\frac{1}{2}$ ips on "backgrounds" quite satisfactorily for dubbing purposes. If, however, you intend to use the effects for direct playback to accompany a stage performance, I should feel inclined to use a $7\frac{1}{2}$ or even a 15 ips speed if possible for top quality results.

(A. Foster, Canterbury.) *Is the sound effect of a car crash often heard in sound radio drama a commercial recording?* No, it is part of a series belonging to the BBC Sound Effects Library and has not been released commercially.

(F. Cummings, Leeds.) *Who devised the weird sound effects used in the BBC TV serial, "Quatermass and the Pit"?* The electronic effects used in this production were devised by the BBC's Radiophonic Workshop under the direction of Desmond Briscoe. An account of the Workshop and its equipment will be appearing shortly.

(A. Tear, Manchester.) *I recently heard two professional sound engineers on location talking about "rhubarb and custard." What is this?* "Rhubarb and custard" is the slang name for a sound effect which did not turn out successfully. So now you know!

(B. Trusler, London.) *What is a "coloured" sound effect?* A "coloured" effect is one in which a certain characteristic of the item portrayed is deliberately emphasised, for example, the knocking on a thick oak door.

(R. Tuckley, Shrewsbury.) *I have heard that there is available a "script" for a short play consisting entirely of sound effects. Have you any information on this?* I believe such a play as you mention was broadcast some years ago on sound radio under the title of "One Dark Night." Write to BBC Drama Department.

(P. Surridge, Walsall.) *Can you suggest a method of imitating the "tinny" effect of a public-address system?* Obtain a large metal horn from an old-type gramophone and fix to the narrow end a small audio unit or sound-powered inter-com. Take the leads of this to the output socket of a second recorder which is set to play back the pre-recorded "announcement." The internal speaker of this machine is, of course, switched off. If the effect is simply being used as a "background" and not as a main feature, you could make use of a tape loop. The fact that the same announcement is being repeated continuously won't matter as speech reproduction from the majority of speaker systems of this type is usually pretty unintelligible, anyway! If you're doing the announcement "live," connect the lead of the unit to its twin and go out of the room

to speak. Place the recording mike at the opposite end of the room to the horn to enable it to pick up a slight boominess.

(E. Dennis, Stamford.) *Could we have an article on the use of "mood" music?* An article dealing with the selection, purchase and use of effects-music will appear in our next issue.

(B. Rideout, Coventry.) *I am making a collection of "background" effects using continuous tape loops. Is there any way of extending the amount of playing time for a loop so as not to include too many "repeats"?* There are a number of items available which enable the loop method to be employed with a reasonable time-duration. One of these is a cassette which houses a tape circuit of $4\frac{1}{2}$ mins. playback at $7\frac{1}{2}$ ips. Your dealer will have details.

(S. Raybould, Boston.) *How can the effect of a high-powered electrical short-circuit be produced?* Obtain an old radio speaker and connect one of the leads to one side of a 4-volt cycle lamp battery. After setting your machine to record, rub the remaining speaker lead on the other terminal of the battery to produce a crackling sound. Two versions, one superimposed over the other, will give the best result. Record the first impression at double speed and the second at normal speed. Add a fairly lengthy echo by re-recording (*Sound Effects: June 1 issue*), using as high a gain level as possible in the final stage. This effect, by the way, is particularly suitable for outer-space noises, etc.

Now the suggestions. **(S. Ferris, N. Bucks.)** I find the best way to imitate rain is to fit a sprinkler nozzle to a garden hose and "play" it against the wall.

(T. Bradbury, Cheltenham.) The sound of a person's head being chopped off by an executioner's axe or a guillotine can be achieved by holding a table knife horizontally and plunging it down sharply through a large carrot.

(G. Walding, Birmingham.) May I offer an alternative to the vocal version of a car-skid? Obtain four rubber door-stops and fix these, one at each corner, to a flat piece of wood about 6 in. by 3 in. Screw a handle to the opposite side. Make the sound itself by drawing the item heavily across a length of polished linoleum. *Having tried it, I thoroughly recommend this method. It's really most effective.*

And finally . . . **(S. Wilford, Towcester.)** As a professional sound engineer, I find these articles of yours quite useless and juvenile in the extreme. . . . *Possibly, Sir, but may I point out that the vast majority of our readers are not professional sound engineers!*

(M. Brown, Rugby.) I am sure that there are very few writers who could tackle the subjects which you deal with and make them so interesting and absorbing. *It's very kind of you to say so. Like I said to the Editor, I said. . . .*

Equipment Under Test

THE GRUNDIG TK24

by

ALAN

BEAUTEMENT

HAVING been given the opportunity to test the Grundig TK 24 over a period of several weeks, it has become apparent that the manufacturer's specification is in no way exaggerated, and that they have produced a machine of versatility, combined with simplicity of operation.

It is a portable, four-track recorder of attractive appearance, contained in a pale grey leatherette case with a perforated, off-white plastic grille round the middle, the whole being nicely rounded off—literally—with no sharp corners to bang one's knees during transit.

Microphone and mains lead stowage is provided by a recess in the base, so that, as the "all-up" weight is only about 21 lbs., it is tidy and easily carried, by means of the strong plastic strip handle across the front of the case.

The overall dimensions, when standing in the playing position, are 13 $\frac{5}{8}$ in. wide, 12 $\frac{1}{2}$ in. deep, and 8 in. high.

A removable, felt-lined lid gives access to the deck, on which the controls have been symmetrically and compactly arranged. The tape mechanism, and record/erase heads, etc., are fully enclosed, except for a tape loading slot, and the deck finish is in two shades of grey, with chromium-plated trimmings.

Controls. — A five-position master switch selects the following functions: Fast Re-wind, Stop, Record/Playback, Temporary Stop, Fast Forward.

A lever-type extension on the moulded knob makes operation easy and the selector mechanism is positive, preventing accidental over-ride past the required setting.

Concentric mounting has been used for the Record/Playback level control (the outer, with another lever-type knob) and an inner control which operates the mains on/off switch (rotary motion), internal loudspeaker on/off switch (vertical motion), loudspeaker volume on "Record," and tone control on "Playback."

Three push-button operated switches cover selection of the signal sources:

from gram, pick-up, or radio extension loudspeaker sockets (Sensitivity; 80 mv. into 1 megohm imp.); direct from the detector stage of a radio receiver ("Diode"), or from the Grundig telephone adapter (Sensitivity; 8.5 mv. into 44 kilohms imp.); and from the microphone input (Sensitivity; 2 mv. into 0.5 megohms imp.).

A digital rev. counter type tape position indicator is mounted at the left of the deck, and is driven from the spindle of the left-hand spool. It can be reset to zero between tapes by means of a knurled plastic knob whose edge protrudes through the cover plate of the deck.

A three-position lever switch, mounted behind the recording level "magic eye" at the rear of the deck, selects the various tracks, and the twin-track replay facility.

* * *

Microphone and Amplifier.—A moving-coil hand microphone, with built-in matching transformer, a 6 ft. 6 in. lead and plug, in a plastic protecting case, is provided with the recorder, the microphone finish being two-tone grey, with chromium-plated wire grille, to match the main unit.

The three-valve (EF86, ECC81, EL95), four-stage, record/playback amplifier has an output of 2.5 watts into a 3 $\frac{1}{2}$ in. x 5 $\frac{1}{2}$ in. elliptical, permanent-magnet loudspeaker, the overall frequency response, including microphone, being 60 cps to 12,000 cps, +3 -5 dB. Separate valves are used for the bias/erase oscillator (EL 95), and recording level indicator (EM 84 "magic eye").

Connections to the amplifier are made via four sockets on the rear of the case, the facilities covered being the microphone input; diode input (from receiver detector), input from Grundig telephone adaptor, or high-impedance output; input from radio loudspeaker sockets or gram pick-up; output to external loudspeaker (3 to 7 ohms) to external hi-fi amplifier, or to Grundig monitor amplifier, type MA 1.

A circuit diagram of the amplifier is provided, which is a useful feature for the technically proficient who prefer to do their own repairs or modifications.

* * *

Recording. — An 1,800 feet reel of Grundig four-track tape (type TCD 2) and two plastic reels are supplied with the recorder and, as the playing time for each track is 90 minutes, at the fixed

speed of 3 $\frac{1}{2}$ in. per second, a total playing time of six hours is available.

The tape has a section of metallic strip at each end, by means of which the motor is automatically switched off when the end is reached. When re-spooling, it is necessary to wind past the metallic strip by hand before the motor will remain switched on for record/playback. (It WILL switch on before the strip is reached, but will then switch itself off again when the tape begins to wind.)

Loading the tape is quite simple. A short length is wound off the left-hand spool, dropped into the slot in the cover over the heads, and wound on to the right-hand spool. No feeding round pulleys of any kind is involved.

To begin recording, the required push-button is depressed—and held down—while the master switch is set to the "Record" position; the push-button is then locked in place.

A drawback arises here, as the level, which is adjusted for closure of the "magic eye" on the loudest passages, can only be set while the tape is in motion. It is better to depress the push-button and switch quickly to the "Temporary Stop" position; the level can then be adjusted with the tape stationary. The switch is then returned to "Record."

The loudspeaker can be left in circuit on "Record" for monitoring signals from electrical sources, e.g., from a gram, pick-up by direct connection, but when recording from microphone, the loudspeaker must be off, or the 'speaker volume turned down, or acoustic feedback (howling) will result and swamp the recording.

This control setting is tricky at first, but one soon becomes used to it.

Erase of unwanted recordings can be done in two ways. A new recording can be made in the usual way, during which process any previous material will be erased automatically, or the tape can be allowed to run with all the controls set to "Record," but with the level control at zero. This will leave the tape clear for later recordings. To speed up

the latter process, it can be carried out with the Selector switch at "Fast Wind Forward" instead of at "Record."

Four-track recording is effected by inverting the tape spools at the end of the first, second and third recordings, one-quarter of the tape width being used for each track. With the track selector switch at position "1-2," track one is the upper quarter of the tape, the lowest quarter becoming track two after the first inversion. With the track selector at position "3-4" the process is repeated and recording now takes place on the two inner tracks.

As tracks 1 and 3, and 2 and 4 are recorded in the same direction, it is not necessary to change over the spools if only two tracks are to be used for a short recording. The first run is made on track 1 (switch at "1-2"), which is then re-wound; the second run is now made on track 3, over the same section of tape (switch at "3-4"), and again re-wound. Both tracks can now be played back simultaneously when the track switch is set to "D."

Similar remarks apply to tracks 2 and 4. Synchronised recordings can only be made if the first track is monitored through a separate amplifier. The Grundig Monitor Amplifier, Type MA 1, is specially designed for this purpose.

* * *

Performance.—A variety of sound sources were used for testing ranging from tuning forks and jingling keys to Beethoven's 7th Symphony (courtesy of the "Proms") recorded from the detector of a radio receiver, and in the majority of cases the results were very good. Playback, incidentally, was through the internal amplifier and an external hi-fi loudspeaker system.

When one has become accustomed to top-notch hi-fi reproduction, there is a tendency to automatically class anything less as poor or sub-standard, but it was firmly borne in mind throughout the testing of this recorder that it is not a complex hi-fi system, but just a good, straight-forward audio amplifier, and on that basis there were few significant complaints.

The most noticeable distortion occurred when a musician friend of the writer's recorded (on single track, and dual, synchronised tracks) several pieces by Bach and Bartok, played on Treble and Descant Recorders, instruments



which have a most peculiar waveform, rich in harmonies, and the tape recorder didn't like it!

We didn't expect perfect reproduction—it would take the finest equipment to record a Recorder (this gets confusing!)—but what we did get was disappointingly peaky, although the recording level was deliberately kept low. Anyway, that was the ultimate test, and, as wow and/or flutter were unnoticeable throughout the tests, the overall standard was above average. So there you have it. A satisfactory electrical performance coupled with neat well-finished mechanical design, sufficient to satisfy all but the hypercritical—like me!

* * *

Further Comments.—A comprehensive handbook is supplied with the recorder and this was handed over to the writer's wife, before the first test, with a request that she read aloud the step-by-step instructions so that the operating sequence could be checked. Page 1 immediately caused some cross words!

We were informed that all equipment left the factory set for 240 volts supplies. As ours is an antiquated 200 volts line,

an alteration was necessary; page 1 cordially invited us to consult our local Grundig dealer (on a Sunday?). An asterisk seemed to indicate a footnote, but there wasn't one.

While I turned the recorder inside out, in a vain search for a mains voltage adjuster panel, long-suffering wife plodded on through the book, the "footnote" on how to do-it-yourself finally appearing on page 15, after all else had been explained. By this time my hackles had risen somewhat—surely first things ought to be first!

We now learned that to perform this simple operation, it was necessary to remove the tape spools, which I'd already slapped into place, the control knobs, and the tape deck cover plate, screwdrivers being involved.

A portable recorder, used to the full, is bound to meet with several voltage changes from time to time, and to follow this rigmarole on each occasion seems unnecessarily complicated, apart from the risk of damaged knobs or grub screws.

Once this snag was overcome the rest was plain sailing. The book describes fully and clearly every operation, and all controls and connections are positively identified, so that no confusion should be experienced by even the newest tape recorder user.

The only other complication was the Continental types of plugs and sockets used, which made it very awkward to connect the recorder to ancillary equipment not of Grundig manufacture, but this will be no great drawback to the average home user, as leads with the required plugs can be obtained from Messrs. Grundig to cover most applications, as can a variety of useful additions (to be described later).

A full list of available accessories can be obtained on application to the makers, Messrs. Grundig (Gt. Britain) Ltd., 39/41, New Oxford Street, London, W.C.1.

Manufacturer's Specification

Price: 62 gns. (inc. microphone).
Mains supply: AC only, 110 to 125 volts, 190 to 250 volts.

Consumption: 44 watts (approx.).

Valves: EF 86, ECC 81, EL 95 (2), EM 84, and two metal rectifiers.

Tape speed: 3½ ips.

Recording sense: Four track.

Frequency response: 60 cps—12,000 cps +3 -5 dB.

Signal-to-noise ratio: Better than 40 dB.

Bias frequency: 75,000 cps.

Wow and flutter: Better than ±0.2 per cent.

Audio output: 2.5 watts.

Loudspeaker: 3½ in. x 5½ in. elliptical p.m.

Microphone: Moving coil, high impedance output (Grundig type GDM 12).

Tape length: 1,800 feet (Grundig type TCD 2).

Running time: 4 x 90 min.=6 hours.

Dimensions: Width 13½ in., Depth 12½ in., Height 8 in.

Weight: 21 lb. (approx.).

DON'T CUT THE TOP OFF



A tape recorder is only as good as its microphone.
If you cut a top note off in the mike, you can't
blame the recorder if the note isn't there.
If there's distortion at the start, there'll be
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A MIDGET AT THE WEDDING

Mrs. Norah Jarman describes another of her adventures

with a battery portable recorder

IT is easy to be obliging when one's favourite hobby-horse is involved: for example, I would be ashamed to look for deep gratitude in return for co-operation with a tape-recorder, whether Robert Horton's personal appearance on television simply must be recorded as a matter of life or death, or a little light background music is required in the shrubbery behind the teas at the village garden fête.

But once I had to refuse my services, though very reluctantly indeed. That was when my nephew wrote and asked me to record his wedding in London.

I would have loved to, I replied, but did he realise that wedding recordings were a major operation, with several mikes, miles of wire, and operators stationed at strategic spots in the church?

I reminded him that I had only one mains recorder, and asked him if he really cared for the thought of his aunt, in a wedding hat, weaving about the church with a mike in her hand, trailing lengths of flex and tripping up the bridesmaids. But I added that (if the vicar really didn't mind) I'd bring a little Fi-cord to the church, and try to record a few short impressions of the ceremony. I couldn't promise any success, of course.

Came the day, and I kept my word. Being one of the family I was placed in a pew well to the front, and by common consent was given the end seat by the aisle. The Fi-cord was on the hymn-book rack and the microphone in my hand, ready to be poked out of the pew and directed towards whatever might be happening.

The inner panic had to be held down by stern will-power. After all, there seemed to be plenty to panic about.

Suppose the recorder fell from the narrow shelf with a crash at the most hushed and solemn moment. Or suppose, during my furtive manipulations, I should bring the mike too near the machine and set up a banshee scream! Under cover of what parts of the ceremony would I best be able to reverse or change the spools without attracting attention? And how could I avoid breaking up essential

sequences, with tracks only nine minutes long? (The thought that I might inadvertently have charged the machine with an unerased tapeful of, say, New Orleans jazz, and might carelessly play back instead of recording, had to be suppressed at once before demoralisation set in.)

I started by fading in, and then out, the pealing of the bells before the bride's arrival. Then, after the "real" organ music, which I left unrecorded, came the usual waiting period when the organist improvises in a rambling sort of way, marking time until he gets the signal for "Here comes the bride."

I could not afford to let the tape run during all this, so had to sit with a tense thumb on the microphone switch. Luckily I managed a split-second entry as the organ crashed out and the congregation rose to its feet, and so the bride's arrival was safely captured.

I did some rapid thinking about the first hymn, and decided to record only the first and last verses. The choir and congregation were in splendid fettle, and "Praise my soul the King of Heaven" in the shortened version goes with a rare swing and a fine finish.

After that comes a very clear recording of the main part of the service, the bride's and the groom's responses and the joining in matrimony.

During the signing of the register

the choir, unaccompanied, sang "God be in my head" pianissimo. This presented a real difficulty. In the dead silence before they began, I dared not risk switching on. Even the slight sound of the Fi-cord running would have been scandalous at that moment. So I waited till the voices had actually started on the first syllable, then immediately switched on and faded in. The result was completely successful, and the fading-in very effective.

When it came to the Mendelssohn wedding march the organist gave it everything within his reach, and I badly over-recorded it, but after some to-and-fro business between Fi-cord and Truvox, and some editing, it makes a good though noisy climax.

A short burst of the bells clashing after the service, recorded outside the church, ends side one of the discs that I subsequently had made from the tapes. Side two is taken up by the reception, speeches and send-off, which were, of course, the plainest of sailing.

I must confess that in spite of my appreciation of the Fi-cord's capabilities, I felt little hope of success when I took it to a wedding.

But the result even surprised the tape-to-disc expert who made copies for the bride and groom and their families. In an unsolicited commentary, he complimented me on the recordings and awarded them "full marks."

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TAPE RECORDING AND HI-FI YEARBOOK 1960-61

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Orders for the Yearbook will be dealt with in strict rotation. Last year many were disappointed when the book was sold out within three weeks of the publication date. Be sure you are not unlucky this year by returning the form below together with the 6s., post free cost, and ensure immediate delivery.

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STELLA ANNOUNCE

FOUR-TRACK MACHINES

STELLA have introduced two new four-track tape recorders to their "Stellaphone" range, the ST 455 and ST 454 selling at 59 guineas and 37 guineas respectively.

Model ST 455 has three speeds, $1\frac{1}{2}$, $3\frac{1}{2}$ and $7\frac{1}{2}$ ips and, with the seven-inch reel accommodated, a total of 16 hours playing time is provided using double-play tape at the slowest speed. Rewind time is approximately three minutes for 1,800 feet.

Housed in a neatly-styled portable cabinet, it is covered in plastic cloth, and has a detachable lid.

Monitoring can be carried out with headphones, and there are facilities for mixing microphone input with gramophone/radio inputs, superimposition, tone control, pause control and automatic tape-end stop on fast wind, record, and playback. Push-button controls ensure smooth foolproof operation, and a safety interlock guards against accidental erasure.

A built-in four-digit indicator is provided, plus a magic-eye recording level indicator. There are sockets for playback through an extension loudspeaker, and the recorder can be used as an amplifier.

Stereo tapes can be played in conjunction with a suitable additional amplifier.

The claimed frequency response is 50-20,000 cps at $7\frac{1}{2}$ ips. Wow and flutter is claimed as less than 0.2 per cent at $7\frac{1}{2}$ ips, and the signal-to-noise ratio is better than -40dB. Output through the five-inch loudspeaker is $2\frac{1}{2}$ watts, and the consumption is given as approximately 60 watts.

Total weight is 30 lb., and the dimensions are $16\frac{1}{2}$ x $14\frac{1}{4}$ x $7\frac{3}{4}$ inches.

The mains voltage is 110, 127, 200-250 v, AC 50 cycles.

Valves used are EF86, ECC83, ECL82, EM81, EZ80.

The ST 455 is supplied complete with a seven-inch reel of long-play tape, a moving coil microphone—with built-in speech/music switch, and an empty take-up spool.

New Products

Model ST 454 is a single-speed instrument— $3\frac{1}{2}$ ips. Among its features are push-button operation, mixing facilities, tone control, pause control, magic eye, digital rev. counter, superimposition.

The specifications are identical to the ST 455, with the following exceptions:—

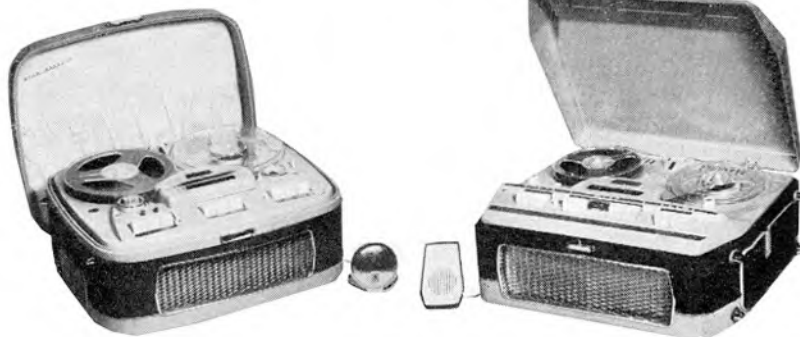
The claimed frequency response is 40-14,000 cps, with wow and flutter given as less than 0.3 per cent. The loudspeaker is slightly smaller, four inches, and rewind time for 1,200 ft. of tape is two minutes. An EM84 valve replaces the EM81 valve in the larger recorder.

Dimensions are $15\frac{1}{2}$ x $12\frac{1}{2}$ x $6\frac{1}{4}$ inches, and the weight is 19 lb.

A printed circuit is used in the design of the ST 454 which is supplied complete with crystal microphone, five-inch reel of long-play tape and an empty spool. It is housed in a wooden cabinet covered in two-tone washable plastic with moulded lid.

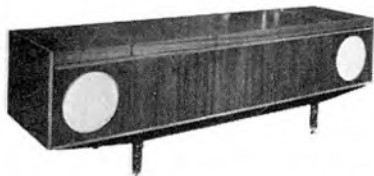
Both recorders are fully tropicalised.

*Stella Radio and Television Co. Ltd.,
Astra House, 121, Shaftesbury Avenue,
London, W.C.2.*



Imhofs provides elegance

A NEW hi-fi cabinet developed by Imhofs is designed to take a large tape recorder. It is the HFU/15, an elegant cabinet seven feet long with five compartments. At each end is a loudspeaker compartment with ample room for a 12-inch unit. The three middle compartments have hinged lids and provide accommodation for the motor, tape-deck, tuner and amplifiers. The Cabinet is 21 inches deep and 17 inches high, and is mounted on 9-inch high legs.



The model in the photograph is in the standard finish of light mahogany with a rosewood front panel. At the same price, £66 3s., a choice of a two-tone mahogany finish and a walnut finish is available.

Alfred Imhof Limited, 112/116, New Oxford Street, W.C.1.

ANOTHER NEWCOMER

THE Sonic V tape recorder, illustrated right, has recently been introduced by a newcomer to the tape field. It is a three-speed machine, $1\frac{1}{2}$, $3\frac{1}{2}$, $7\frac{1}{2}$ ips, and uses the Collaro Studio deck.

A frequency response of 40-12,000 cps \pm 3dB is claimed, with wow and flutter quoted as less than 0.15 per cent at $3\frac{1}{2}$ ips. Signal-to-noise ratio is given as 45dB.

Two 8 x 5 inch elliptical loudspeakers provide an undistorted output of 5.3 watts.

Other features include magic eye recording level indicator, digital rev. counter, tone control, pause control, and a loudspeaker muting switch. Facilities are also provided for superimposition.

Mains voltage is AC only, 200-250 v, 50 cycles. Power consumption is stated to be approx. 85 watts at 230 volts. The valves used are: ECC83, two EL84, EM84, EZ81.

Separate inputs are provided for microphone and radiogram. A 3 ohms

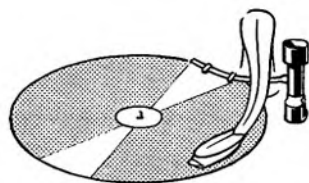
output impedance is provided for external loudspeakers.

Inclusive in the price of 47 guineas is a crystal microphone, 1,200 ft. of tape, a spare spool, recording lead and a telephone adaptor.

General Sonic Radios, 92, Caledonian Road, London, N.1.



STOP DAMAGING DISC & STYLUS



THE AUTOLIFT

gently and accurately lowers the pick-up on to any size record. Most damage occurs when positioning the stylus—the slightest slip or shake of the hand may ruin your favourite recording in a moment. The Autolift removes this risk forever, and will lengthen the life of both records and stylus.

EASY TO FIT – SIMPLE TO USE

Takes all size records — Fits all record players 27/10 inc. P.T.

Send for FREE leaflet and address of stockist.

Autolift Sole Distributors:

WILMEX LIMITED

St. Stephen's House, Westminster, London, S.W.1.

'FINGER TOUCH' TROLLEYS FOR TAPE RECORDERS

"Finger Touch" Trolleys designed by David Joel and fitted with the famous "SHEPHERD" CASTORS for smooth easy movement have rubber tops which prevent the Recorder slipping off and do not get scratched in stock.



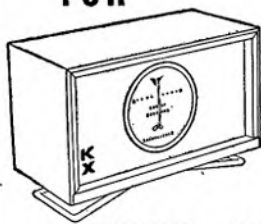
Retail prices:—
Model with figured
walnut shelf ... £6 9 6
Single deck model £4 17 6

**STAND 128
RADIO SHOW
EARLS COURT, LONDON**

Trade Inquiries Invited

LE GREST & CO. 58 FAIRFIELD STREET LONDON S.W.18

STEREO BALANCE UNIT FOR



VISUAL DISCRIMINATION

Perfect enjoyment of stereo recordings can only come with perfectly balanced loudspeakers. The S.B.I Unit completely eliminates error by giving an accurate visual indication and enables any type of stereo system to be "tuned" in seconds.

The S.B.I is beautifully finished in a blond oak cabinet and costs

£7.19.6

*A professional splice
in seconds—*



with the

irish S.P.3 Tape Slicer

- ★ Neat blip-free splices
- ★ Unique bow trim leaves edges free of adhesive
- ★ Built-in replaceable blades of high-grade steel for exceptionally long life
- ★ Only 1/4" of splicing tape per splice
- ★ Removable base allows splicer to be mounted on recorder

The 'Irish' Splicer is five times better at only **67/6**

WILMEX LIMITED

ST. STEPHEN'S HOUSE • WESTMINSTER • LONDON, S.W.1

Tel: WHI 3213/4

R.C.A. produce advanced television tape recorder

The world of tape

A NEWS ROUND-UP

FROM America comes news that a new studio camera employing a big image 4½ in. "eye" and an advanced TV tape recorder recently put on show by RCA, marks a big step forward in the Video tape field.

The camera is the TK-12 and it is designed to play an important part in the increasing use of magnetic tape recording, producing clearer pictures with greater contrast than the standard 3 in. studio camera tube.

It is reported as being an entirely new television camera with a detail and still photo quality that will provide a third or fourth generation tape recording copy nearly comparable to the original.

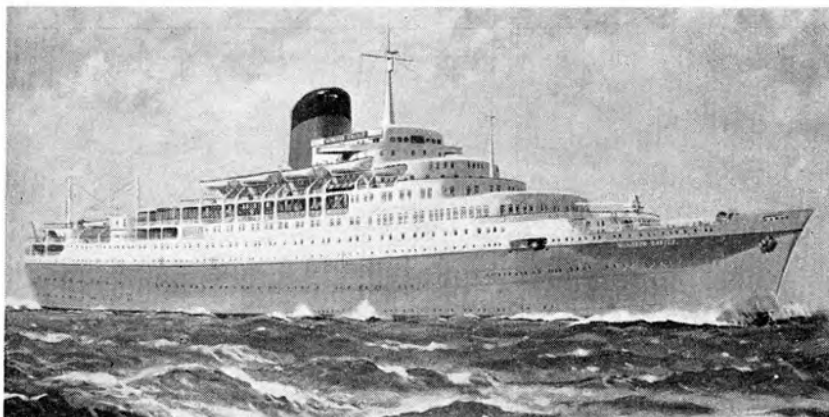
Because of its stability and minimum of controls, the TK-12 can function automatically on its own over a long period, and is therefore ideally suited for inclusion in an automation system.

The TK-12 camera's value in the tape recording field centres around its production of a larger image on the pickup tube, with a corresponding increase in resolution and detail.

Mr. Colledge, general manager of the RCA broadcast and TV equipment divi-

sion, claimed that because the initial picture is better, any parent tape recording and subsequent copies benefit from this basic advantage.

The RCA TV tape recorder which has achieved widespread acceptance since the advanced model was first shown a year ago, incorporates a transistorised processing amplifier, expanded monitoring facilities and other developments.



WIRED FOR STEREO SOUND

Stereo sound reproduction for the enjoyment of passengers is one of the new features provided by a comprehensive sound installation which has just been completed by Pamphonic Reproducers Ltd. in the Union Castle liner *Windsor Castle*. Stereo can now be provided in the ship's ballroom from either tape or disc.

The 38,000-ton *Windsor Castle*, designed to carry 862 passengers and to serve routes from Southampton to Capetown, is the first vessel to be provided with line source equipment specially designed for ships' use by Pamphonic. The directional properties (it has been shown that sound can be directed in much the same way that light is) and circuited sound distribution angle of line source speakers have been found to be of special value on board ship, notably in obtaining even coverage.

All the equipment is controlled from a sound reproduction room, including announcements to passengers and the relay of radio and recorded programmes on both tape and disc to all parts of the vessel.

MAGAZINE DIGEST

In this column we draw attention to items published elsewhere which may be of particular interest to readers.

Amateur Film Maker: Synchronising tape and ciné, a report of the sync. system adopted by Australian Ciné Societies.

Amateur Tape Recording: *Forming the school tape club.* The first of a series of articles on the use of tape in schools.

The Tape Recorder: *A delayed action time-switch.* Part two, building and setting up.

Hi-Fi Stereo Review (American): *Stereo cartridge simulest.* Part one of a two-part laboratory analysis of popular stereo cartridges. *Twilight of the Musician.* A humorous forecast of the musicians fate following the ever-increasing production of electronic music.

Hi-Fi News (July): *Stereophonic Broadcasting.* A discussion of the various multiplex systems. Part two, The Mullard System.

All issues are dated August unless otherwise stated.

V.I.Ps PEOPLE IN THE NEWS

MR. S. V. WILLIAMS was elected to the Board of Directors of Reslo-sound Ltd., Romford, at a meeting held on 15th July. Mr. Williams will be in the company's Sales Office at 24, Upper Brook Street, W.1.

MR. F. E. SPARKS, A.R.Ae.S., A.M.S.L.A.E., has left the Technical Branch of BOAC, and joined the staff of Electrolube Limited, 16, Berkeley Street, London, W.1, as Technical Manager.

Solution to Crossword published in July 27 issue

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C	Y	C	L	E	O	I	I				
A	O	S	O	S	I	T	E				
T	H	O	U	S	A	N	D	S		E	

at last! **A PROFESSIONAL
QUALITY TAPE
RECORDER
FOR ONLY
42 GNS**

SOUND STUDIO ▶



"A Sound Investment"
says *JACK PAYNE*

Yes, the new **SOUND STUDIO** costs only 42 GNS—yet it literally has every feature you need to produce brilliant tapes—items for a music library of your own, documentaries, film commentaries, etc.

The **STUDIO** has 3 speeds, and with its twin track recording gives up to 9 hours playing time with suitable tape. Output is over $4\frac{1}{2}$ watts, and there are facilities for monitoring, mixing and superimposing. The amplifier can be used as a 'straight' amplifier for speech and music and variable tone control gives full bass and treble response. Simple push button operation.

Dimensions: $15\frac{3}{4}$ " x $14\frac{3}{4}$ " x $7\frac{1}{2}$ "; weight: 22 lbs.

A truly portable professional model at only **42 GNS**.

**Buy a British made
Tape Recorder**

THE SOUND PRINCE—another brilliant 'SOUND' recorder at only 34 Gns. Output over $4\frac{1}{2}$ watts, monitoring, mixing, superimposing, amplifier facilities, records up to 3 hours. Magic eye recording level meter, full size, elliptical speaker. The **PRINCE** measures $15\frac{3}{4}$ " x $14\frac{3}{4}$ " x $7\frac{1}{2}$ ", weighs 18 lbs.—costs only **34 GNS**.

**THE RELIABLE SOUND 'BELLE'
THE SUPERB QUALITY TAPE
RECORDER AT ONLY 26 GNS.**

The precision engineered "Belle" has simple push-button noise-free operation, approx. $1\frac{1}{2}$ hours playing time, twin track recording, straight amplifier facilities, magic eye recording level indicator, and 3 watts output.



TAPE RECORDERS (ELECTRONICS) LTD., 784-788 HIGH ROAD, TOTTENHAM, LONDON, N.17. TOTTENHAM 0811

News from the Clubs

Edited by

FRED CHANDLER

WE have in this office a record of the clubs and their secretaries, the meeting places and dates which have been compiled over the months from the details supplied in club reports. With the new clubs continually being formed, and the changes of officials in the older clubs, I have great difficulty trying to keep track.

A few issues ago an invitation was made for club secretaries to supply these details, and in the majority of cases this was done. However, a number of clubs left out one or two items, particularly regarding next meeting dates. Although the frequency of meetings was supplied, the omission of a particular date renders the information unusable. To these clubs, and to those who have not as yet replied, I make a special request for the details mentioned above.

If details of YOUR club is not included in the "Club Meeting Diary," a postcard will soon change matters.

Songs, recitations and piano solos recorded on tape were presented by members of the **Eastbourne** club when they paid a second visit to the local old folks home last month. Also on the programme for the evening's entertainment was a documentary on Canterbury Cathedral, an "Any Questions" session answered by a panel of four, and a recording of a choir from another old folks home.

The evening closed with recordings of some of the audience—the best speech being made by a 96-year-old member.

At one of their July meetings Mr. Wilson of F. A. Hughes gave his talk and demonstration on the manufacture of BASF Tape, finishing with the usual showing of the film *The Magic Tape*.

Incidentally, my apologies to the club's founder Miss Dee Harris whom I recently described as "Mrs."

Mr. Wilson also visited the **Wakefield** club in July.

His talk and film on magnetic tape followed the general discussion during the club's A.G.M. held on July 4.

The new Chairman elected during the evening is Mr. C. H. Wood. Mr. I. Chidwick and Mr. M. Storey continue as Secretary and Treasurer. Membership now stands at 27.

A competitive quiz session was held on July 25, with the club divided into two groups answering questions on

FROM ALASKA, New Zealand, London, Honolulu and many other parts of the world, different voices, accents of various nationalities and with a variety of creeds and beliefs visit the East African home of Frank and Gina Weston. For more than five years they have brought the world into their home recording "studio," and it all started with a desire to find out how others thought and lived.

Many of their friends show a keen interest in Tanganyika, and the "Weston tapes" try to answer such questions as "What is the United Nations doing in the Territory?" His African drum and native chanting signature "tune" has become internationally known. One tape has been to Australia and back more than twenty times.

In the beginning Mr. Weston found it was difficult to get good repairs carried out, so he studied the electronics and mechanics of tape recorders in his spare time. He now couples his recording technique with an extensive knowledge of most types of recorders.

"Recording is a partnership," they say, although Mrs. Weston leaves all the equipment operation to her husband, and they hope their hobby will spread throughout East Africa.

With this in mind, last November,

recording. Both sides answered well, and the result was a draw.

Arrangements have been made to visit the local railway station on August 25 to record train sounds.

G. B. Larder, the club's publicity man, has recently purchased a Stuzzi Magnette. He is taking this with him on holiday to Norway and, combining his two hobbies, photography and tape, intends to produce a tape/slide show.

Members of the **Leicester** club invited the general public to their July 22 meeting when Mr. Wilson visited his third club last month to present his tape lecture.

Following the talk and presentation of his film, Mr. Wilson gave some helpful advice in reply to members' questions concerning tape storage and print-through.

Pursuing their aim of widely publicising the club, members will throw open the club to the public at the Stocking Farm Community Centre, between September 8-10.

Technical questions will be answered, and the club will have available some of the tapes compiled by members during the past year.

Secretary Dave Wiseman informs me that his club has now been renamed the **Acton and West London** club, mainly because of the scattered nature of the home addresses of members.

The club now has a new clubroom at

Club Personalities No. 12

FRANK AND GINA WESTON

Tanganyika Tape Society



soon after moving from Mbeya to Ukonga, Dar es Salaam, he arranged the inaugural meeting of the Tanganyika Tape Society and was elected Chairman.

His plans for the society include a technical library, an advice panel, and an educational bank for school tapes. Also in his mind are monthly meetings, and a regular tape recording contest.

He is an Assistant Superintendent of Prisons and, as East African representative for World Tape Pals and Tape Respondents International, has more than thirty tape contacts dotted all over the globe.

the "King's Head," Acton High Street. Meetings are held on alternate Fridays, the next on September 2.

Rusty Chapman, one of the club's technical geniuses, has recently started to build her own speaker units, plus other audio equipment. She is having some difficulty locating a mains transformer which will supply 6.3v. at 0.6 amps. Can anyone help to supply this unusual rating?

As nothing had been specially planned for the July 28 meeting of the **Rugby** club, members took along their own tapes to play.

Mr. R. Goodman provided the first hearing—a short tape of household noises. Two tapes received from Canada were played by Mr. Cotgrove, and Mrs. Vera Tilcock presented a tape she had recorded on holiday. This included greetings to the Rugby club from members of the **Bournemouth** club.

Details have now been fixed for the second tape recording course organised by this club. The course will run on consecutive Thursdays from October 6 to November 10 at the "Red Lion," Sheep Street, the venue for the first course held in January this year. The list of demonstrators will be announced shortly.

As before, a small enrolment fee will be charged to non-members taking the course. This amount will be allowed off

(Continued on page 41)

SPECIAL OFFER — Half-a-crown to find a ready buyer or a willing seller

**IF YOU HAVE SURPLUS EQUIPMENT YOU WISH TO SELL, OR IF YOU WANT TO BUY ITEMS SECOND-HAND, YOU WILL GET RESULTS BY USING OUR CLASSIFIED COLUMNS. TO PROVE THE POINT, WE ARE OFFERING READERS A SPECIAL RATE UNTIL SEPTEMBER 1st NEXT—
2s. 6d. FOR UP TO TWENTY WORDS.**

Classified advertisements

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

Tape recorder need repairing? Then let London's Largest Tape Recorder Specialists do it for you, expertly and economically. Essex Tape Recorder Centre, 2, Maryland Point Station, Stratford, E.15.

Mixer for sale. Unimixer 2—two mics (ribbon/xtal.) gram, with power pack. Mint condition. £15 or near offer. Box 379.

Tripletone 12-watt amplifier. Bass, Middle, Treble controls. Two inputs, with separate volume controls. 15 ohm output. Perfect. Bargain. £11. Box 380.

Wanted—Good recordings of laughter. Natural, spontaneous, side-splitting and convulsive. Write first to Box 378.

Mullard 10-watt 5-valve amplifier, disc pre-amp, 1/s, turntable. View by appointment. £7 o.n.o. George, 54, Albert Street, London, N.W.1.

Delmonta f3.5 reflex camera, E.R.C. filters, etc., plus 10 12-in. L.P.s, offered in exchange for decent tape recorder. Mr. Cordier, 26, Macclesfield Road, South Norwood, S.E.25.

Bargain parcel. Splicing Tape with Splicer, Tape Calculator, four different colour marker tapes, twelve hundred feet branded recording tape (new). Money back guarantee. Send £1 10s. now. Watford Supplies, 81, Queen's Road, Watford, London.

STEREO TAPE LIBRARY. Specialists in the sale and hire of **STEREO TAPES.** Hire charge 1s. per tape. Send s.a.e. for particulars to Stereo Tape Library, Linden, St. John's Road, Brecon, S. Wales.

Straight swop—Philips 3538A 3-speed 2-track current model, few months old. Wanted Telefunken 75/15K. 62, Beacontree Avenue, E.17. Larkwood 3792.

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

Stuzzi Magnette transistorised portable tape recorder. Latest model, £72 new. Excellent condition, £45 o.n.o. Phone: HAM 3130.

Sell Bradmatic semi-professional recorder, includes 5D desk, amplifier, power unit, £70 o.n.o. Mike, tapes, etc. Buck, 54, Ashford Road, Bournemouth.

Grundig foot control wanted, type RCF 30, also mixer unit type GMU3 BASF Doubleplay tapes, 7-in. spools. T. H. Pember, 61, Long Mynd Road, Birmingham 31.

For Sale—Fi-Cord 1A. Perfect. Charger and microphone. Extra set batteries, and three spools tape. £40 or highest offer. Mr. A. Sait, 23, Elmham Crescent, Liverpool 10.

Engineer needs for private research, Bradmatic 5C or Simon SP2, not too ancient. Can anyone please assist at Lowest Price. Bridge, 61, Masefield Avenue, Southall, Middlesex.

New Butoba battery portable 50-1,300 cps at 3½. Two-speeds. Latest model, cost with case, etc., £87. Exchange for late Ferrograph, etc., or two Tannoy Monitor 15-in. Units, etc. Write: J. S. A., 43, Sandy Point Road, Eastoke, Hayling Island, Hants.

Decca Sound System, PA VI Amplifier, 20-watt, £12 (used twice). Trix Mike, 30 ohms, Floor Stand 75-1 matching unit (new), £8 10s. Two 12-in. Speakers Portable Encl., £4 (new). Gelso Mike V/C Floor Stand, £5 5s. (new). In one lot, £26. Phone: Kipling 3962.

CENTRAL OFFICE OF INFORMATION require an **ASSISTANT SOUND RECORDIST** (unestablished) to assist with sound recordings on tape designed for overseas broadcasting and to ensure that such recordings are of an acceptably high standard. Qualifications are a knowledge of tape and disc recording systems and experience of sound mixing and editing tape. Salary, £800 to £1,025. Write, giving age, full details of experience and qualifications, to Manager (P.E. 2249), Ministry of Labour, Professional and Executive Register, Atlantic House, Farringdon Street, London, E.C.4.

FERROGRAPH 4 A/N's-808's, VOR-TEXION WVA, WV B, SIMON SP4, REFLECTOGRAPH A-B, etc., always in stock and ready for immediate delivery, as well as over 200 latest 1960 recorders at London's Largest Tape Recorder Specialists. The best, lowest H.P. terms, and finest selection of new and s/h recorders, from £18. Generous P/E allowances. Essex Tape Recorder Centres, 2, Maryland Point Station, Stratford, E.15, and 205, High Street North, East Ham, E.6.

Wanted—Fidelity "Argyll," good condition, with tape and mic, cash or exchange, for stamp collection. Full details, Box 382.

Grundig TK 35, perfect condition, little used, fifteen months old, G.D.M.111 Mic, 7-in. L.P. Tape. £60. B. Thomas, 27, Halse Road, Brackley, Northants.

250 New 7-in. Mahogany Record Cabinets with sliding door, 17s. 6d. each. Beautywoods Ltd., Thornbury, Bristol.

W.A.L. Booster pre-amplifiers, the transistorised **WAL GAIN**, for tape heads (Gramdeck, Fi-Cord, Ferrograph, etc.), Mics (Reslo, etc.), p.u.s. (Garrard, Ortofon, etc., Decca ffs, etc.). Many applications including Mixing. Mono Wal Gain £5, Stereo £7 10s. The new **WALTRAK**, pocket audio oscillator with 1,000 cps signal, transistorised. Ideal for circuit checking £6 10s. The **WAL BULK TAPE ERASER** "cleans" reels of tape in 30 secs. £7 18s. 6d. Ask your dealer or send to us for full Technical literature. Wellington Acoustic Laboratories Ltd., TRCDG Dept., Farnham, Surrey.

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

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

TAPE TO DISC—ALL SPEEDS; s.a.e. for leaflet. **OMEGA RECORDING COMPANY**, 112, Sunnyside Road, Potters Bar, Middx. Tel.: 6428 evenings.

EASYSPLICE TAPE SPLICER SPECIAL OFFER 3s. 9d. plus 6d. p. & p. guaranteed for easy accurate tape splicing. Easysplice Co., 30, Lawrence Road, Ealing.

Tape—Tape—Tape. **BASF—Irish—Scotch.** All types in Stock. Send for price lists. C.W.O. Post free. Tape Recorder Centre (Halifax), 17, Rawson St., Halifax.

Try our bargain offers. Send us details of the machine you want and let us make you one of our bargain offers. Send s.a.e. You will be pleased. The High Fidelity Centre, 61, West Street, Dorking.

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

News from the Clubs

(Continued from page 39)

their fees should they decide to join the club for the current year.

Members of the **West Middlesex** club devoted the July 28 meeting practically exclusively to the sale of the recording equipment of their late friend and member Peter Woodford-Ward.

Those present rallied splendidly, and over £30 was raised on the auxiliary gear. A few items remain for disposal, but even some of these are already spoken for.

A day at Whipsnade Zoo was arranged for August 21. Serving the double purpose of a day in the open and the chance of picking up some worthwhile sounds, members planned to arm themselves with a varied collection of portables, including two Fi-cords, a Butoba, a Clarion, and possibly a Stuzzi.

Their last meeting was held at The Railway Hotel, Station Road, Hampton, on August 11. The reason for the change of address from the usual Red Lion venue being a 50 per cent reduction in rental. The subjects for the meeting were soldering techniques by Ken Phipps, a dubbing and editing session by the secretary H. E. Saunders, and a talk about cathode ray oscilloscopes.

A Club Dinner or Supper is planned for early October, and as a change from the normal procedure of travelling into the West End of London, the evening will be spent in a local restaurant.

The July 18 meeting of the **Ware** club consisted mainly of discussion on increasing membership, and generally improving the "lot" of members.

It was decided to seek permanent meeting rooms—at present the club meets in the various members' homes, and to go ahead with the hospital tape service programme.

As a result of this second suggestion, Secretary Sheila Wakely and Mr. Hale visited an old people's home run by the Salvation Army and put forward the club's proposals. The Matron welcomed the idea and promised it would be passed to the Brigadier in charge.

One of their new members, who works at the local hospital, is making arrangements for a similar service for the patients.

At the end of July, Mr. Wakely was approached by the local dramatic society who urgently wanted a recording of piano music for a play-reading session. Pleased to be of assistance, he spent Sunday afternoon compiling such a tape. Imagine his surprise, the following Wednesday when, invited along to the play-reading, he found he had to pay a subscription for "tea, biscuit and entertainment."

A recent surprise visit from a local enthusiast culminated in his offering the club the use of a van which is equipped as a mobile recording studio.

The equipment installed includes two 100 watt amplifiers, one 20 watt mobile, a four-way mixer for microphones, a three-way radio/gram input mixer, Axiom, Goodman, Vitavox speakers, a mains converter unit, five microphones and two stands, not to mention a tape recorder specially built for him by Ferrograph and Vortexion.

Unfortunately, the proud owner of this meticulous mobile unit is on 24-hour call with the local fire service and is unable

to attend meetings of the club. I can just imagine the hand-rubbing of some of the members when they learned of his generous offer.

A talk on magnetic recording on 16 m.m. striped films was presented at the July 21 meeting of the **Nottingham** club. The talk was given by Mr. G. Briggs who also showed a number of films he has produced, and gave some useful tips on microphone placing.

The following meeting on August 4 was the "outside broadcast" night. One team recorded a drill and demonstration given by the Fire Brigade. In an interview with commentator John Palmer, the Fire Prevention Officer gave advice on minimising fire risk with several examples of fires caused by sheer foolishness. John Palmer also recorded some audience reaction from schoolchildren who were present at the display.

A second crew visited the offices and works of the *Guardian*, *Journal* and *Evening Post*, to gain an interesting sound picture of a paper being produced.

The third team interviewed members of the public in and around the Old Market Square.

These three items were edited and compiled into "Nottingham Newsreel," the documentary programme produced at the August 18 meeting.

After some initial administration difficulties, the **Harrow** club is at last regaining its feet, and the Secretary, Mrs. Toni Fisher, would be pleased to hear from any interested enthusiasts. A great deal of publicity material has been displayed during the past weeks, and as a result of this a hall will be hired for meetings in the very near future. Details may be obtained from Mrs. Fisher at 5, Gloucester Road, North Harrow, Middlesex.

Just another example of the way recording enthusiasts flock to help one another is supplied by the **Brighton** club. I recently received a letter from

Nigel McCrimmon of New Zealand who wanted someone in the Worthing area to arrange the playback of tapes to his mother who lives in that town. I passed on his request to the Brighton club who immediately offered to provide the necessary service, adding that they would arrange to record the lady's messages and return the tape to New Zealand. Thank you, Brighton.

Mr. McCrimmon, incidentally, offers his services to anyone desiring the same procedure in reverse, all postal costs, of course, being met by the correspondents concerned. His address is 37, Malfroy Road, Rotorua, New Zealand.

Another address for those clubs interested in tape exchanges is supplied by Mr. R. V. W. Temlett of Malaya. He is in the process of forming a club in Singapore and is very keen to hear from clubs in this country. His address is 342, Dahan Road, H.M. Naval Base, Singapore 27.

Another enthusiast with this type of pastime in mind is 21-year-old B. Griffiths of 13, York Road, Upper Ventnor, Isle of Wight. He is a member of the tape section of the International Short Wave Radio League and would like to have a female tape contact. His recorder has a single speed of 3½ ips with a maximum spool size of 5¼ inches.

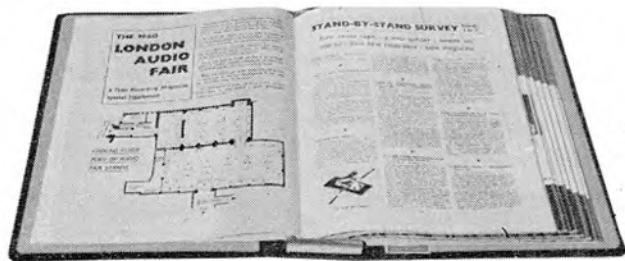
A plea for an enthusiast keen to sponsor a tape recording section in a youth club arrived on my desk early this month. It came from Mr. John Rushton who has taken over leadership of the Duke of Clarence Youth Club of London.

This mixed club, with a membership of sixty-five in the 14-21 age group, owns a recently overhauled Reflectograph recorder. If anyone with the necessary knowledge and interest would like to be of service to the club, contact Mr. Rushton at 131, Kennington Road, London, S.E.11 (RELIance 1686).

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