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VOL. 3 NO. 10

MAY, 1962

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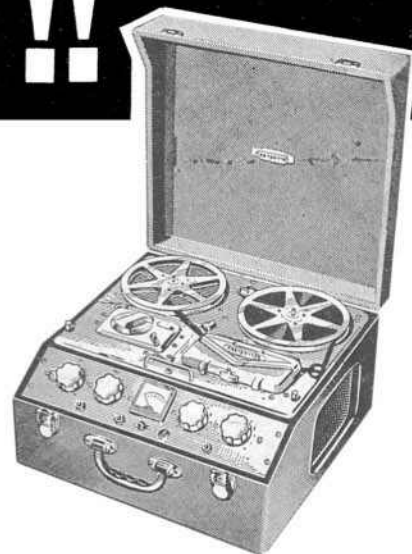
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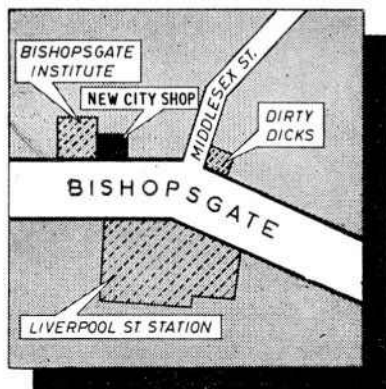
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Be sure you visit TeleTape—Britain's largest tape record and recorder specialists—during Stereo Fortnight. The TeleTape showroom is at 33 Edgware Road, W.2 (two minutes from Marble Arch) and open six days a week and up to 8 p.m. on Fridays.

Admission is absolutely free.

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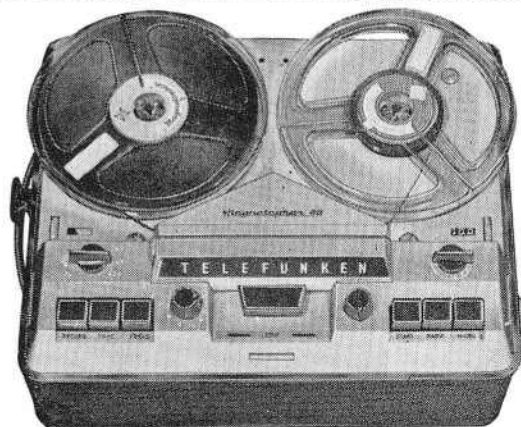
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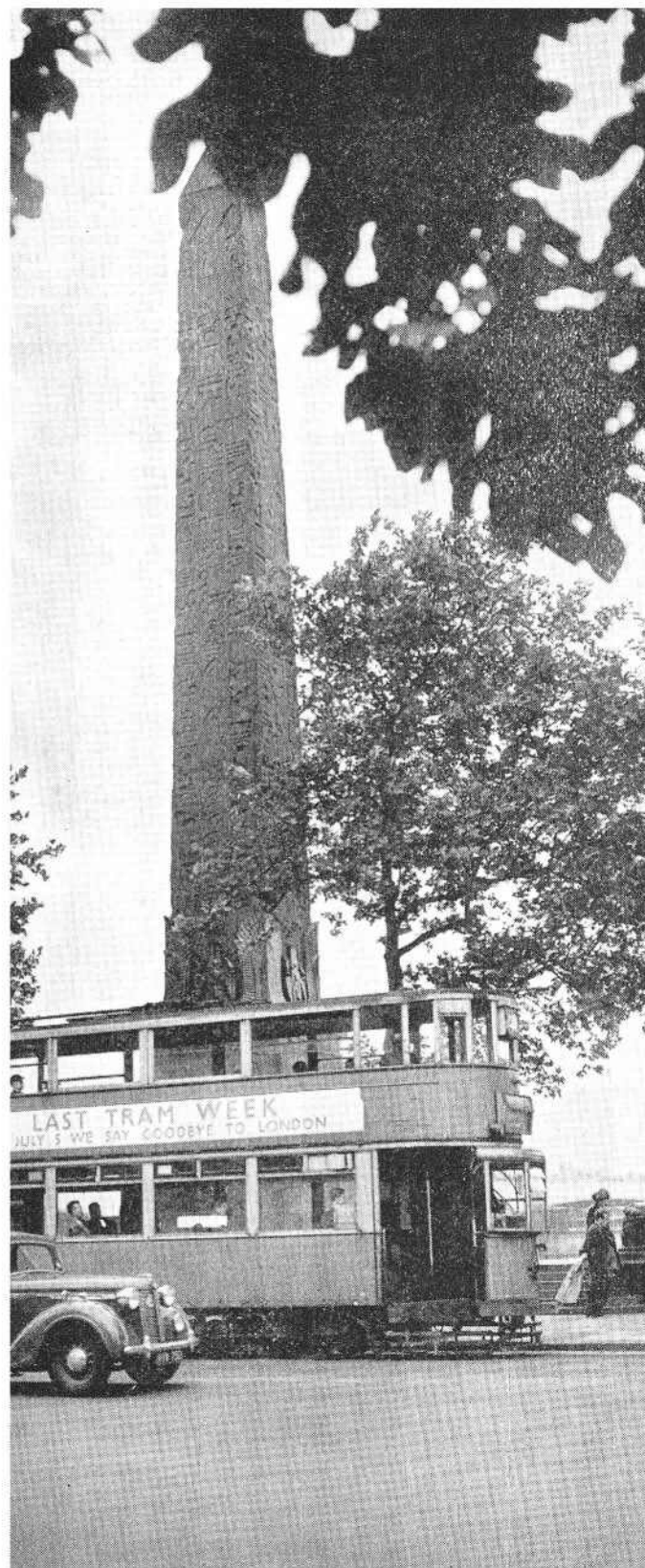
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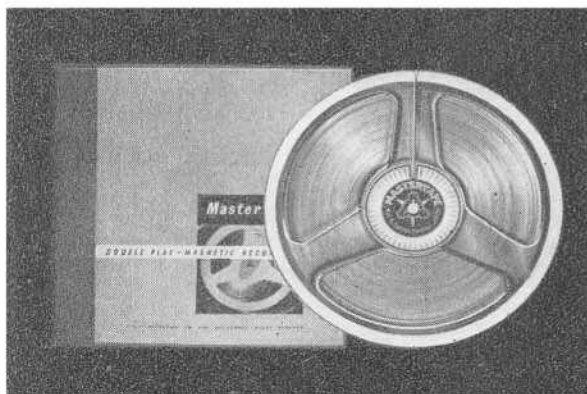


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RECORDING AND HI-FI MAGAZINE**

"ATRECORD"

*The recorder
"that builds
itself"*

SEE PAGE
30

Recommended by Mr. F. C. Judd specially for the non-technical enthusiast who wants to build his own recorder. The "Atre-cord" as described in this journal uses professional standard parts designed for putting together easily and with assured success. It saves money too, and everything is complete down to the last screw—even the wire is supplied cut to length



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INTERNATIONAL triumphant new WyndSOR recorder

There is so much one could say about the new vertical-operating 'INTERNATIONAL' that you should write to us for the colour leaflet to do it justice. Briefly:

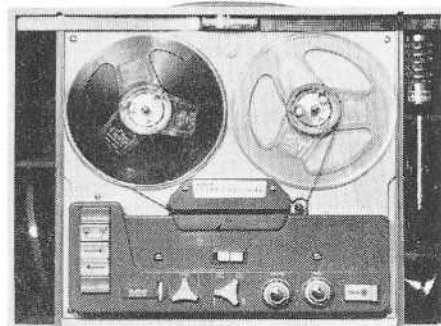
4 tracks — 2 speeds ($7\frac{1}{2}$, $3\frac{3}{4}$), fantastic performance, independent bass and treble controls, 8" dia. speaker (13,000 lines gauss) facing rear, recording-level meter with horizontal scale, 3 inputs, 3 outputs, output for stereo, monitoring through speaker, switched straight through amplifier, red/green warning lights, tape position indicator, storage space for microphone and 6 spools, ribbon microphone with flexible column and stand, centrifugal locking nuts for spools, pause control (temporary or lock down).

75 gns complete with ribbon microphone & flexible column.
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AMATEUR

Tape Recording & Hi-Fi

THE SOUND MONTHLY

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Copyright—Strong Action by A.T.R.

Copyright confusion has proved an intolerable burden on the British tape recorder owner. Time and again we have found the purely private and amateur re-recording of a gramophone record has involved us in a technical breach of the law. Who wants this cat and mouse bogey in the front parlour?

The whole sorry business has now come to a head at the very moment when tape recording enthusiasts are flocking to do public spirited work in the hospital and other social services.

This brings them into much more open breach of the law.

A.T.R. had to act, and A.T.R. has acted.

After much correspondence and ceaseless agitation towards clearing up the doubt and indecision on this subject we have now reached full agreement with the Mechanical Copyright

Protection Society, acting for all the record companies, to join in full discussion of copyright and its allied problems.

We have acted, but without your support we cannot have all the facts about the handicap of copyright on the individual tape recordist and the clubs.

Send all information and all suggestions to A.T.R. C.Q., Room 530, 168 Regent Street, London, W.1.

What is your opinion on licensing for this purpose . . . on the size of the fee. Should there be any licensing at all? Our strength in the forthcoming discussions will depend on your support.

We have proved before that benefits accrue from strong united action. Let us prove it again, with the co-operation of the Mechanical Copyright Protection Society.

MAY, 1962
VOL. 3 NO. 10

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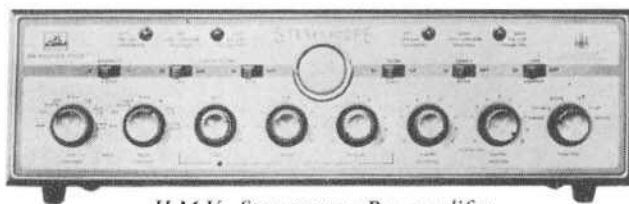
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Here is the A.T.R. selection of the outstanding attractions that will be catching the eyes and ears of the Seventh Audio Festival's visitors.

If you intend to be one of the visitors, this is your check list of items not to be missed, and if you are one of the unlucky folk who will not be able to get there, here is a glimpse of what 1962 has in its audio store for you.

AUDIO SHOWCASE 1962



H.M.V. Stereoscope Pre-amplifier.

The Stereoscope

The H.M.V. Stand will be featuring their Model 556 "Stereoscope" self-powered stereo pre-amplifier. This unit is basically the same as the pre-amplifier section of Model 555 with additional features. It can be used in conjunction with any high-quality stereo power amplifier or pair of single-channel amplifiers. It is self-powered and will operate from a variety of signal sources including tape heads or tape recorder high-level outputs.

Of top interest to the man planning to go stereo.

Butoba MT7

On the Butoba Stand, the featured item will be their MT7, a portable tape recorder smaller in size and performance than the well-known MT5. It is a fully transistorized model, using six transistors, one diode, and one magic eye tuning indicator DM 71.

It has a transistor governed speed control, and guarantees constant speed $\pm 0.5\%$.

Two tracks, two speeds— $1\frac{1}{2}$ and $3\frac{1}{2}$ i.p.s.

The E.M.I. Stereo Pick-up

Look out for the E.M.I. Stereo Pick-up on their display. It is carried on a single hardened point, and has no guide plates which could create friction in the vertical direction of movement. The arm is accurately balanced both laterally and longitudinally and is precisely set at the factory to the optimum playing weight of 2.5 grams. Both lateral and vertical movements of the arm are damped by means of a viscous fluid. This not only controls arm resonances but 'stabilizes' the stylus in the record groove, thus permitting an extremely low playing weight. It is virtually impossible for anyone to damage either stylus or record with this pick-up. Response: substantially flat between 40 and 15,000 cps. Output: 1.4mV cm/sec. r.m.s. Nominal per channel. Cross talk: better than 20 dB at 1,000 cps.

New Grampian Microphone

The Grampian ribbon microphone makes its debut at the Audio Festival. Small in size, attractive in style, and outstanding in performance, this long-awaited instrument is bound to attract much interest.

Two models are available. The GR.1 having a reduced back sensitivity and the GR.2 with the usual figure 8 sensitivity pattern. Full information and price details can be obtained from the Grampian Stand or Demonstration Room.

King-size Tapes

Of particular interest to the serious recording enthusiast this year is the introduction by Gevaert of tapes on 10in. plastic spools for use on recorders such as the Revox Stereo Recorder and the modified Mk. 5 Brenell deck. At a recording speed of $7\frac{1}{2}$ i.p.s., this makes possible uninterrupted recordings of up to 64 minutes with standard play tape and 96 minutes using long-play tape.

"International" Demonstrations

The new Wyndor "International" tape recorder, details of which were released in the April A.T.R., will be one of the most interesting features of the Audio Festival.

It has an impressive array of facilities. Some of these are exclusive to the "International": for example, the low impedance ribbon microphone (with extendable lead) inclusive in the price, the eye-level controls, the illuminated record-level meter (changing from red to green for 'record' and 'play'), the lush storage compartments and the 8in. diameter speaker with special cone.

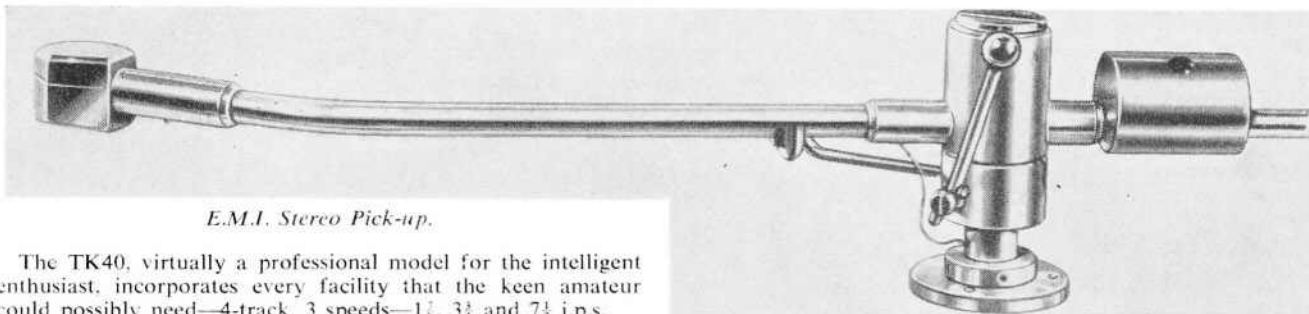


Butoba MT7 Tape Recorder.

Complete Grundig Range

Grundig (Great Britain) Limited are exhibiting their current range of tape recorders—the TK1, TK14, TK40 and TK60.

Of particular interest is the 4-track machine, the TK40, and visitors will have an opportunity of hearing this machine in Grundig's demonstration room (Number 115) on the First Floor. Tremendous advances have been made in the design of the TK40.



E.M.I. Stereo Pick-up.

The TK40, virtually a professional model for the intelligent enthusiast, incorporates every facility that the keen amateur could possibly need—4-track, 3 speeds—1 $\frac{1}{2}$, 3 $\frac{1}{4}$ and 7 $\frac{1}{2}$ i.p.s.

At the Stuzzi Stand

The Stuzzi 201 is an entirely new machine. Highlights are: 2 speeds—i.e. 7 $\frac{1}{2}$ and 3 $\frac{1}{4}$ i.p.s., 4 tracks, frequency range 40 to 14,000 cps. Wow and flutter approx. 15% (Papst motor), counter, superimposition, 9in. \times 5in. high flux speaker etc. Price approx. 45 gns. including microphone and tape.

Don't miss the Dictamat at Stuzzi's Stand!

Decca 'Deram'

For those who cannot afford the luxury of the ffs pick-up, Decca will also be demonstrating the "Deram" cartridge and will substantiate their claim that, for its price, it is the only cartridge in the world with such an impressive specification. In recent comment on the "Deram" perhaps too little emphasis has been placed on the fact that it is a truly revolutionary break-through, being the only cartridge in the world at such a low price which can be demonstrated to cause such an



Grundig TK40.

absence of record wear. Particular emphasis will be put on this fact in the demonstrations with reference to the high compliance and low tip-mass of the "Deram" cartridge.

Goodmans on Show

The Axiom 301 (£14, no P.T.) replaces the world-beating Axiom 300 and 400, and the Axiom 201 (£9 15s., no P.T.) is an all-new 12in. high-fidelity Axiom specially developed to fulfil the demand for a unit between the Axiom 10 and the superlative Axiom 301.

Philips at No. 46

The theme of Philips' display will be their complete range of tape recorders, no less than five completely different models. Development and planning of all these machines is carried out by the same engineers who are responsible for the Philips professional equipment, recently approved by the B.B.C., who, after extensive field trials, have placed a £30,000 order for the professional tape recorder, model EL3566.

For the first time visitors will be able to operate all five machines in the range.

They are:

Model EL3585 "Battery Portable". This was the first model to be introduced with the upright styling, and costs 24 gns.

Model EL3514 "Starmaker". The newest mains-operated model in the range has also adopted the upright styling, which gives the largest loudspeaker in a machine for this price category (27 gns.).

Model EL3541 "Family Model". This popular 34 gns. machine now has a parallel track feature incorporated, which will be demonstrated to many people for the first time at the Festival.

Model EL3541 "3-speed Hi Fi". Three speeds, automatic tape stop and superimposition facilities are added to the many features of the Family model in this 59 gns. machine.

Model EL3536 "3-Speed Hi Fi Stereo De Luxe". Stereophonic recording and playback is incorporated in this compact unit, which has one speaker in the cabinet and the second speaker in the detachable lid. Philips claim every modern worthwhile development in tape recording in one machine for 92 gns.

In addition to the tape recorders there will be a full display of the wide range of Philips Magnetic Tapes and tape recorder accessories. Professional microphones and equipment will also be shown, the star attraction in this section being the condenser microphone, model EL6050, which is used in the studios of B.B.C., A.T.V. and Granada TV.

Secrets?

Our regular readers will notice that this is not as rich a harvest as we have seen in previous years. In fact, this year the manufacturers have been strangely reticent about revealing details of the products they will be unveiling at the Show. Why? Perhaps because there is little new, or because they want to make the maximum impact at the show. Only the actual Festival will tell us—and we shall tell you in our forthcoming Festival report.

ATR



the very latest in stereo and mono

Colourful, unusual, powerful—these are the latest tape records covered by our two top reviewers, Peter 'Stereo' Redfern and Stan 'Mono' White.

Here are three more releases in **World Record Club's** Stereo 21 series—7½ i.p.s. two-track stereo.

"Kismet" (STT68). Music and lyrics by **Robert Wright** and **George Forrest**, based on themes by **A. Borodin**.

I am sure that Borodin has forgiven this translation of his music into modern terms. I have—from the moment I fell victim to those baubles, bangles and beads, following the fortunes of a stranger in paradise at the now departed Stoll Theatre.

This is a wonderfully alive recording filled with all the variety and richness of old Baghdad itself.

Soloists are Elizabeth Harwood, Grahame Laver, Peter Grant, Paul Whitsun-Jones and Diana Landor, with the Linden Singers, and the New World Show Orchestra conducted by Ken Alwyn.

My choice of the month.

Bizet (STC14). "Carmen"/"L'Arlesienne Suite".

Nietzsche said of Bizet's Carmen, "This music possesses the limpid, dry atmosphere of warmer climes." Its world-wide popularity has since endorsed his opinion. The Americans not only accepted it, they made it Carmen Jones. But here we have the original music played in sparkling style by the Sinfonia of London, conducted by Muir Matheson.

The Toreadors arrive with a splendid burst of sound which will bring the speakers tumbling down if you have not anticipated it. It provides rich stereo material. I approve.

Gershwin (STT75) "Rhapsody in Blue"/"An American in Paris".

This combination of two top Gershwin favourites on one tape should prove most popular. William Steinberg conducts the Pittsburgh Symphony Orchestra, with the pianist Jesus Maria Sanroma in "Rhapsody in Blue".

There is a moment in adolescence when you love "Rhapsody in Blue". Then as you get older, it loses much of its charm, but finally its brazen assurance lures you back.

The "Rhapsody" has been recorded many times. Jesus Maria Sanroma brings a machine-gun attack to the piano part, with runs which are not always completely successful. My memory of Oscar Levant still holds first place—but this is stereo.

TAPE PARADE

"An American in Paris" is in many ways a more pleasing recording. It is packed with atmosphere and, in the quiet passages, this comes across perfectly, but in the more boisterous parts, Steinberg does not generate sufficient excitement in the orchestra for my taste.

Peter Redfern

"Dixieland Battle". Saga STG 8068. Two-track. 3¼ i.p.s. Mono. 30 minutes.

Track 1:

Pete Fountain Dixieland All Stars—"Farewell Blues", "At The Jazzband Ball", "March Of The Bobcats", "Jazz Me Blues".

Pete Daily and his Chicagoans—"Just a Closer Walk", "Swanee River".

Track 2:

Muggsy Spanier Dixieland Band—"Bugle Call Rag", "That's a Plenty", "Muskrat Ramble", "Tin Roof Blues", "Royal Garden Blues", "Margie", "Indiana".

Dixieland jazz played by some of the most famous names in the business; the young people of today would call this 'trad', it is from recordings such as this that Kenny Ball and the rest of the present-day crowd have borrowed their technique. Do not take that comment as a knock against our boys, who do a good job as a rule. But here is the real thing.

Famous clarinet star from New Orleans—Pete Fountain opens the session with his band. The music is full of life and gets quite hot in one or two places. Pete Daily and his Chicagoans are number two on the bill, and unfortunately only offer two numbers, both of which are rewarding. Daily has the nearest approach to real New Orleans style jazz on the tape, and is real nice listening.

The one and only Muggsy Spanier leads his group for all of the second track. This band has a real attack and wraps itself up in the music. Muggsy can always be relied upon to give an interesting session, and this is no exception. All of the recordings on the tape date from the '50s or earlier, and I suspect that some of the Muggsy Spanier material was taken down from radio broadcasts in the first place. Jazz fans will enjoy this as I have done, but I must warn you that the reproduction quality does vary from track to track. Some of the sound is real solid, whilst other tracks sound rather thin. I really do feel that Saga might have added some echo and depth to some of the tracks, but in any case the quality of the music and playing wins the day.

A good buy for jazz enthusiasts.

"Let's Swing". Wendell Tracy and his Orchestra. Saga STG 8060, Two-track. 3½ i.p.s. Mono. 30 minutes.

Titles: "In a Persian Market", "Gotham Jump", "Nitwit Serenade", "Sultan Serenade", "Lullaby of Birdland", "Moonlight In Hindustan", "Little Angel's Lullaby", "Perdido".

This band really does lay down a beat and gives a direct reminder of the great Glenn Miller Orchestra. Although some of the titles might seem strange to you, the format is in the style of the all-time greats of the swing era. Wendell Tracy himself composed several of the numbers, which probably explains why we have not heard them before. Each track is first-class, both in the arrangement and the playing. The band has a very big and solid sound, and the reproduction quality is extremely pleasing for this speed.

This, then, is a tape of swing music as played by the big bands, which lives up to the reputation laid down by Miller, Dorsey, Goodman and the Casa Loma orchestras of the '30s and '40s. The sound is in no way dated, as the solo work and orchestral passages follow a mainstream pattern whilst retaining the essential beat and atmosphere of the swing era.

A very good recording which I guarantee will set many a foot tapping, no matter to what age group you belong. A sure hit with all lovers of swing music with a real beat.

"Lenny Takes The States". Lenny Rawle at the mighty Wurlitzer organ. Esoteric (Tape Of The Month Club).

The same 4-manual, 16-rank Wurlitzer organ is featured, this time by the other Esoteric organist, Lenny Rawle who made his debut with "Echoes of Christmas". On this recording, Lenny takes us on a musical trip through the U.S.A.

Titles include: "St. Louis Blues", "Georgia", "Carolina Moon".

Jack Heyler at the Mighty Conacher Organ. Esoteric (Tape Of The Month Club) is an added treat for all theatre organ enthusiasts, for here is the famous Nottingham organist playing in his own distinctive way on the last remaining large Conacher organ, a 4-manual, 22-rank instrument designed by Reginald Foort. The mighty organ roars and whispers, and some very nice percussion effects are heard.

Titles include: "Imperial Echoes", "Ballet Egyptian", "Orient Express".

All of the Esoteric (Tape Of The Month Club) releases are available at two-track, 3½ i.p.s. The above tapes cost 27s. 6d. each.

"In the Bistro" No. 4, French Accordeon Music. Music On Tape. 86-8763. 3½ i.p.s. Two-track. Mono.

Although I liked the sounds on this tape from the first hearing, I was not sure who the featured accordeon players were, or whether they would be top line artistes. So I called in a friend of mine who is an expert on the accordeon. After listening to the tape he informed me that the performances are first-class, and the artistes well known in the accordeon field. This pleased me because the music is happy and the accordeons are given some superb backing by rhythm groups. The names of the accordeon players featured are Emile Carra, Joseph Bazelli and Aimable. There are a couple of tracks which feature the lead in the form of clarinet and piano.

The tape provides an hour of very enjoyable music in a modern style, most suitable for dancing as well as listening.

Numbers include: "The Bandit", "La Nocturne", "Mounette", "Samba des Monedieres".

Readers experiencing difficulty in obtaining pre-recorded tapes locally may be interested to know that every pre-recorded tape reviewed in this magazine is available from Teletape of 33 Edgware Road, London, W.2. Teletape are also the sole distributors for the American Audio Fidelity tape recordings.

Stan White



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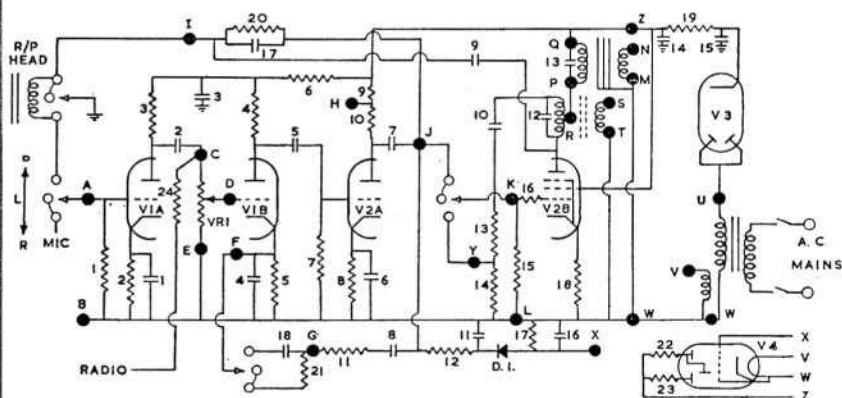


THE ATRECORD

With part III of our do-it-yourself series, A.T.R.'s unique home-built recorder nears completion. If you are already building the ATRECORD, you are permitted a justifiable glow of achievement on reaching this stage. If you want to start right away, the A.T.R.'s containing parts I and II can still be obtained.

READY FOR WIRING

CIRCUIT DIAGRAM



We have now reached the final stage of the wiring, after which the ATRECORD is ready for testing. The main components which still have to be wired are the volume control, output transformer, the mains transformer and the loudspeaker. The theoretical circuit is given in Fig. 1 for readers who are already building the ATRECORD.

The Volume Control

THE volume control is supplied with two screened leads already soldered to it. The one connected to the outer contacts goes to tags C and E on the amplifier board (the screening braid is connected to tag E). The other lead goes to tags D and E (screening braid to tag E).

The 100K.ohm resistor already attached to the 'radio' input jack is soldered directly to the outer contact of the volume control, i.e. the same one which you have connected to tag C as above. The 'tinned' copper wire is soldered to the screening shell of the volume control.

The Output Transformer

The output transformer has three short wires already

attached to it. These are coloured black, blue and red and are connected to the tags on the amplifier board as follows: black to tag W, blue to tag R, red to tag Z.

Extension Speaker Jack

The longer pair of red and black wires already soldered to the extension loudspeaker jack are connected to tags N and M on the output transformer, red lead to N and black lead to M. The remaining pair are connected to the loudspeaker. The short single black lead is soldered to the metal cover of the tone control.

The Mains Transformer

Take great care to get these connections right. The mains transformer tags are numbered and for a 200 to 250V mains supply tags 2 and 3 are linked together. Tags numbered 1 and 4 are connected via a twisted pair of leads (green and yellow) to the mains switch on the tone control (see Fig. 2). Tag 6 is connected by a red wire to tag U on the amplifier board. Tags 5, 7 and 9, which are all joined together, are connected via a black lead to tag W (amplifier board) and tag 10 via a green lead to tag V (printed board).

The Record-Level Indicator

This is a magic eye type indicator and has four connections. Black and green go to tags 9 and 10 respectively on the mains transformer, red lead to tag Q on the output transformer, and the yellow lead to tag X on the amplifier board. You may find it easier to remove the valve above tag X in order to avoid burning other wires and components with the soldering iron.

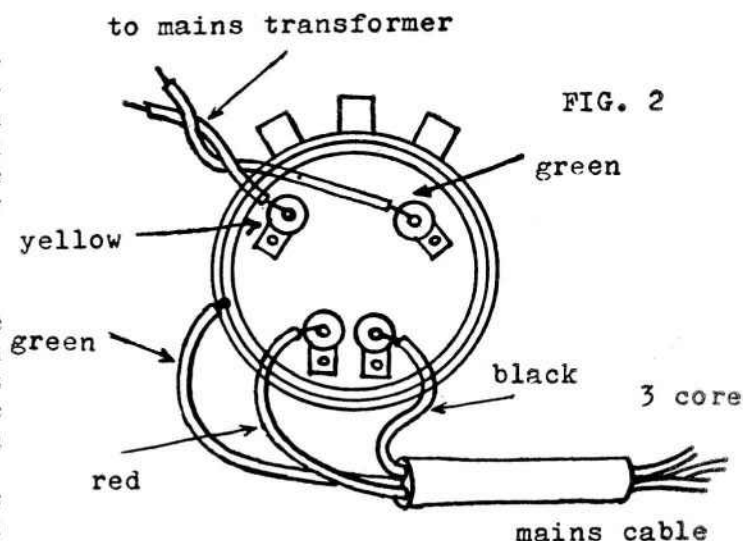
The Tone Control

The 0.02 mfd. capacitor which forms part of the tone control circuit is already mounted and wired beneath the output transformer. It is connected between tags O and Q. The blue and black wires attached to the tone control itself are merely connected to tags O and P on the output transformer.

The red and black leads of the 3-core mains cable are connected to the two remaining tags on the switch attached to the tone control (see Fig. 2). The green lead of the mains cable is connected to the metal cover of the tone controls.

Motor Leads

Finally, remove the saddle clip holding the motor



CONNECTIONS TO MAINS ON/OFF
SWITCH ON TONE CONTROL

leads to the deck. Cut the brown and black wires from the motor to a length of 6 in., twist them together and solder to tags 1 and 4 on the mains transformer. (It

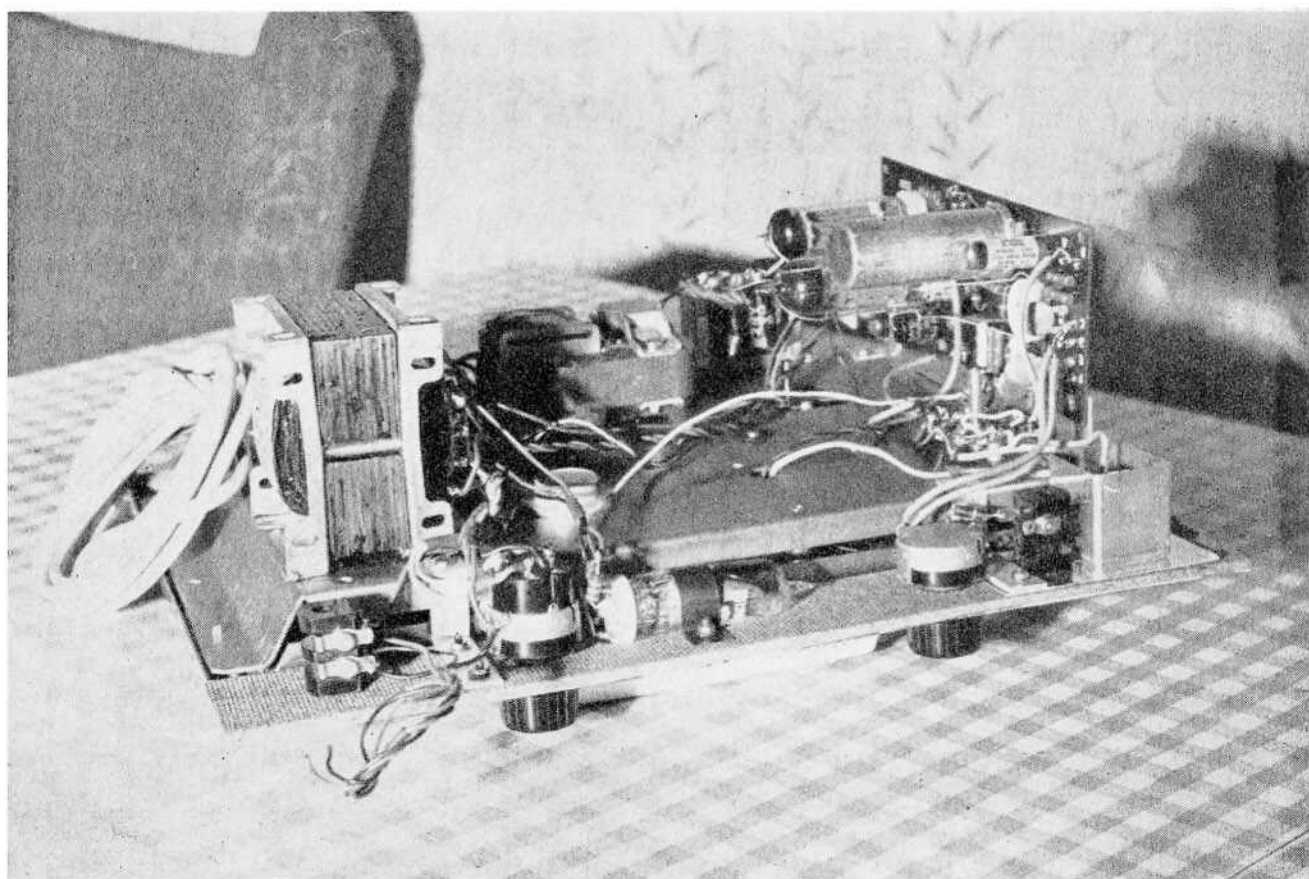


FIG. 3. The assembled and wired tape deck and amplifier of the ATRECORD.

does not matter which way round they are connected.) The saddle clip can be used to anchor down the 3-core mains lead.

Ready for Testing

Your finished Atrecord should now look like the one shown in Fig. 3. Before you attempt to switch on, carefully check every connection. Make sure no bits of solder have dropped into the deck, the amplifier or record/playback switch. Double-check the mains transformer connections. Make sure the 3 valves are firmly seated in their respective holders. The 3-core mains lead requires a 3-pin plug (green lead to earthing pin). If you have a voltmeter you can check the h.t. voltage between tag Q on the amplifier board and the deck. (The h.t. reading with a model 7 Avometer was 210V.) The magic eye level indicator should be open but luminated the usual bright green.

It would be a good plan to extend the leads to the loudspeaker and test the Atrecord for record and playback before mounting it in a cabinet.

The deck controls are clearly marked as to play, record, re-wind etc., but for recording, the left-hand control is moved fully to the left and at the same time the right-hand control is pushed forward. The left-hand control will now stay in position.

Next month: The final tests and procedure.

ATR

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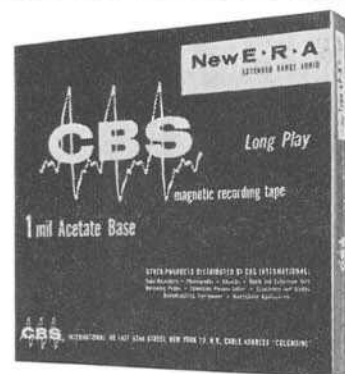
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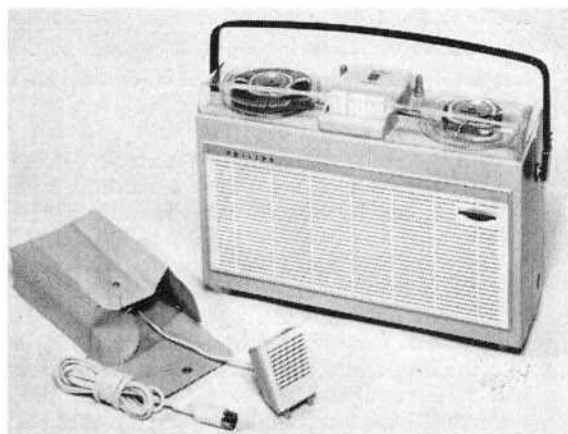
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THE EDITOR'S DECISION IS FINAL AND LEGALLY BINDING

CUT HERE

May, 1962

17

Norrie Paramor, ace composer, arranger and musician, considers the chances of stereo in tin-pan-alley land. Will it take over completely, or will it stay where it is, on the side lines?

HOW about pop singers in stereo? Well it sounds a good idea I agree, almost a recordist's dream I suppose, but somehow I can't see it happening—not for a few years anyway.

The only time I can see a single being issued in stereo is if someone has a novelty idea that can be expressed in two and a half minutes.

If he has, fair enough, but I doubt if he will ever get it into the hit parade because there just aren't enough people with stereo equipment.

Personally, I think singles in stereo would be a great idea because it's the arranging that really pays off in stereo. You can do so much and make a really good sound—it's a very satisfying medium with which to work.

By that, I don't mean that people should start composing simply for stereo because it wouldn't be worth it. For

**NORRIE
PARAMOR**



SOUND sound SOUND sound SOUND **SOUNDING OFF IN STEREO** SOUND sound SOUND sound

instance, suppose you do "Do.Re.Mi." one side and "La.Ti.Do" the other. Well it's okay, but the sound doesn't seem any different from an ordinary Hi-Fi recording.

It's only arranging that is effective in stereo.

But there is a great deal of scope for a stereo arrangement—it's like letting a child loose in a toy shop! I think that stereo arranging offers a whole new field which has yet to be fully explored. And I'm sure that in the future more and more arranging will be done in stereo because of its wide possibilities and because of the satisfaction there is working in this field.

Moving on from stereo records to stereo tapes, I think that stereo tapes are probably the best way to listen to a recording. I have recorded this way myself because I believe that. But I also think that it's a medium that's far too expensive for the average person to buy—especially when you compare it to an L.P. of the same length.

My Tapes

The two tapes I've made have been called "The Very Thought of You" on CDT 859 and "Latin Night" which I made with Ray Martin and his orchestra on CDT 860.

Talking about my own work—sorry—people often ask me if I enjoy doing music I've written myself. Things like "The Frightened City" and some of "The Young Ones" score.

Well the answer is a very definite NO.

I'm not saying this through sham modesty. I mean it—I hate recording my own material. I'm much more nervous at recordings and anyone at any time could talk me out of it. Also, I don't think I do my best work on my own stuff—but maybe that's just me.

Other people's material always seems much easier to work on. I do a tune as I feel it should be done. I don't often consult with the composer because an arranger arranges and that's it. Anyway, often you can improve a tune beyond recognition just by arranging it in a certain way.

Adding strings, putting in a small sound that to an ordinary listener would be hardly noticeable—that sort of thing makes all the difference between an ordinary recording and a hit.

There was one time I actually had a composer in on a recording session and that was for the Shadows' "Wonderful Land".

Jerry Lordan was there at the session and we made the record everyone was crazy about it and we all went away happy.

Then later, as I told you last month, we decided to add violins. I didn't call Jerry in again, but after we'd finished Jerry heard the recording again and he liked it so much he took me out to lunch to thank me!

Which just proves that composers and arrangers CAN be the best of friends!

See you next month.

ATR

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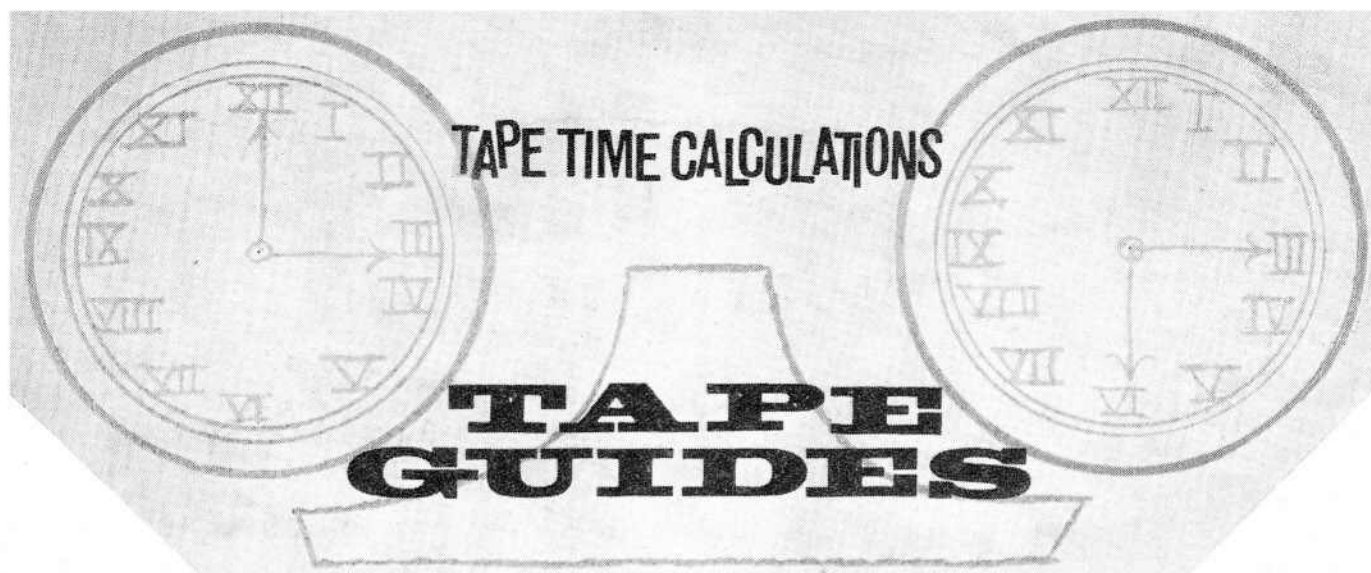
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How to solve the problem of tape-timing

WITH three different types of tape (standard, L.P. and D.P.) a half dozen or more sizes in tape spools, and five different recording speeds, the problem of *which tape, what spool size and what speed* becomes something of a headache. For instance, the four-track system will permit a total playing time of 8 hours at a tape speed of $3\frac{1}{2}$ i.p.s. using 2,400ft. of *double play* tape (7in. spool). At a speed of $1\frac{1}{2}$ i.p.s. this time is doubled. Using the same speed ($3\frac{1}{2}$ i.p.s.) and a 7in. spool of *standard play* tape the time would be halved. At $7\frac{1}{2}$ i.p.s., on the same spool, the time would be halved again. Complicated? Well, here are a few figures that may help.

PLAYING TIME (1)

The playing time, *per track* for a given length of tape, can be calculated from the following simple formula. *It does not matter whether the tape is standard, L.P. or D.P.*

$$\text{Playing time} = \frac{\text{Tape length in feet} \times 12}{\text{Tape Speed}} \div 60$$

EXAMPLE: The playing time per track for 1,200ft. of tape at speed of $7\frac{1}{2}$ i.p.s.

$$= \frac{1,200 \times 12}{7.5} \div 60 \text{ which is approximately } 31.1 \text{ minutes.}$$

LENGTH OF TAPE (2)

The length of tape for a given playing time per track can be calculated as follows:

$$\text{Length of tape in feet} = \frac{\text{Time in minutes} \times 60 \times \text{tape speed}}{12}$$

EXAMPLE: A playing time per track of 15 minutes would require:

$$\frac{15 \times 60 \times 7.5}{12} \text{ or } 562.2 \text{ft. of tape.}$$

TAPE SPEED (3)

The tape speed for a given length of time and playing time per track can also be worked out as follows:

$$\text{Tape speed} = \frac{\text{Length of tape in feet} \times 12}{\text{Time in minutes} \times 60}$$

EXAMPLE: We have 600ft. of tape and wish to make a recording on one track lasting 30 minutes

$$\frac{600 \times 12}{30 \times 60} = \frac{7,200}{1,800} \text{ or } 4 \text{ i.p.s.}$$

This is of course slightly higher than the standard speed of $3\frac{1}{2}$ i.p.s. If we actually take $3\frac{1}{2}$ i.p.s. as the speed, the playing time (as per formula) comes out to: $\frac{600 \times 12}{3.75} \div 60$ or slightly more than 32 minutes, so you would have a little tape and time to spare.

(Next month we will show you how to make a simple tape time calculator.)

F.M. AND A.M. RADIO CHANNELS

Here is some interesting information from the B.B.C. Engineering Department, concerning the frequency range and distortion content of the A.M. and F.M. radio channels.

A.M. (AMPLITUDE MODULATION TRANSMISSION) MEDIUM AND LONGWAVES

Frequency range—studio link, 40 to 15,000 cps. Distortion—at 40% modulation, less than 1%—70% modulation, less than 1.5%—90% modulation less than 3%.

F.M. (FREQUENCY MODULATION TRANSMISSION) V.H.F.

Frequency range—studio link, without pre-emphasis, within ± 0.5 dB—30 to 15,000 cps. Distortion for 75Kc/s deviation, less than 1%—for 100Kc/s deviation, less than 2%—for 125Kc/s deviation less than 5%. Distortion with pre-emphasis at 75Kc/s deviation, less than 1.5%—at 100Kc/s, less than 3%.

Approximately $\frac{1}{2}\%$ may be added to the distortion percentage for studio equipment and landline distortion.

What do these figures mean to the tape recording enthusiast? Simply that if you have a good quality F.M. tuner feeding a tape recorder with a frequency range of 30 to 15,000 cps. and a distortion content of about 4% or less, the quality of the recording should be almost equivalent to the signals feeding the broadcast transmitters. The quality of the *playback* is another story, for this depends on the internal amplifier and speaker, but we should point out that few, even expensive tape recorders, have an overall distortion content of less than 5%.

ATR





edited by Terry Nurse

Our Top Tape Club feature has been arousing nation-wide interest in Press and Clubs. Now we give the first league position chart, which shows that Northampton is really riding high in true Carnival spirit.

Local papers are already beginning to show an interest in the League, so if your Club is doing well be sure that your local Press know. This month we lead off with Bournemouth.

Bournemouth Belles

When Mrs. J. L. Lawson, Secretary of the Bournemouth Club discovered that the club was number 7 in the A.T.R. "Top Ten" list for March she 'danced



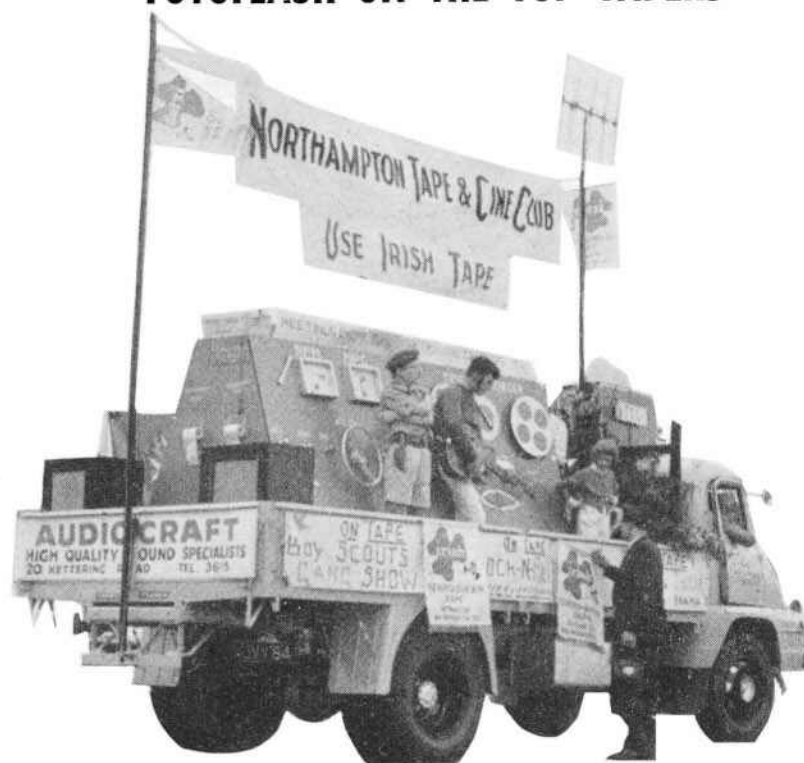
On the left, Madam Chairman, Miss D. Slack, and on the right, taking a breather after 'dancing round kitchen', Mrs. J. Lawson, joint Secretary/Treasurer of Bournemouth Tape Club.

for joy'. The club now meets once a fortnight at the Pembroke Hotel, Poole Hill, Bournemouth. Miss Slack, the Club Chairman, and Mrs. Lawson enter their second year at the helm, having been re-elected at the present A.G.M.

International Tape Fellowship

A news sheet for members of International Tape Fellowship was recently issued and further issues will be produced every two months.

FOTOFASH ON THE TOP TAPERS



For the third year running, Northampton Club will record on both tape and film their local carnival parade. Shown here, complete with telly aerial, is the club's own float.

Brum Fun

Messrs. Cowley and Haining of Simon Equipment Limited certainly proved that "Tape Recording is Fun" when demonstrating the Simon SP.5 to a large gathering at South Birmingham Tape Club. Members of the Redditch, Kidderminster, Warwick and Leamington, Bournville and Birmingham Audio Clubs were present. A raffle for a Sin. L.P. tape was won by Mr. B. Broadley of the Kidderminster Club.

New Deal

Deal in Kent looks like having a tape recording club soon. Those interested contact J. P. Davidson, 99 Wilson Avenue, Deal, Kent, for details.

Haddington

Eric Groome, Parkside, Station Road, Haddington, East Lothian, Scotland, proposes forming a club in that area.

The correct address of I.T.F. is c/o Jack Talling, I.T.F. H.Q., F2a, 64 Hough Green, Chester, Cheshire.

Jarrow Seek Tape-Contacts

Members of Jarrow and District Tape Recording Society would like to tape-spond with other clubs in Great Britain and overseas. All tapes will be answered, and should be sent to Reg Ollier, 30 Crawley Avenue, Hebburn-on-Tyne, Co. Durham. New members are also welcome.

London Fair

Stoke Newington Amateur Tape Recording Club now have a membership of ten. They have decided to re-start their service for blind persons and will continue with their hospital work. Other items of interest on the agenda are a demonstration of the new Grundig stereo recorder and the Elizabethan Major and a visit to the Audio Fair. (Your members will find a welcome at the A.T.R. Stand.)

Amateur Tape Recording & Hi-Fi

Active Medway

Medway Recording Club has become very active lately. Members have completed a special taped programme which is to go to a 'Home for Unwanted and Ill-Treated Children'. A second programme is already in production and it is hoped to extend this service to local hospitals. Members recently visited the Maidstone Society and plan two more visits in the next two months. Arrangements are also in hand for a visit to a **haunted house** to record possible sounds. For their annual outing the club will be visiting the "West Side Story" stage show.

Mr. C. A. Brown, founder of the Medway Club, hopes to form a Middlesex Branch, when he moves to his new address, 58 Park Crescent, Harrow Weald, Middlesex. He hopes that the branch will have the same programme of activity as the 'parent' club and will take part in joint projects.

About a dozen members with two portable tape recorders recently toured the offices of the *Chronicle* and *Echo*, a Northampton evening paper.

Nelson Club Starts

Nelson and District Tape Recording Club was launched last month with an attendance of fifteen at the inaugural meeting. Mr. Beardsworth, of 309 Barkerhouse Road, Nelson, Lancashire, was elected secretary. Valuable publicity was obtained through a local newspaper and Nelson Club hope soon to link up with Blackburn. (*Keep it up, Nelson, and we wish you every success.*)

Southampton Move

Southampton Tape Recording Club has moved to new premises, meetings are now being held every other Monday at

Noyes and Tony Fayne, sent a personal message to the patients at Mayday Hospital. This was relayed by the club during its 'record' request programme.

Tufnell Park

The Tufnell Park Tape Recording Club was inaugurated in February, with 9 members present. At the moment they are meeting at 38 Highgate Road, London, N.W.5, the home of the Secretary, Mr. G. Wilgrove, where they have already had a film show and a demonstration of editing and splicing. They also issue their own newsletter. Anyone living in the Islington area wishing to become a member, contact the Secretary at the above address.

Warwick and Leamington

At **Warwick and Leamington Society**, Miss Eileen Jones, the Secretary, gave

NORTHAMPTON LEAD

Norwich in Anglia

Norwich and District Society has a membership of 27 and has switched to fortnightly meetings, alternate meetings being under the direction of Mr. R. Williamson who is an authority on audio engineering. Last month, members visited Anglia Television. Members were surprised to find there were no microphones visible, and on enquiry were told they were "all locked away".

Northampton Parade

Plans are going ahead at **Northampton Tape and Cine Club** to record the local

Prospect House, 8 Manchester Street, Southampton. The last meeting began with a demonstration of stereo sound and a talk on tape decks given by Mr. Thear. The chairman, P. Wrigley, then played extracts from a four-hour recording of the enthronement of the Bishop of Winchester, made by Messrs. Wrigley, Graham and Wallbridge, using three recorders and five microphones.

St. Agnes

Mr. D. Freeman, "Seacroft", Chapel Port, St. Agnes, Cornwall, is forming a club in that area.

another of her popular tape/slide shows, covering this time her holiday, last year, in Czechoslovakia. In March, the Leamington Club entertained members of the **Northampton, Coventry** and

TOP TEN CLUBS FOR MAY

- | | |
|-------------------|--------------------|
| 1. NORTHAMPTON | 6. STOKE NEWINGTON |
| 2. MEDWAY | 7. WARWICK |
| 3. BIRMINGHAM | 8. TUFNELL PARK |
| 4. WHITSTABLE | 9. SOUTHAMPTON |
| 5. THORNTON HEATH | 10. NORWICH |

carnival parade, as they have done for the last two years. The News Service for Blind people recently completed its first year of operation. News from the local evening paper is read on to tape and played back at the home for blind people 17 miles away at Raunds. The club also records variety concerts and orchestras in a local hall for playback after the news tapes, so providing residents with a full evening's entertainment. Some of these tapes are loaned to other Midland clubs who run similar services.

Thornton Heath Advise Blind

Members of **Thornton Heath Tape Recording Club** recently met three committee members of the Croydon Voluntary Association for the Blind, at which it was decided that the club should act as technical advisors in preparation of the association's taped programmes. The club Secretary, D. Marlow, was able to interview Arthur Haynes when he opened a local Bingo Club recently. Arthur Haynes and his two colleagues, Les

LEAGUE POSITION	Pts
1. NORTHAMPTON	18
2. THORNTON HEATH	16
3. WHITSTABLE	15
4. MEDWAY	14
5. WALTHAMSTOW	10
6. CAMBRIDGE	9
CARLISLE	9
8. BIRMINGHAM	8
9. SWANSEA	7
BROMLEY	7
11. RUGBY	6
SOUTH DEVON	6
13. LIVERPOOL	5
STOKE NEWINGTON	5
15. BOURNEMOUTH	4
SOUTH BIRMINGHAM	4
WARWICK	4
18. FRIERN BARNET	3
WEST MIDDLESEX	3
TUFNELL PARK	3

South Birmingham clubs. Northampton club members took with them some colour slides taken when they themselves organized a club get-together last Autumn. (*Regional club get-togethers of this nature are valuable. Clubs can exchange information and co-operate in joint activity.*)

CONTINUED ON PAGE 48



CLYNE RADIO LTD.

HIGH FIDELITY DEPARTMENT

18, TOTTENHAM COURT ROAD, LONDON, W.1.
Tel: ~~MUSEum~~ 5929/0095 AND BRANCHES



FOR EXPERT ADVICE ON YOUR HI-FI NEEDS

Remember that high-fidelity need not be expensive. A comprehensive system can be built up gradually and one need not be confined to ultra-high-fidelity equipment. There are many excellent amplifiers, pick-ups and turntables, radio tuners and tape recorders that are capable of high-quality reproduction. Expert guidance and actual demonstration is essential if you are contemplating a high-fidelity reproducing system and Clyne Radio Limited have a team of experts who are at your disposal to demonstrate and assist in the choice of proper equipment.

THE "CLYNE CABINETCRAFT" SERVICE



will supply in any style or price range, a cabinet to house a single unit or a complete Hi-Fi Stereo System. Traditional or Contemporary—each model is individually designed to match the existing furnishings in the home in the natural beauty of Walnut, Mahogany, Oak, Ash, Teak, etc.

We are stockists of all the leading makes of high-fidelity monophonic and stereophonic amplifiers, record transcription units, record players, tape recorders, tape decks, radio tuners, cabinets etc. You may come along to our showrooms for comprehensive demonstrations of quality equipment that will match all kinds of furniture. The feminine requirements have not been forgotten and our own interior decorator will be happy to advise on the subject of matching decor.

A copy of our booklet "What is High Fidelity?" will be sent free on request together with details of our suggested Hi-Fi Systems designed to suit individual requirements and budgets.

Our workshops and unique service are at your disposal, always!



WHAT IS HIGH-FIDELITY?

everyman's guide to quality sound

Although much has been written in technical language about high-fidelity sound reproduction, there is very little information of a less technical nature to help the layman who wants to buy Hi-Fi equipment. Here at last is the information he needs.

'HI-FI' has made possible a new high standard of sound reproduction in the home and many authorities on the subject have stressed the need for a standardized form of specification. This is, of course, vitally necessary in order to protect the uninitiated purchaser who is so often sold cheap equipment labelled with the tag 'Hi-Fi', or worse, poor equipment at Hi-Fi prices. Remember, however, that Hi-Fi need not be expensive as many people believe.

The Concise Oxford Dictionary defines 'High' (when applied to any form of art) as being 'of exalted quality' and 'Fidelity' as 'exact correspondence to the original'.

In simple terms 'High-Fidelity' means a faithful re-creation of the original sound whether it be from a radio programme or a tape or disc record. Reproduction should bear the closest possible resemblance to the original and to achieve this a planned system of individual units is required, each of which should be complementary to the other. Later we offer our suggestions for planned systems, but meanwhile here are the basic requirements for such a system, an example of which is outlined in Fig. 1.

The essential programme signal sources include a Record Playing Mechanism and pick-up for gramophone record reproduction, a Radio Tuner Unit for radio programmes and a tape deck for pre-recorded tape, or if you wish to make your own recordings, a complete tape recorder. It is not necessary, of course, to invest in all these at once, for a Hi-Fi system can be acquired gradually.

In order to reproduce the programme material provided by these sources an amplifier is required and this may consist of a *pre-amplifier* and *power amplifier* or a single integrated unit that combines both functions. Last, but not least, you must have a loudspeaker.

Let us begin with the Hi-Fi amplifier for this is usually the first unit to be considered and is the nucleus of a high-fidelity system.

The Main or Power Amplifier

The power amplifier and the pre-amplifier are equally important, but as already mentioned the two may be integrated.

Power amplifiers (and integrated systems) are generally classified according to the power they provide which ranges from 3-4 watts for the smaller amplifiers to 20 watts or more for larger units. This power represents to some extent the loudness which the amplifier will provide without any form of distortion. For instance, in order to reproduce a large orchestra in the average size living room one may require power ranging from a few tenths of a watt to over 10 watts. This is called the dynamic or loudness range. For example, a violin playing quietly may require less than *1/10th of a watt* whereas a large orchestra may demand the full power from the amplifier, which it must provide without distortion.

The major problem, therefore, is to decide how much power will be required. For the average living room, most experts agree on a maximum power of 10 watts, on the other hand a power of, say, five watts will be found more than sufficient for intimate armchair listening. Adequate demonstration will tell more than can be put into words. There is no point in having an amplifier and loudspeaker system capable of reproducing the original volume of a full orchestra in the ordinary living room. Such a system would require between 70 and 80 watts of power.

Frequency Response

Apart from adequate power output it is most necessary that a high-fidelity amplifier has a wide frequency response.

The pick-up, tape recorder or radio tuner must also reproduce over a wide range of frequencies otherwise the high-quality amplifier and loudspeaker would be wasted. In music, for example, the lowest notes are those from the string bass, the tympani, the bass drum etc., and some church organs have notes which are almost below the range of natural hearing. Similarly, the very high tones such as those produced from the violin or the percussion instruments, contain still higher tones which are called harmonics. It is essential that these higher or overtones are reproduced, otherwise the instruments would have an unnatural sound.

The frequency range or the range of 'pitch' of natural hearing is about 25 to 15,000 cycles per second, although in

young persons this may extend to as high as 20,000 cps. If natural reproduction is to be achieved the amplifier system must be capable of providing the *same output power* over a frequency range of at least 25 to 15,000 cps., otherwise very high and very low notes would be missing or of insufficient strength. For critical listening, using the best loudspeakers, and programme sources, a frequency range of 20 to 20,000 cps. is preferable with an extension of the high-frequency range to at least 30,000 cps. so that transient sounds (cymbals, snare drums and similar sharp sounds) are properly reproduced.

Signal Level and Noise

It is also highly important that *hum and noise* produced in either the programme source or the amplifier are both low enough to be inaudible during even the quietest parts of a programme. This characteristic is known as the 'signal-to-noise' ratio and refers to the ratio of *wanted* signals to *unwanted* sounds or noise. The range of loudness, from the *threshold of hearing* to a maximum loudness known as the *threshold of pain* is about 1,000,000 to 1 although a range of this order is rarely achieved in even the best of Hi-Fi equipment. The ratio is usually around 1,000 to 1 in most of the Hi-Fi amplifiers available today, but a ratio of even 100 to 1 would still be acceptable depending on the average level of the programme signals. These ratios are usually quoted in 'decibels' (abbreviation dB) which is a special unit used by audio engineers for measuring differences in power levels.

When an amplifier has several inputs (radio, gram, tape etc.)

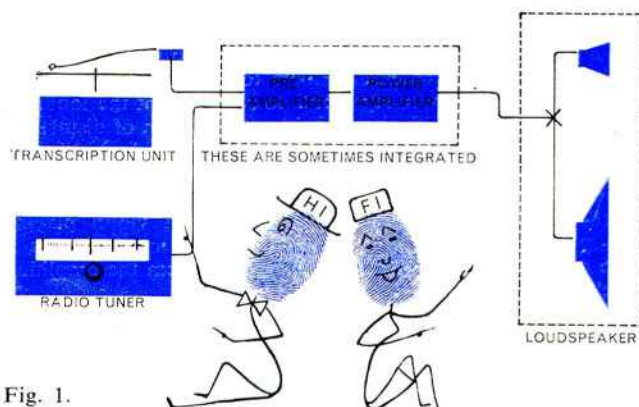


Fig. 1.

the signal-to-noise ratio is usually given for each input and acceptable figures for domestic use are: Radio—50 dB, Pick-up and tape—45 dB.

The Pre-Amplifier

The pre-amplifier is the heart of any high-fidelity system, whether it is a separate unit or integrated with the main or power amplifier. It is virtually the 'telephone exchange' for all the programme sources, from radio, disc, tape or microphone. The pre-amplifier carries the input sockets and selector switches for signal source, tone controls, volume control, the special frequency correction circuits necessary for tape and disc as well as controls for reducing whistles on certain radio signals and rumble from indifferent record players.

An intelligently used pre-amplifier can do much to modify the characteristics of a programme source but, of course, no amplifier will actually remove distortion or unwanted noise. It is essential therefore to use the best quality record playing unit, radio tuner etc., that can be afforded. The pre-amplifier (including the integrated unit) is the most used and therefore

the most visible part of a high-fidelity system and is usually finished to blend with modern furniture. They are available as self-contained units that will stand on a table or can be supplied with panels or escutcheons that allow them to be built into existing cabinets.

The Loudspeaker

As the final link in the Hi-Fi chain, a poor loudspeaker can destroy all that has been accomplished in the programme sources, the pre-amplifier and the power amplifier. High-fidelity loudspeakers need not, however, be a complicated assembly of 'woofers', 'tweeters' and 'crossover networks'! A single high-quality loudspeaker in a properly designed cabinet can produce just as much Hi-Fi as the large assemblies using two or more speaker units. Generally speaking the single-unit speaker system is adequate for low-power amplifiers or as an external speaker to a tape recorder many of which incorporate a high-quality output stage.

For greater power outputs two or three speakers become desirable and since the bulk of the power generated by the amplifier is due to the low-pitched musical instruments, such as tympani, bass drum etc., a large bass speaker (woofer) can be used to handle it. At the higher frequencies the work imposed on the loudspeaker cone is considerably less and a smaller speaker may therefore be used. To prevent the low-frequency signals from reaching the high-frequency speaker (tweeter) a device known as a 'crossover network' is used which separates the low-frequency from the high-frequency signals. The multiple speaker system can be taken a stage further by using a third speaker for the 'mid range' frequencies, in which case a special crossover network is used to separate

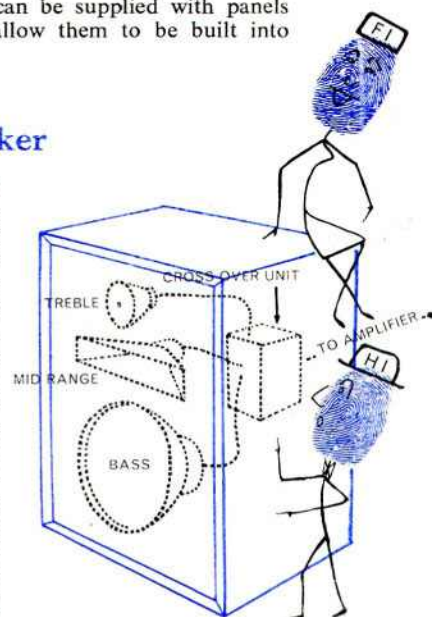


Fig. 2. Three-unit speaker system and Enclosure.

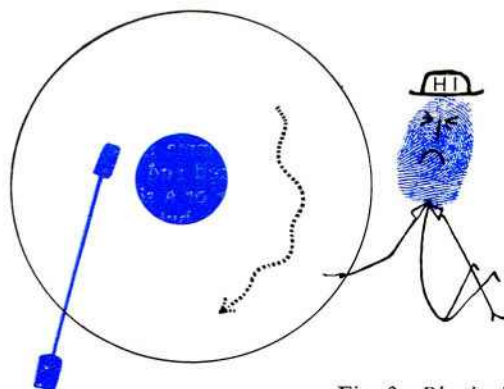


Fig. 3. Rhythmic speed fluctuations.

the low-, middle- and high-frequency signals after which they are passed to the appropriate loudspeaker.

Generally the two (or three) loudspeakers are accommodated in one cabinet (called the enclosure). The enclosure is an important part of the speaker system for it is designed to allow maximum efficiency from the speaker units and also plays a great part in the bass reproduction. The majority of enclosures are designed to match other kinds of furniture and comply with certain aesthetic as well as feminine tastes.

Hi-Fi Programme Sources

Now we deal with the programme sources of high-fidelity reproduction of which there are three, or four if we include a microphone used in the home. Yes, you can connect a microphone into most Hi-Fi systems, and this facility is useful in tape recording.

There are two types of record playing mechanism, the transcription type and the ordinary single record player or auto-changer type, both being supplied with or without a pick-up. The main difference between the two types is one of mechanical performance, for example, fluctuation in motor speed can cause a sustained high note which sounds most unpleasant. This effect is called 'wow' and is usually absent in a good-class transcription unit which has a heavy and dynamically balanced turntable and is therefore less affected by motor speed.

Another undesirable effect, often due to an imperfectly balanced motor or turntable is that of 'rumble'. Low-frequency vibration from the motor or turntable is transmitted to the

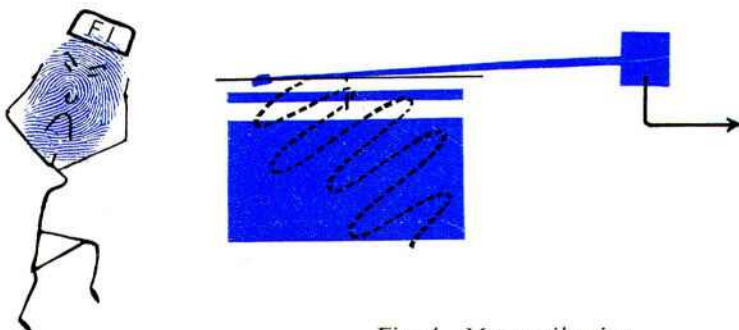


Fig. 4. Motor vibration.

pick-up and would become audible via a high-fidelity reproducing system. To obviate this problem very careful design of the transcription unit is necessary and both motor and turntable have to be suspended on vibration-proof mountings.

The Pick-up

The pick-up is one of the most important programme sources of a high-fidelity system. It can make or mar gramophone record reproduction irrespective of the capabilities of the rest of the system. An unbalanced pick-up arm or a poor cartridge (the component parts of a pick-up) can also damage your records. A cartridge has two elements (a) the stylus which transfers the variations in the record groove to (b) a special electromechanical element which transforms the stylus vibrations into electrical currents. The stylus has a specially cut sapphire or diamond tip that can be accommodated in the record grooves. Whilst a sapphire tip will last for a considerable number of playings, a diamond tip will last almost indefinitely and reduce record wear to a minimum. Cartridges vary in type and sensitivity and care must be taken to 'match' the cartridge to the appropriate input socket of the pre-amplifier.

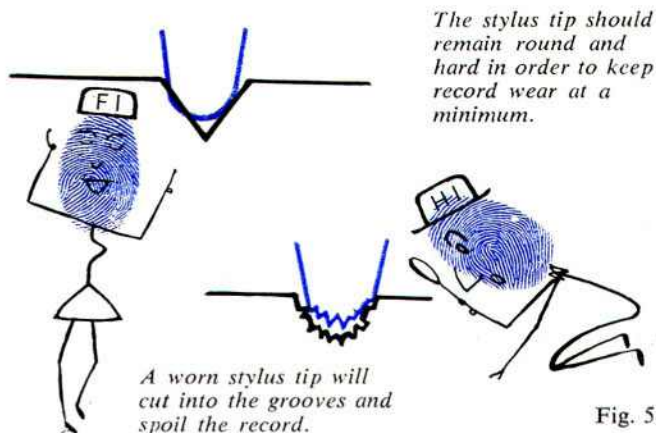


Fig. 5.

The Radio Tuner

A radio tuner will, of course, provide continuous programme material which costs nothing but the annual outlay for the wireless licence. A tuner might therefore be considered as the first choice of programme source as opposed to the otherwise popular gramophone record. There are two kinds of broadcast transmissions that can be utilized and these are known as AM (amplitude modulation) and FM (frequency modulation). Both systems are used by the B.B.C. but the newer FM system was designed to provide the highest possible quality and the lowest level of interference.

There are now FM stations all over the country and they operate on very high frequencies (abbreviated VHF) hence the special tuners are called 'VHF/FM' tuners. They transmit the Home, Light and Third programmes.

There are also integrated tuners which cover the Short, Medium and Longwave AM transmissions from the B.B.C. and Foreign stations. Some of these tuners also cover the TV (sound only) frequency. Both FM and integrated AM/FM tuners can be purchased with or without an incorporated power supply (power can often be drawn from the Hi-Fi pre-amplifier or power amplifier). It is worth noting that the quality of the signal from a VHF/FM tuner is very nearly equivalent to that of a direct signal from a broadcast studio microphone.

Tape Recording and Playback

Magnetic tape is the finest recording and playback medium in existence and there are now available many first-class tape recorders that will do justice to a high-fidelity reproducing system. Generally a tape recorder will not cater for Hi-Fi reproduction by itself because of the limitations imposed by

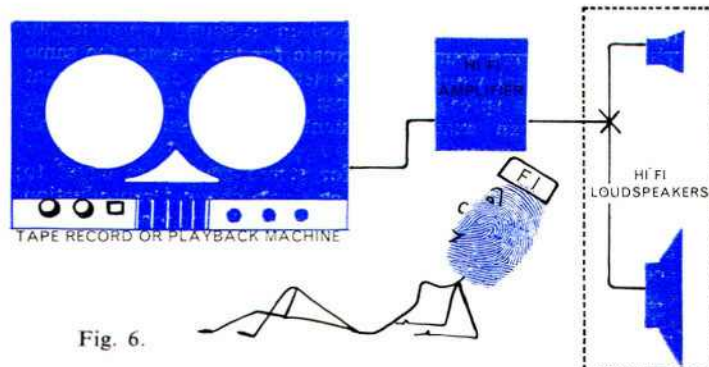


Fig. 6.

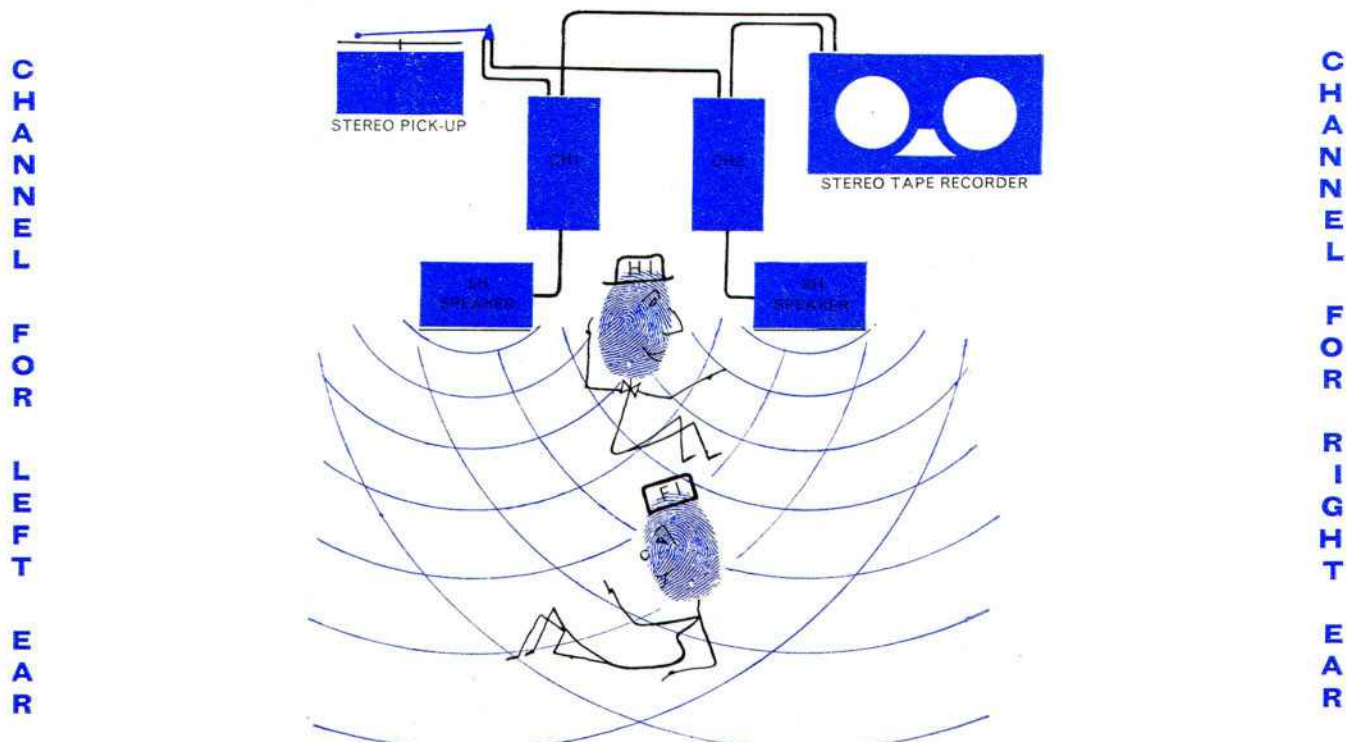
its small internal loudspeaker and power amplifier. The quality is there on the tape and most tape recorders have a special socket for feeding an external Hi-Fi amplifier which will, of course, reproduce all that is on the tape.

As an alternative to a complete tape recorder one may purchase a tape transcription unit (the equivalent of a record transcription unit) which may be used for playing pre-recorded tapes. Certain types of pre-amplifier have provision for direct connection to a tape replay head and include the necessary frequency correction for tape reproduction. The tape tran-

scription unit (tape deck) could later be used for recording with the aid of a record/playback pre-amplifier incorporating a recording bias oscillator.

Most tape decks and complete tape recorders have provision for two or three speeds, viz: $7\frac{1}{2}$, $3\frac{3}{4}$ and $1\frac{7}{8}$ i.p.s. (the speed at which the tape passes the head). The higher speed is recommended for quality music recordings, whilst the slower speeds are adequate for casual 'pop' music and speech recordings. Some of the better class recorders will, however, provide high-fidelity performance at a speed of $3\frac{3}{4}$ i.p.s.

STEREOPHONIC SOUND (STEREO)

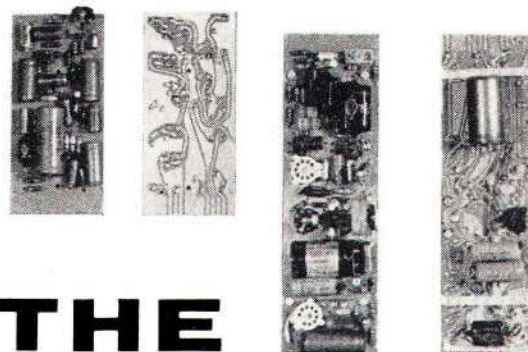


STEREOPHONIC reproduction is the ultimate in Hi-Fi for the stereophonic effect provides a *spatial atmosphere* to sound reproduction. It should not be judged by its ability to produce movement in sound as from recordings of trains and ping-pong games. Whilst movement of sound is exciting it does not demonstrate the full realization of stereophonic reproduction which is a carefully calculated and designed technique that provides almost complete realism in sound reproduction. The aim of stereo sound is to create for the listener the same spatial effect that would be experienced when seated in front of an orchestra spread out across a wide angle. It does not necessarily mean exact placement of individual orchestral instruments as many suppose.

The electrical requirements for stereo sound are equal to those required for monophonic or single channel reproduction except that two replay channels are used throughout the whole of the reproducing system. In the studio we begin with a special stereo microphone which picks up sounds from different directions and divides them into two separate channels. The signals are transferred to either a twin-track tape or special form of disc which carries the two signal channels in one groove. From here, either a twin-track tape replay machine or

a stereophonic twin-channel pick-up is used which provides two high-quality programme outputs at the same time without getting them mixed. Each programme channel is connected to its own amplifier channel and loudspeaker. Stereo pre-amplifiers and power amplifiers may be separate or integrated, but the two individual amplifier channels are incorporated on the same chassis. A special volume control is provided which permits both channels to be adjusted simultaneously. Likewise two good quality, but not necessarily expensive loudspeakers are required, one for each channel. Both speakers and the amplifiers must be carefully matched if proper stereo is to be achieved. Remember that your monophonic programme sources, i.e. radio tuner or gramophone records can be played through stereo equipment. For this purpose all stereo amplifiers have a switch for selecting mono or stereo.

This article is extracted from "What is High-Fidelity?" by Clyne Radio Ltd., and is printed with their co-operation.



THE SOUND SCENE

Everything that happens, all that is new, is captured, featured and reviewed in A.T.R.'s "Sound Scene".

SIMON SP.5 TAPE RECORDER

reviewed by F. C. Judd, A.Inst.E.

TAPE RECORDER and studio control room all in one—very completely describes the SIMON SP.5, for this remarkable instrument has every facility one could wish for: dual channel mixing—master fader—monitoring via loudspeaker during recording—pre-monitoring and level setting before recording—controlled echo system—track to track re-recording—controlled recording bias—recording-level meter calibrated in dB—recording on either track in same direction—full provision for stereo conversion (tape heads, controls and sockets already fitted and wired).

Many original design features have been incorporated in the SP.5. The layout of the controls, for instance, is the best I have seen on any recorder of this category. All the recording controls and input sockets are to the right of the deck and all the playback controls and output sockets are to the left. When the SP.5 is set up for recording or playback the twin internal speakers are facing forward, above the deck, the recording bias level meter faces the operator and each control panel is at just the right angle for easy manipulation of the controls.

By the way, the Simon SP.5 is not a small recorder; photographs tend to give the wrong impression. It is ruggedly constructed, yet attractively finished and the designers have somehow introduced instrumentation with a 'contemporary' look. The control panels are stainless steel and together with the recording-level meter and controls give the SP.5 a professional appearance.

Technical Performance

I will not repeat details concerning the makers specification which is included separately in the panel on this page, but needless to say the SP.5 was most carefully tested and I assure readers that its performance equals its appearance.

First the inevitable frequency response; why tape recorder manufacturers place so much emphasis on this is another story, but the SP.5 really does have the response quoted. This was tested with a pen recording output meter that not only records the frequency response, but also noise level and output fluctuation as well.

TECHNICAL SPECIFICATION

Performance

Frequency response: From tape at $7\frac{1}{2}$ i.p.s., 30 to 20,000 cps. ± 3 dB. From tape at $3\frac{3}{4}$ i.p.s., 30 to 10,000 cps. ± 3 dB.

In public address condition, direct amplifier response is 20 to 20,000 cps. ± 3 dB.

Wow and flutter: At $7\frac{1}{2}$ i.p.s., better than 0.15%. At $3\frac{3}{4}$ i.p.s., better than 0.2%.

Output: 5-6 watts.

Power requirements

Voltage range: 110-125, 200-250 volts 50 c/s AC.

Power consumption (maximum) 105 watts.

Indication

Record-level indicators: A 2½ in. rectangular meter indicates record level.

Bias indicator: The record-level indicator is also calibrated to read bias. It works in conjunction with external presets and a 'press to read' bias switch.

The tape deck

Tape speeds: $3\frac{3}{4}$ i.p.s. $7\frac{1}{2}$ i.p.s.

Tape direction: Left to right.

Max. spool diameter: 7 in.

Number of tracks: 2.

Duration: Long-play tape at $7\frac{1}{2}$ i.p.s.—45 minutes each half-track, making one hour 30 minutes in total. Long-play tape at $3\frac{3}{4}$ i.p.s.—90 minutes each half-track, making three hours in total.

Rewind time: 75 seconds for 1,200ft. tape.

Number of heads: 4.

Head type: Half-track head, comprising: One stacked record head. One stacked playback head. Two erase heads.

The hum and noise level was actually lower than virgin tape

noise. This is an extremely fine achievement for which the circuit designers earn full credit.

The deck has an excellent mechanical performance and is fitted with a clock-type tape position indicator. It has fast forward and reverse re-wind and accommodates 7in. spools. Head covers etc., are quickly removable for azimuth alignment and cleaning etc.

Our review model was submitted to all kinds of tests to find

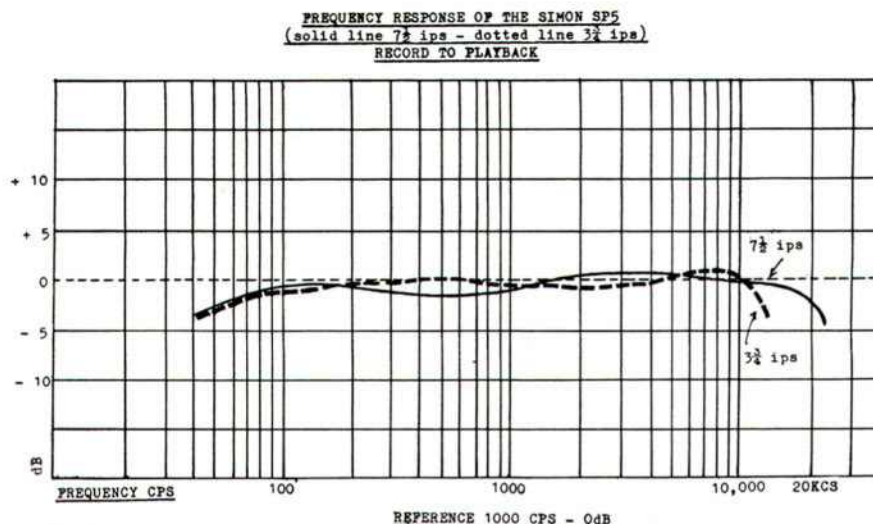


Fig. 1

out as much as possible about its various facilities. I don't think the designers could have made this recorder more flexible. For example, the tape-heads, input sockets, controls and internal wiring for stereo are already incorporated. All that is required for conversion to full stereo record/playback is the fitting of the necessary printed circuit amplifier modules.

A.T.R. STAR AWARDS OF MERIT

- * Flexibility
- * Technical performance
- * Appearance and layout
- * Easy modification for stereo
- * Full use of transistors

The two sets of stacked stereo heads and the head switching system permit controlled echo, track to track re-recording (a recording made on track 1 can be transferred to track 2) and, of course, direct monitoring of an actual recording.

The circuit arrangements are such that the SP.5 can be used as a straight amplifier, and tone controls are provided for bass and treble lift and cut as per the technical specification. All input sockets (microphone and radio) are high impedance and there are high impedance outlets for external amplifiers. Two extension speaker sockets allow the use of an external speaker with or without the internal speakers.

The flexibility of this recorder is most intriguing and coupled with the standard of performance should satisfy the demands of all serious recordists.

Test recordings made on the SP.5 were remarkably free of noise, which points to a clean bias oscillator waveform and low-noise amplifiers. Copies from master tapes replayed on another high-grade machine proved that the SP.5 can make a copy tape without distortion or frequency loss and without adding noise.

The makers are to be congratulated for bringing tape recorder design *out of the rut* for the Simon SP.5 is a technical and artistic achievement that heralds the shape of things to come.

At 93 gns. the SP.5 is real value for money and I strongly advise those who are interested to write for the brochure which deals with this recorder in greater detail. Simon Equipment Limited, 48 George Street, Portman Square, London, W.1 (Phone WELbeck 2371).

ARMSTRONG PCU.25 AND A.20 HIGH-FIDELITY AMPLIFIERS

THESE amplifiers have been reviewed together because the PCU.25 unit is a twin-channel multi-input pre-amplifier designed to operate with the A.20 twin-channel power amplifier. Together these units form a complete amplifier system for high-quality tape, radio or gramophone record reproduction. The PCU.25 pre-amplifier has inputs suitable for direct connection to tape heads, low sensitivity magnetic pick-up, radio tuners and microphone, and can also be used as a tape recording amplifier. (It does not include a bias oscillator.)

The PCU.25 Pre-amplifier

I will deal first with the PCU.25 pre-amplifier and from the technical specification panel it can be seen that this unit more than adequately caters for the signals sources for which it was designed. Twin channels provide for full stereo operation from any pair of input sockets and the controls for each channel are ganged together for simultaneous operation. A 'balance' control is provided for maintaining equal gain through each channel or to compensate for an unbalanced signal source. When this control is set midway the gain in each channel is equal; to within less than 1 dB.

The tone controls provide more than ample control over treble and bass response and two fixed filters are included, one for eliminating motor rumble and other unwanted ultra low-frequency phenomenon and one for reducing unwanted high-frequency signals such as whistles from radio tuners etc. This latter filter operates in conjunction with the treble tone control so that some variation of the response is available.

The amplifier channels can be switched for stereo or monaural operation with the following combinations: channel A mon-

PCU.25 Stereo Pre-amplifier

Harmonic Distortion: 0.1% at 900 cps. measured at 410mV output.
 Frequency response: Inputs 1, 3 and 5—20 to 20,000 cps. ± 1 dB. Input 2 (tape head)—C.C.I.R. characteristic. Input 4 (gram)—R.I.A.A. characteristic. Input 6 (microphone)—20 to 15,000 cps. ± 2 dB.
 Cross talk: at 1K/c.s.—48 dB; at 10K/c.s.—30 dB.
 Valves: 2 \times EF86, 3 \times ECC83.
 Tape recording outputs: 400mV, low impedance, suitable for radio input of most tape recorders and tape pre-amplifiers.

A.20 Stereo Power Amplifier

Output: Push-pull Ultralinear. Rated: 12 watts per channel, total 24 watts. Peak: 25 watts per channel, total 50 watts.
 Frequency response: 15 to 22,000 cps. within 1 dB.
 Power response: 20 to 18,000 cps. within 1 dB.
 Harmonic distortion: 0.1% at 900 cps. measured at 12 watts output ± 1 dB.
 Hum and noise level: 80 dB below rated output.
 Negative feedback: 29 dB.
 Stability margin: With 15 ohm load—18 dB; shunted with 0.1mF capacitor—12 dB.
 Output impedance: Alternative output of 4, 8 and 16 ohms.
 Damping factor: 53.
 Transient response: Square wave rise time—4 micro-secs.
 Channel matching: ± 1 dB.
 Cross talk: At 1K/c.s.—52 dB; at 10K/c.s.—40 dB.
 Input sensitivity: 410 millivolts for 12 watts output.

aural, channels A and B together monaural, and channels A and B separately for stereo.

Three of the inputs allow linear operation with a frequency response of 20 to 20,000 cps. ± 1 dB. From input 2 the pre-amplifier has a C.C.I.R. response and is suitable for the majority



PCU.25
STEREO
PRE-AMPLIFIER

of high-impedance tape heads. Input 4 provides an R.I.A.A. response for pick-ups and input 6 is linear for microphone operation.

The A.20 Power Amplifier

This is a strongly constructed amplifier and the designers have thoughtfully included a pair of handles which make the unit easy to lift and which act as stands if the underchassis assembly needs inspecting.

The A.20 provides more than adequate power for high-fidelity reproduction, even for large rooms. Each channel is rated for 12 watts with only 0.1% distortion and will handle peaks of up to 25 watts. Outputs are provided at 4, 8

and 16 ohms which cater for the usual range of speaker impedances between 3 and 20 ohms.

Performance

The amplifiers have a far higher level of performance than any signal source likely to be used with them. I might also include loudspeakers, for as yet these have not reached the same standard of efficiency and performance as the modern high-grade amplifier.



A.20
STEREO
POWER
AMPLIFIER

The overall frequency response of the pre-amplifier and power amplifier, taken between the radio input channel A and a 16 ohm output is reproduced in Fig. 2. The response from the gramophone and tape head inputs was also measured and found to agree with those quoted in the specification.

Like most amplifiers of this category, hum and noise is extremely low and below we quote the harmonic distortion of one of the channels of the A.20. This was measured with a Wayne Kerr Analyser:

Power output	H2	H3	H4	H5	Total
12 watts	0.022	0.089	—	0.022	0.09%

There is no point in using superlatives to emphasize the performance and finish of these two units. They are both excellent examples of Audio engineering and will do full justice to any signal source or loudspeakers connected to them.

Full details for installation and adequate technical information about pick-ups etc., are given in the instruction booklet, which also includes a template for use when fitting the pre-amplifier into a cabinet. Fixing brackets and connecting plugs etc. are also supplied.

The PCU.25 pre-amplifier is £22 10s.; the A.20 power amplifier is £30. Both are manufactured by the Armstrong

CONTINUED ON PAGE 37

OVERALL FREQUENCY RESPONSE OF THE
ARMSTRONG PCU.25 & A.20 AMPLIFIERS
(Channel A. Radio input to 16 ohm output)

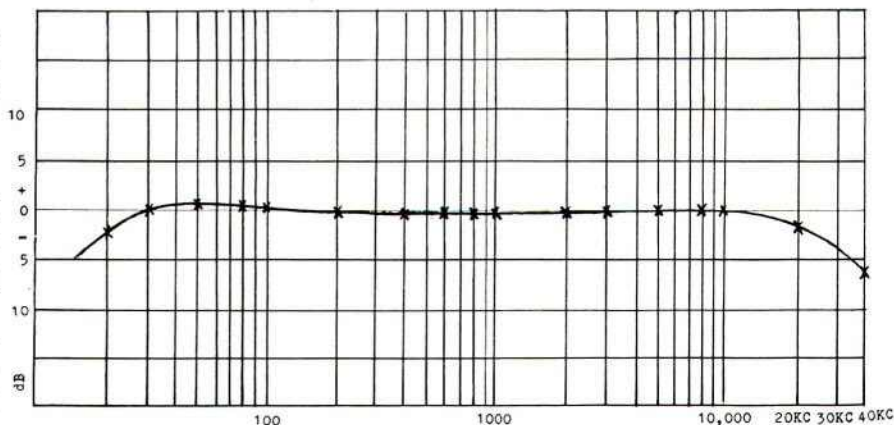


Fig. 2

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- MODIFICATION TO THE CLARION** (VOL. 3, No. 1)
- EMOTIONAL IMPACT OF HI-FI** (VOL. 2, No. 11)
- TAPE PARTY TIME** (VOL. 3, No. 5)

These are just some of the fascinating and informative articles to be found in back issues of 'A.T.R.'

Limited quantities are available of all issues (except Vol. 1, No. 12, and Vol. 3, No. 2) at 2/6 each, post free; from,

"Amateur Tape Recording & Hi-Fi" Magazine.
Back Numbers Dept.,
Vernon Holding & Partners Ltd.,
43/44 Shoe Lane,
London, E.C.4.

Our technical editor is an acknowledged expert and also a prolific writer on both audio and radio matters.

Here are some of his books suitable for all A.T.R. readers' bookshelves



"TAPE RECORDING FOR EVERYONE"

WE are pleased to announce a new and comprehensive book by our Technical Editor—F. C. Judd, which will be on sale by the end of April or early in May. It is being published by Blackie & Sons Ltd, at 10s. 6d.

"TAPE RECORDING FOR EVERYONE" as the title implies, has been written for *non-technical* and *technically minded* enthusiasts alike, and covers every possible aspect of Tape Recording.

The 'contents' speak for the book, for there are eight chapters generously illustrated with some 70 diagrams and photographs.

"TAPE RECORDING FOR EVERYONE" is a complete handbook on tape recording: History of tape—How the recorder works—Facts about tape—Tape and track standards—Buying a tape recorder—Technical specifications—Recording techniques—Recording from microphone, radio and disc records—Constructional plans for simple radio tuners—Microphone mixers—Pre-amplifiers—Special recording techniques—Electronic music—Echo systems—Sound effects—Stereo—Technical information on microphones, attenuators—Hi-Fi amplifiers—Tape recorder testing—Power supplies etc.—Tape clubs list—Tape in education—Competitions and technical terms—together with many more items, are thoroughly dealt with and, right up to the time of printing, every effort has been made to ensure that all the information is up to date.

"ELECTRONIC MUSIC AND MUSIQUE CONCRETE"

Another book by F. C. Judd that was published recently by Neville Spearman Limited, price 16s., is now on sale in the bookshops. It deals with Electronic Music and Musique Concrete techniques and should prove a valuable work of reference to all tape recording enthusiasts interested in 'tape music'.

The book contains many diagrams and photographs illustrating magnetic tape manipulation, the waveform of sound, electric musical instruments and discusses the work of leading composers. The author actually invented many of the special electronic devices which are described in the book.

"RADIO CONTROLLED MODEL SHIPS AND AIRCRAFT"

Tape recording enthusiasts who are interested in radio controlled models may find yet another book by F. C. Judd a useful guide to their fascinating hobby. A revised edition is being published by Data Publications Limited, and deals with the subject 'right from the beginning'. It contains dozens of practical circuits for both valve and transistorized equipment.

The new edition which includes a special section on servo-mechanisms by R. F. Stock will be available about mid-April (price between 8s. and 12s.). The original edition at 8s. 6d. is still available.

ATR

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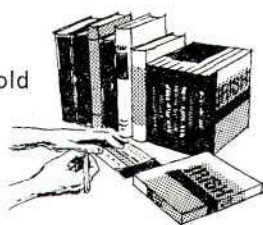
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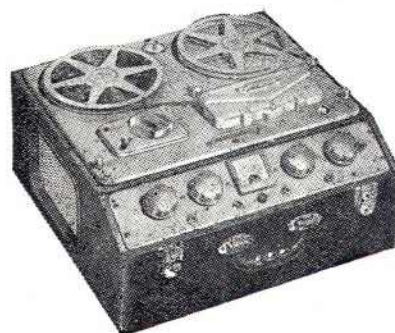
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A.T.R.'s Mail Column has a fan mail of its own. Letters arrive after each issue appears, to let us know that the writers appreciate the column which answers their problems, solves their technical difficulties and provides them with a platform on which they can 'sound off' about this audio world of ours.

THE THINGS YOU SAY

A HEAD-ACHE SOLVED

R. W. Long of Yeadon, Nr. Leeds, has built the 'Pre-Amp Unit' described in the July 1960 issue of A.T.R.:

"It works satisfactorily as a Mic Pre-Amp, but I get no response on the Play-Back extra head; the head I am using is a Wearite Type FR7.

"I have checked the wiring and cannot find anything amiss here, so can you help me once more please."

The recording head you are using has a low impedance and requires a matching transformer before it will operate with any valve amplifier. The special transformer for this head can be obtained from the British Ferrograph Company Limited.

TAPE BIAS

M. D. Claydon of Orpington, Kent, liked our recent tape article and writes:

"I would like to raise a point in connection with the difference between American, British and Continental tapes. I have recently acquired a 4-track Continental tape recorder and have so far used the tape (Continental) recommended by the manufacturers, but have experienced what I believe is called 'drop-out'—places where there is a break in the recording due to tape imperfection. When I suggested to a dealer that I should try an American tape he said that British, American and Continental tapes have different bias levels and that I should keep

SING-IT-YOURSELF

*Tom Robinson of Whitstable, Kent writes:

"Reading an American tape magazine recently, I saw an advertisement for a 'Sing it Yourself' tape. In this, an organ played the accompaniment only for a number of well-known songs, leaving the would-be singer to add the lyrics himself. I feel there would be a good market for similar tapes in this country, and in view of the large number of pre-recorded tapes now on the market, I would suggest to manufacturers that they give this idea some consideration. I for one would be very interested in purchasing something similar to air my own considerable vocal talents (?)."

to Continental tapes in view of this fact. Is there anything I can do to solve this problem?"

The bias voltage in your recorder is set at a pre-determined level and should be quite satisfactory for practically all makes and grades of tape. You may, however, be able to detect slight differences between different types due to the fact that some do require a slightly higher or lower bias. By all means use other makes and grades. You may well find one that gives a slightly better result, and is not affected by 'drop-outs'.

ATRECORD

R. Bentley of Rotherham, Yorks. is obviously a do-it-yourself fan:

"Being interested in building my own tape recorder, I was delighted to see your article concerning the 'ATRECORD', as you are using the same deck that I had in mind.

"Is it possible to convert this deck to stereo and if so, how about a stereo amplifier based on your original 'ATRECORD' amplifier?"

The 'ATRECORD' is not suitable for stereo modification. It was intended as a fairly straightforward recorder that could be constructed by readers with little or no technical knowledge.

We understand, however, that Martin Electronics Ltd., do produce a kit with a Collaro deck that can be wired for stereo.

ECHO-ECHO

B. Barnet of Horsham, Sussex, wants to know if there is a cheap way of producing artificial echoes on tape without using extra heads:

Artificial echoes can only be produced by one of the following methods:

1. Re-play head after the recording head, plus a suitable pre-amplifier. (A method using a second recorder was described in last month's 'Tape Guides'.)
2. An artificial echo tunnel which could be a long corridor or large empty room with a microphone at one end and a loud-speaker at the other. Signals from the speaker are delayed by the time taken to reach the microphone after which they are fed back to the tape recorder.
3. Mechanical echo box which is used by professional recording studios, but is extremely expensive.

BRITISH SERVICE

W. C. P. Dickenson of Stroud, Gloucestershire, speaks up for the British manufacturer:

"In answer to the February reader's letter about British Tape Recorder Manufacturers, I think he will find it worthwhile to wait for a machine which he can be proud of and above all rely on, rather than a mass produced machine which does not quite meet his critical requirements.

"I saw my Reps 30 Tape Recorder at the Radio Show. Apart from the performance of the machine, I was very impressed by the efficient way the staff on the stand answered my queries. They quoted a 14 days delivery, but in fact delivered it, through my radio dealer, in twelve days."

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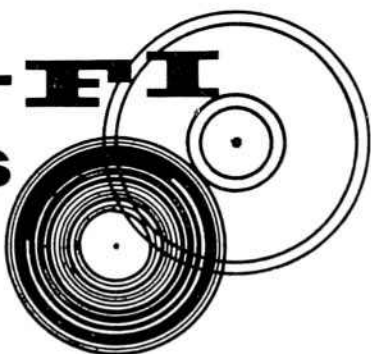
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Russ Allen, noted jazz musician hunts the Hi-Fi quality records, amongst the flood of releases which appear each month.

HI-FI discs

by RUSS
ALLEN



This month a lady leads our Hi-Fi parade, and who better than Miss Sarah Vaughan whose *After Hours*, Columbia 33SX 1405 is a smasher.

I have long been an admirer of the acrobatic voiced Sarah and in this album she is superb. Her only accompaniment is Mundell Lowe, guitar, and George Duvivier, bass—nothing more is needed.

Hi-Fi is a must to capture the subtleties of Miss Vaughan's vocalizing. Her range is wide and she uses it. Her treatment of Ellington's *Sophisticated Lady* and the up-tempo *Great Day* are delicious.

That man Dolphy is here again, twice, first with his own off-beat group, *Out There*, Esquire 32-153. Recorded 15th August '60 with himself (of course) on alto saxophone, B♭ and bass clarinets, Ron Carter, cello, George Duvivier, bass, and Roy Haynes, drums.

It's way out there but highly listenable for all that. Much of it is near chamber music. Some swinging, all interesting. Dolphy is tremendous throughout, but I found some of Carter's bowed cello

a little hard to believe. In the three months since his previous recording in similar company, Duvivier has become more with the idiom and fits. Haynes is right.

If you dig music with originality and thought, then get in there and get *Out There*.

Dolphy is again a star in *The Blues and the Abstract Truth*, H.M.V. CLP 1528. Compositions and arrangements by Oliver Nelson. Recorded 23rd February '61. "What a great line up!" was my first thought. Nelson, tenor

Dolphy, alto and flute, Freddy Hubbard, trumpet, George Barrow, baritone, Bill Evans, piano, Paul Chambers, bass, Roy Haynes, drums. Next, I played it and my suspicions were confirmed, it was terrific.

A fully recorded sound and it is no abstract truth to say it's truly great.

LOUIS ARMSTRONG & DUKE ELLINGTON



At last! Duke meets Satch, on Columbia 33SX 1400. *Louis Armstrong and Duke Ellington*. Recorded 3rd April '61. Armstrong, trumpet, Ellington, piano, Trummy Young, trombone, Barney Bigard, clarinet, Mort Herbert, bass, Danny Barcelona, drums; in other words Louis' group with Duke instead of Billy Kyle.

Ellington proves what a brilliant accompanist he is and solos with delightful simplicity. Louis blows and mugs away like mad. All are Ellington titles.

Twenty-five musicians under the leadership of Stan Kenton make Capitol T.1609, *Kenton's West Side Story* a screaming success. Stan's adaptation of



this already fabulous score is brilliant. And what a test for equipment: it'll get a workout, from tweeter to bass and back again. If you've got a rattle it'll find it. Six trumpets, four trombones, four mellophoniums, tuba, five saxes, bass, piano and four percussionists! Whew! They really blow.

Soloists, especially Conte Condoli (trumpet), get a chance to shine, but the original score is not lost.

Kenton's best for many a long year.

Stan White reports on a unique disc, *Fairground Melodies and Memories*. *The Mammoth 89-key "Gavioli" Fairground Organ* presented by The Express Dry Cleaning Works (Rushden) Limited. COL. 1014.

This record is obtainable from Express Dry Cleaners, Wellingborough Road, Rushden, Northants, £1 17s. 6d. plus 2s. 6d. postage and packing.

Some firms have orchestras, others have a brass band, the Express Cleaning Works has a 1904 Gavioli fair organ. This ornate instrument was first used in 1904 by Mr. James Crighton on his Bioscope Show, later transferred to roundabouts, and finally ended its fairground life with a set of modern dodgem cars just a few years ago.

Mr. Arthur Mills, the owner of the Dry Cleaning Works and a fairground enthusiast, owns it, together with "Princess Mary"—a huge Burrell Showmans road locomotive, which supplies the organ with both power and mobility.

This L.P., which was made as a result of an American recording company's search for fairground organ music, contains 70 minutes playing time. On it the great Gavioli beats out a selection of music which will stir the memory of many a person who remembers these great organs playing on the fairground.

I vote COL. 1014 the best fairground-organ record ever produced in this country.

The Sound Scene CONTINUED FROM PAGE 31

Wireless and Television Company Limited, Warlters Road, Holloway, London, N.7. Interested readers are advised to write for the maker's brochure which gives much more technical and other information than can be included in this review.

F.C.J.

SOUND SPOTS

Woman's Seventh Sense

Last month Rachel Lindsay mentioned 'Woman's Seventh Sense' in her 'Strictly Feminine' page. One famous person who already follows the advice given to improve this 'seventh sense', is Lady Olivier. During rehearsals for 'Major Barbara', Lady Olivier used a tape recorder so that she could listen to herself and correct her accent for the part. This provided Lady Olivier with invaluable help in coping with a style she had never played before, and an entirely new length and phrasing of speeches.

Talking Cash Register

After years of different application, new uses for tape recorders still appear. The latest has converted the prosaic cash register into a salesman. Every time the drawers of these cash registers are opened, they start a recorder which provides a 14 second sales message through the speaker fitted in the register.

Sales of the commodities advertised in this unusual way are said to have been increased 15 to 30 per cent by its use. Cost? £285.

Ferrania Recording Tape

Now available in Britain for the first time.

In 1917 the Italian firm Ferrania first began making films and sensitized photographic materials. Now, forty-four years later, they produce a very much wider range of materials, cameras, projectors and, most recently, magnetic recording tape.

Ferrania recording tape is now available in Britain for the first time, and tape recorder users everywhere will soon be sampling its qualities.

All Ferrania magnetic tapes conform to international standards and are available in standard play, long-play, double-play, high-output and professional types.

The marketing of Ferrania magnetic tape is being handled by Neville Brown & Co., who are the sole British distributors for cameras, projectors and film manufactured by the Ferrania concern.

Truvox PD82 Review

Messrs. Truvox Ltd. comment as follows on our review of the Truvox PD82 Tape Unit in the March Information Bureau:

"We are a little concerned that Mr. Judd should find the frequency response of 3½" per second inferior to our published figures. We have checked the quality control record for this particular unit and find that it is well within the specification. Mr. Judd reviewed a tape unit which has a magic eye for modulation and continental type input sockets, but there are two other models which customers can choose; one is 2-track and the other is 4-track, both of them having a meter for modulation and G.P.O. type Jack sockets.

Mr. Judd is correct when he says that no tape or microphone is supplied with these units, but we do supply a recording lead fitted with a suitable plug and also a spare plug for the customer's convenience."

ATR

'SPRINGTIME IN PARIS' RESULT

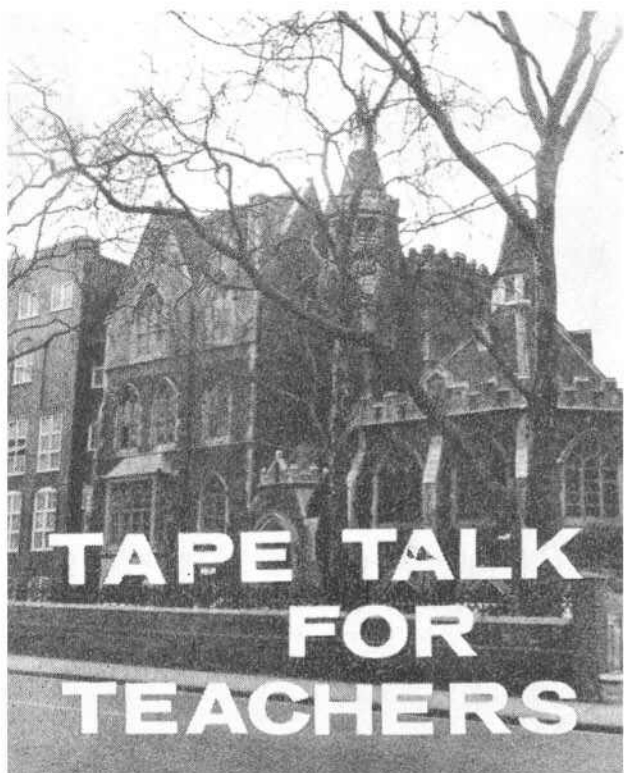
Mrs. Sibtain of Bromley, Kent, the winner of our 'Springtime in Paris' Competition receives part of her prize—the Grundig TK1 portable tape recorder—from A.T.R.'s Editor and Grundig's representative, Miss Brenda Marriott, together with their congratulations on behalf of 'Amateur Tape Recording & Hi-Fi' Magazine and Messrs Grundig (Great Britain) Ltd., joint sponsors of the Competition.



Mrs. Sibtain and her husband will be setting off next month on their prize week-end to Paris.

Later this year they will be returning to Mrs. Sibtain's homeland, Australia, and her architect husband already plans to use his Grundig TK1 to capture the folk-songs of the countries he will be travelling through en route.

Unsuccessful entrants should now turn to page 17—if at first . . .



Tape exchange with overseas schools is rapidly becoming the most popular of all school tape activities.

A.T.R. STARTS SOMETHING

WITHIN a week of the appearance of our last number, one London school had written to the address we gave in that issue, asking for an American school tape. We have arranged with the L.C.C. school to hear the American tape, and hope to report within the next three or four months on both this and the British reply. If other school clubs using this scheme will report to us, we shall be pleased to give some account of the messages exchanged. For the benefit of new readers the address is: Scholastic Living Letters, 33 West 42nd Street, New York 36, N.Y., U.S.A.

Transatlantic Valentines

Mount Pleasant Junior School, Quarry Bank, is carrying on an exchange with a New York school. Distinctive feature is that the correspondents are ten-year-olds, and the British youngsters warmly appreciate the friendliness of their American opposite numbers, who even sent them Valentines. Are there more ten-year-olds keen to make friends in U.S.A.?

Entente Très Cordiale

Last December the *Scottish Educational Journal* published an account of correspondence between a Scottish junior school and one in Normandy. Within a few weeks the *Journal* received requests from three more schools in France for British schools willing to exchange tapes. Do some A.T.R. readers find this alluring? One of the French requests came from a class of 16-year-olds in a mixed technical school in Clermont-Ferrand—another from a girls' school in Alsace—another from a boys' school in Brittany. Of course, Scotland has enjoyed a special historical relationship with France, both before and since the French Dauphin married the beautiful girl who after became Mary Queen of Scots, but the French would also wel-

come replies from English schools. Our object in encouraging such correspondence is not the promotion of further matrimonial alliances, though such developments are not beyond the bounds of possibility. The educational advantage is that, when these exchanges start, the teacher in the English school finds his pupils' interest in languages stimulated by their desire to produce a French script and to read it with correct pronunciation and emphasis. Anticipating a rush of applicants, we notify teachers interested on behalf of their pupils, that they can obtain details of the scheme from: The General Secretary, Educational Institute of Scotland, 46 Moray Street, Edinburgh.

Foreign Language Teaching

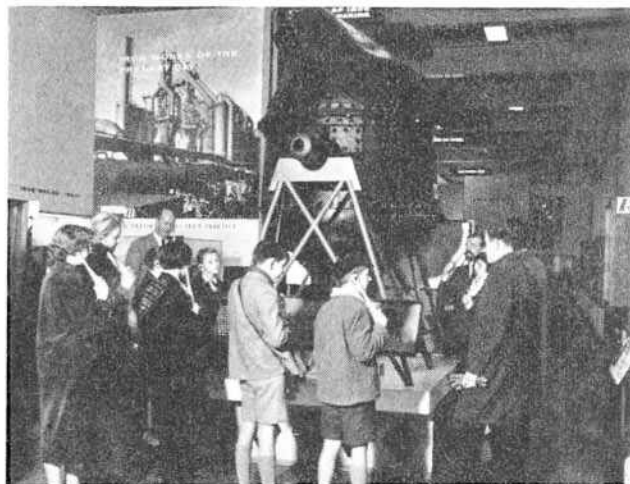
We have previously described the method of instruction in languages by 'language booths'. The London County Council has decided to experiment with two such installations—one at the Holborn School of Law, Languages and Commerce, the other at Mayfield School, Putney. The estimated cost, including maintenance for one year, is respectively £4,200 and £4,700. The simpler audio-visual method with tapes and film-strips has been selected for King's School, Pontefract.

Irish Too

The *Cork Examiner* reports that tapes are now being used to teach Erse to the Irish! And to adults at that! This will be approved by a certain headmaster in England who appointed an Irish teacher as head of his English department and then found that the appointee was having some difficulty. The reason was that while her 'native' language was Erse, her mother-tongue was English. Speaking English only, the poor girl had struggled to learn English grammar at a school which taught exclusively in Erse.

Tail Piece — 1

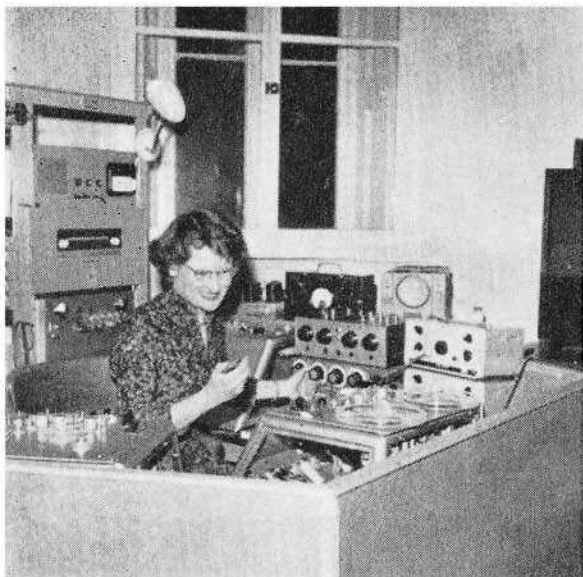
At a conference called by the Birmingham Association of the National Union of Teachers, a speaker reported that students of industrial relations put a tape recorder in a managing director's office, and after three hours played the recording back to him. He had talked for 2 hrs 54 mins and had listened to other people for only six minutes.



These school children discover yet another use for tape as they listen to a tape-recorded talk at the Science Museum. The talk is being radiated magnetically to their individual receivers.

Tail Piece — 2

"A headmaster used a tape recorder to trap a pupil who had been damaging books. The boy obviously had the worst record in the school." (*Glasgow Evening Times*)



Electronic composer, Daphne Oram, sits surrounded by her 'Orchestra'.

A sound pilgrimage to 'Tower Folly' by A.T.R.'s Editor and Technical Editor led to this 'profile' of Daphne Oram.

ALONG the A.227 road between Wrotham and Gravesend, there is a building that, at first glance, resembles an Eastern Pagoda. This is 'Tower Folly', a 300-year-old Kentish Oasthouse with a large circular ground floor room which has become one of the most elaborate independent electronic music studios in Great Britain. Inside, we found Miss Daphne Oram surrounded by a circle of tape recorders and other special electronic music equipment that is the foundation of Oramics Limited, Studio for Electronic Composition.

Daphne Oram's study of the piano, organ and music composition led to her joining the B.B.C. during the war, where she trained for programme engineering and studio technique. She worked mainly as a music balancer and later became intrigued with the possibility of creating new forms of music with electronics and magnetic tape. In 1948 she built special equipment for experiments and was greatly encouraged in this work by the late Professor A. M. Low.

The laughter that electronic music once provoked, is now dying away before its increasing recognition as a new art form. One of the pioneers, whose work has made a major contribution to this advance, is Miss Daphne Oram.

DAPHNE ORAM

PROFILE OF AN ELECTRONICS PIONEER

Her first serious composition was an electronic creation for a B.B.C. Television play ("Amphitryon 38"), and

later when the B.B.C. decided to build a special experimental workshop, now known as the Radiophonics section, Miss Oram was requested to help design and direct it.

In 1959 she left the B.B.C. to found her own studio for Electronic Music in which she has produced compositions for films, television, theatre and radio plays.

Music, one at the Mermaid Theatre in London and the other at the Edinburgh Festival of Music. To cap this, as we announced in last month's A.T.R., she has been awarded a £3,550 grant from the Gulbenkian Foundation to assist her research into this almost unexplored field of new music.

THE SET-UP

The recording bay is circular for convenience of operation and within the circle are three specially modified Brenell recorders, audio tone generators, mixers and a special

electronic filter set. The circle is completed with a distribution rack and amplifiers which feed an array of loudspeakers dotted around the sound-proofed studio. There are also two professional recorders and many other electronic devices for sound transformation.

Tower Folly promises to be one of the world's great centres for sound experiments, so we shall keep A.T.R.



The Greeks had a word for it (elektron), and the music for the B.B.C. Television production of "Amphitryon 38" was, most appropriately, 'electronic'.

Last year Miss Oram presented two successful concerts of Electronic

readers bang up to date on the latest from the 'Sound House'. **ATR**

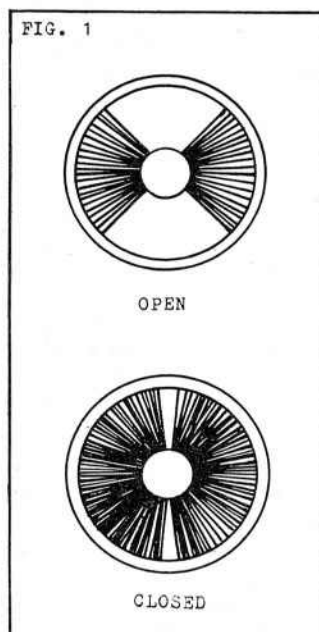
Fulfilling its pledge to cater for raw beginners as well as recording experts, A.T.R. presents the last word in simplified tape recording know-how.

This month, we solve the mystery of recording levels and how they are detected.

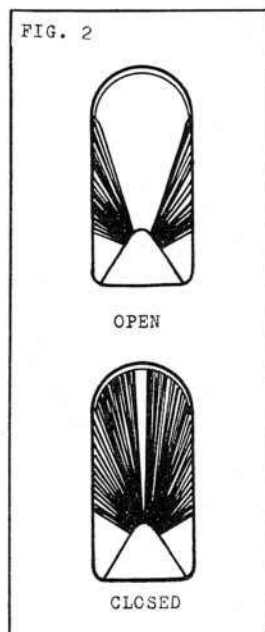


LOW-DOWN ON RECORDING LEVEL

by A. LESTER RANDS



CIRCULAR TYPE MAGIC EYE INDICATOR



ELONGATED MAGIC EYE INDICATOR

BEFORE going on to recording and microphone techniques, some notes about *recording-level indicators* may be useful, for many tape recorder owners are mystified as to the correct use of these devices. There are actually three types of record-level indicator, although the first, which I will discuss but briefly is now rarely used.

Neon Lamp Indicators

These were used on earlier tape recorders and are still found on some of the cheaper instruments available today. The general arrangement was, or is, to fit a small low-voltage neon lamp across the output of the recording amplifier.

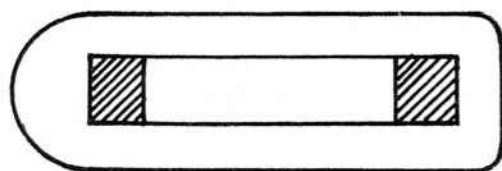
The sensitivity of the neon is then adjusted by means of a series resistance so that it 'strikes' or glows only on signals which are close to the limit required for maximum recording level. Sometimes two neon lamps are used, one for average level and one for *peak* level.

The Magic Eye

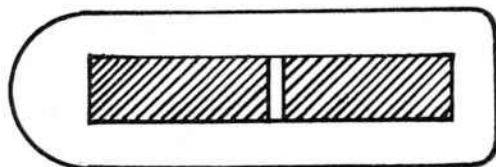
Another simple type of indicator and one now fitted to the majority of tape recorders, is the so-called 'magic eye' which is really a miniature cathode ray tube. Visible through the glass envelope is a specially shaped plate which is coated with a material that glows (green) when bombarded with electrons from the cathode. There are other electrodes or plates which are so arranged as to normally deflect the electron stream away from the coated plate so that the 'eye' is not illuminated. When signals from the recording amplifier are fed to these electrodes, the electrons are allowed to reach the coated plate, which then glows the familiar bright green. If the signals from the recording amplifier are small, only a small part of the plate is illuminated. If the signals are large, the whole area becomes illuminated.

Earlier 'magic eyes' were circular, as shown in Fig. 1, and when in operation, looked like a round eye, hence the name. Now, the most commonly used are those shown in Fig. 2 and Fig. 3. The 'bar' type of Fig. 3

FIG. 3



OPEN



CLOSED

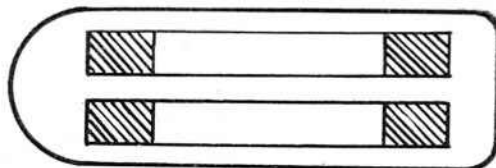
'BAR' TYPE MAGIC
EYE INDICATOR

has a narrow oblong plate which glows green, starting from each end, along its length. Maximum recording level is usually indicated when the whole of the plate glows, i.e. when the two bars of green light meet at the centre. The latest addition to this type of indicator is one with the 'bars' divided as in Fig. 4. These are used for stereo recorders; one bar for each track.

Recording Level

Nearly all the magic eye indicators simply show *instantaneous* peak or maximum recording levels, and providing one does not allow the eye to fully close

FIG. 4



DOUBLE BAR INDICATOR
DESIGNED FOR STEREO RECORDERS

on any except the very loudest of signals, little or no distortion will occur. When setting the recording level with a magic eye, watch the loud passages and set the volume control so that the loudest signal only just closes the eye. All other signals will then be below the absolute maximum level for distortion-free recordings.

Recording-Level Meters

The moving coil meter type of indicator is fitted to some domestic recorders and to semi-professional and professional machines, and is the most accurate form of indicator. Meters can, however, be misleading and some experience with them is necessary because the meter does *not* show *instantaneous* peak levels like the magic eye. The peak is usually over and done with before the meter has time to register its true value. This is because the movement of the pointer is extremely sluggish when compared with an electronic device like the magic eye. The meter usually shows the average of peak values and if it is properly calibrated can be used with every confidence.

Later on in these articles, I will deal more fully with the meter as a recording-level indicator. Next month, we return to the tape recorder amplifier and I will explain in simple terms the meaning of frequency response and the frequency characteristics of the recording and playback amplifiers.

ATR

If you have a Tape Recorder or want to buy one you **MUST** read **Tape Recording for Everyone**

by

F. C. JUDD

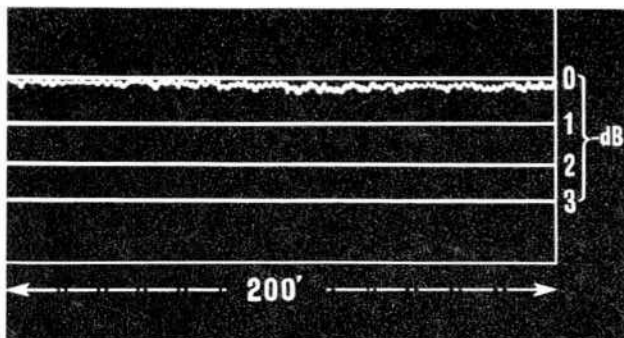
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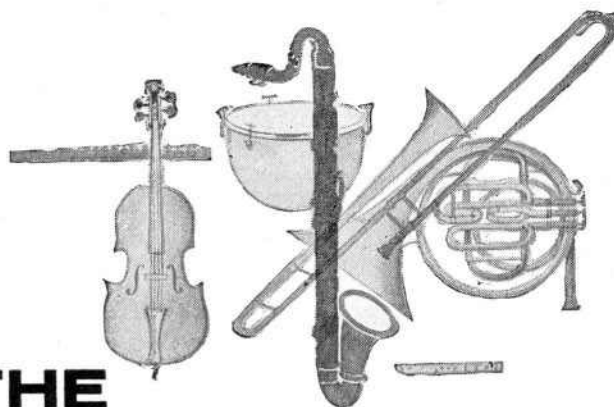
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THE PATTERN OF PERFORMANCE...

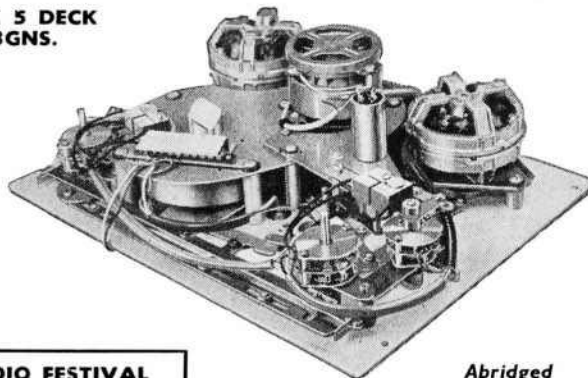
. . . is not to be found in a tape recorder's outward appearance. It lies within the deck, and by and large, a recorder is only as good as the components and engineering qualities that are built into the deck.

The Brenell Mark 5 deck, at 28gns, has greater precision and dependability than you are ever likely to find elsewhere, at anywhere near the price.

Its main motor is an hysteresis synchronous motor, an ideal type for recorder operation. 'Wow and flutter' is below .1% at 7½ ips!

The specification below speaks for itself, but only your personal observation can give full recognition to the individual skill and thoroughness lavished on the assembly. Such care may not be fashionable these days. We find it both desirable and economic. We are sure you will too.

MARK 5 DECK 28GNS.



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3 INDEPENDENT MOTORS (Capstan motor-hysteresis synchronous) · 4 RECORDING SPEEDS—1½, 3½, 7½ and 15 ips · FAST REWIND (1,200ft. reel rewind in 45 seconds in either direction) · ACCEPTS 8½in. REELS (Modified Deck to accommodate up to 10½in. reels—7gns extra) · PAUSE CONTROL · DIGITAL REV. COUNTER · PROVISION FOR EXTRA HEADS (Mono or Stereo)

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STRICTLY FEMININE

a tape from a lonely heart

My heart is sad and lonely but
someone dear to me is going to
hear my voice again—a tape across the sea.
It helps to pass the time away
while we're so far apart—but this
is quite the only way to have a heart to heart.

TOGETHERNESS. The American women's magazines first started to use that word, and when it crossed the Atlantic to this country how the newspapers laughed. At least, those parts of the newspapers written by men. But soon the women's magazines over here also took up the cult of togetherness, and husbands and wives were encouraged to do things together whenever they could—apart from the normal things that husbands and wives do together anyway!

What about the husbands and wives whose work keeps them apart? The man in the Forces, for example, or the traveller. Here is where tape recorders come into their very own. Long-distance telephone calls are too expensive to make often, and besides when the telephone is put down the husband and wife are left staring at the instrument feeling more depressed than ever. Letters are a little better, for they at least can be read and re-read, but oh, how tedious they are to write. After a few pages arm-ache intervenes, and all those funny incidents with the children, the quaint sayings of the baby and all the other bits of gossip don't get put in after all.

But on a tape recorder there is no such problem. Couples can tell each other everything they want to, and what is even better, they can hear it as many times as they like.

A cousin of mine travels all over the country and only gets home for week-ends. "Hotel rooms are lonely places, and though I tried sitting in the bar or in the lounge, I soon got fed up with it, for it was asking for trouble. When you're lonely, the ugliest looking blonde suddenly appears to be like Monroe. But since my wife and I bought a tape recorder each, we're able to keep in touch all the time. I book in to my hotel on a Monday night, and I go out on my rounds the following day. When I get back in the evening there's a taped message waiting for me, with news of home and the kids. Sometimes

my wife asks me for advice. It's amazing the things that can crop up in 24 hours. I record an answer and send it off Wednesday. But on Wednesday I get another tape. And so it goes on. Sometimes my wife and I have even had a quarrel over the tape, and it's quite amusing to listen to it weeks later when our tempers have cooled. But the main thing is knowing I can switch on and hear her voice whenever I want to. It sort of brings us together."

The tape recorder is also a boon for people when they're ill in hospital. Visiting hours are over so quickly that the patient is left feeling pretty blue. But how they brighten up when they can switch on one of the many small battery-run recorders and hear a lot more news of the family. Reproduction might not always be 100%, but oh what a boon it is to have a little machine that you can switch on wherever and whenever you like.

Here are some suggestions for taping ideas for people in hospital:

A selection of their favourite songs interspersed with a little bit of conversation and gossip.

Record any special event that the patient has missed. A birthday party in the family? Then switch on the tape while tea is in progress and let the patient be a hearing guest if not a seeing one.

How about taping jokes? Not blue ones, though, or Sister might not like it!

Taping a story is another good idea, particularly if you do it in instalments so that the patient can switch off at a ten or fifteen minute interval. When I was ill recently I was too lethargic to read, yet felt completely bored lying in bed doing nothing. If only I could have switched on a tape and listened to one of my own romances!

Hospital life can become terribly monotonous for patients. Send your tape recordings to their rescue.

ATR

BY RACHEL LINDSAY

JUNE AND A.T.R.



STAR FEATURES IN NEXT MONTH'S A.T.R.

- * **BATTERY PORTABLES IN ACTION**
- * **STARTING TAPE AND CINE**
- * **REPORT ON THE AUDIO FESTIVAL**

Amateur Tape Recording and Hi-Fi Magazine

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MEET THE DEALER

THIS month our reporter visits the Rapid Recording Service which is under the Directorship of Mr. J. L. Ratcliff. Apart from selling tape recorders and accessories, record players and cine equipment, Mr. Ratcliff has a very extensive recording service, tape and disc, fully equipped studios and a mobile recording van.

Rapid Recording Service started almost simultaneously with the event of tape recording and was inspired by Mr. Ratcliff's active interest in music, for he is a musician himself and aside from his business interests is closely associated with the world of music.

RAPID SERVICE

Rapid Recording Service began as a small enterprise and has grown into a well-organized establishment. Three M.S.S. disc-cutting machines, an E.M.I. TR.51 and other professional tape recorders and equipment are in daily use for R.R.S. can offer a 48-hour service. By last December, R.R.S. had cut over 1,750 discs!

Three years ago, Mr. Ratcliff became Managing Director of Educational Recordings Limited and took over the entire work of producing special tapes and discs for the Company. His views on success have undoubtedly proved correct for he says "that success in the recording business depends on whether one can turn out the highest quality that patience and equipment will allow."

DISC RECORDING

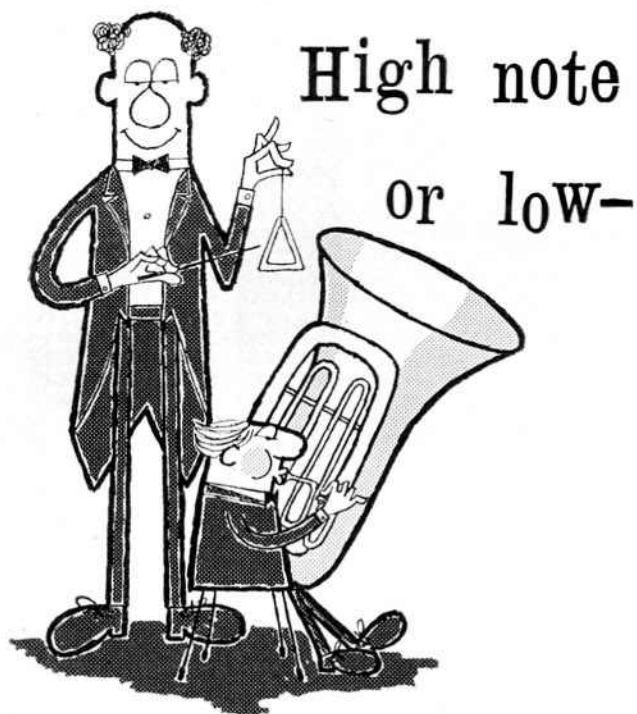
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We fully approve R.R.S. and confidently recommend them to A.T.R. readers who want discs cut, perhaps a new tape recorder or advice on cine equipment. You will find them at 17 Bishops Close, Church Lane, Walthamstow, London, E.17.

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THE TAPE DIRECTORY

the tape directory

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CANADA

IAN PURVES, age 24, machine operator, 552 Huron Street, Toronto 5, Ontario. Blues, folk music, jazz. V-M (2-track), 7in. 3½, 7½. **Anywhere, U.K., Australia, New Zealand.**

GERMANY

3528426 SAC A. PHILLIPS (and friends), age 19, BL51 RM30, R.A.F. Laarbruch, BFPO 43. All sports, photography, music, travelling, modelling, aircraft/rec. model, car racing. Phono-Trix, Parlophone Studio, Grundig, up to 7in. 7½. **Anywhere, English or Welsh spoken.**

NEW ZEALAND

ERIK SEARLE, cinema projectionist, Embassy Theatre, Thames. Photography, radio (building etc.). Any mechanical hobbies, films, theatres, in fact anything. Anything except opera. Home-built with B.S.R. Deck, up to 5½in. 3½. **Anywhere, but I would like contacts in U.S.A., England, Australia specially. Only English spoken.**

SOUTH AFRICA

EWEN G. BOGLE, clerk, Flat 3, 17 Hopson Avenue, Glenwood, Durban. Ships and shipping, model ships. Light classic to popular. Philips Family Four (EL3541), 7in. 3½. **Anywhere English speaking.**

U.S.A.

JOHN W. HOWE, postal clerk, 84 Sproat, Detroit, Michigan. Most everything. Popular (piano, organ). Knight 4035, 7in. 3½, 7½. **Everywhere.**

WALES

COLIN BEYNON, age 20, electrical engineer, 20 Victoria Square, Penarth, Glam. Traction vehicles and tape. Classical to pop. Philips 3in.-5in. 3½. **U.K., U.S.A., Germany, Austria, only English spoken.**

BEDFORDSHIRE

PETER N. BURR, age 22, photographer, 205 High Street, Elstow. Youth

Club organization and photography. Classical and good pops. Ferrograph 422, up to 8½in. 3½, 7½. **U.K., Germany, U.S.A.**

A. C. HAWKINS, age 18, clerk, 15 Gloucester Road, Bedford. Hi-Fi Stereo and tape recording. All types of music especially Ted Heath, Goons, Peter Sellers, Cliff, Basie etc. Grundig (2-track), 5½in. 3½. **Anywhere English spoken. Don't write, all tapes answered.**

BERKSHIRE

D. A. DEVETT, age 15, student, Waye's Radley College, Abingdon, or No. 1 Redlinch Court, 70 Addison Road, London, W.14. Psychology, hypnosis, parapsychology and gymnastics. Pop. Grundig TK1, 3in. 3½. **Anywhere.**

CHESHIRE

MALCOLM FROST, age 21, assistant manager, Locarno Ballroom, 56 Washway Road, Sale. Swimming, radio, films. Pop, jazz, classic. Argyll Minor, 5½in. 3½. **Anywhere.**

CORNWALL

MOLLIE COLLINGWOOD, 2 Chapel Porth, St. Agnes. People, D.I.Y., places, caravans. Not highbrow, not jazz. 4-track stereo, 7in. 3½, 7½. **Any stereo tapes anywhere, especially overseas. Only English spoken. Please send tape, not letters. Will reply to all.**

DEVON

ROY CAINE, age 24, storeman, 54 Widery Road, Whipton, Exeter. 35mm. photography and travel. Rock 'n' roll. Sound Riviera, 5½in. 3½. **U.S.A., France.**

DORSET

COLIN GRELLIS, age 17, iron-monger, Port Coombe, West Bay Prom., Bridport. Pop records, amateur radio. Humorous. Argyll Minor, 5½in. 3½. **U.S.A., U.S.S.R. Anywhere English is spoken.**

HAMPSHIRE

PETER BRINKLOW, age 28, H.M. Forces, 28 Gladstone Road, Gosport.

Recording, photography, stamp collecting, travel, all kinds. Philips EL3542 (4-track), up to 7in. 1½, 3½, 7½. **Anywhere, particularly Canada, U.S.A., France. Only English spoken.**

HERTFORDSHIRE

DONALD G. KERRIDGE, age 29, Church of England Ordinand, Bishops' College, Cheshunt. Photography, reading. C. & W., jazz (all sorts of Mod). Philips (4-track), 3½. **Anywhere, English speaking.**

JOHN SIMMONDS, age 16, school-boy, 20a Walkers Road, Stevenage. Taping, reading, general. Mainly pop. Travler Portable, 3in. Philips (4-track), 3in.-7in. 3½. **Anywhere, know some French and German.**

KENT

MISS C. PALMER, age 19, secretary, Peggotty House, 2 South Hill Road, Bromley. Dancing, skating, reading, general etc. All, but mostly pop. Robuk (2-track), 7in. 7½, 3½, 1½. **Anywhere.**

LANCASHIRE

JOHN KINLEY, age 19, driver's mate, 1 Hulbert Street, Middleton, Manchester. Reading, radio, tape recording. Pop, C. & W. songs. Philips EL3541, 7in. 3½. **U.S.A., Canada. Anywhere.**

ROGER SIDDLE, age 20, student (physics), Dalton Hall, Victoria Park, Manchester 14. Amateur radio, guitar. Trad. and modern jazz, pop, classical, guitar. Studio (2- or 4-track), 3in.-7in. 1½, 3½, 7½. **U.S.A., France, U.K., Canada, Australasia.**

LONDON

LINDA HARLING, age 15, school-girl, 33 Liverpool Grove, Walworth, S.E.17. Swimming, photography, pets. Pop music. Wyndor Regent, up to 7in. 3½, 7½. **Anywhere English is spoken.**

L. HASTINGS, age 38, Local Government Officer, Council Dept., Digby Street, Bethnal Green, E.2. Photography, motoring, camping. Anything, especially classical. Accent on quality. Stereo enthusiast. Ferrograph 4AN, Ferrograph 422 (Stereo 2-track), 3½, 7½. **All tapes welcome, Overseas especially. No need to write.**

DERECK A. KING, age 31, clerk in shipping, 42 Banyard Road, S.E.16. Humour, pipe bands, 8mm. cine, printing, theatre, cinema. Dance, trad. L/classics, musicals. Grundig Cub and TK5, Ferrograph 4AN, 3in.-8½in. 3½, 7½. **Anywhere, but mainly Australia, New Zealand, U.S.A., or Channel Islands. English speaking.**

HAZEL ANN KINGHAM, age 11, schoolgirl, 26 Church Road, Tottenham, N.17. Stamps, people and places, learning French, general school topics. Any. Clarion, 3in. 3½. **All countries including U.K.**

GEORGE MILLER, age 37, Income Tax, 15 Princes Avenue, Wood Green, N.22. Everything in general, nothing in

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particular. Classical, light, pop. Grundig TK14, 5½in. 3¼. **Anywhere, English speaking only.**

PETER PEARCE, age 25, printer, 13 Grove Road, Tottenham, N.15. Travel and music. Modern, jazz (West Coast). Elizabethan Essex, 7in. 3¼, 7½, 15. **Anywhere.**

EDDIE PERRY, age 28, chauffeur, 88 King Edwards Road, Hackney, E.9. Spanish dancing, bullfight, 8mm. cine. Flamenco and Greek. RGD 104, up to 7in. 3¼, 7½. **Spain, or any English speaking persons.** All tapes answered, no need to write first.

MICHAEL SCOTT, age 16, student, 7 Franlaw Crescent, Palmers Green, N.13. Tape recording, basketball. Pops, comedy etc. Elpico TR400, 5½in. 3¼. **U.S.A.**

NORTHAMPTONSHIRE

ROY M. CHAPMAN, age 22, civil servant, 240 Gladstone Street, Peterborough. Football, hockey, tennis, films. Trad jazz and some pops. Spectone 161, up to 7in. 3¼, 7½, 15. **All Commonwealth countries and America. English speaking preferable.**

ALBERT LINK, age 44, time keeper, 23 Poplar Road, Burton Latimer. Anything. Bach, boogie, Gilbert & Sullivan, C. & W. Philips (2- and 4-track), 3in.-5½in. 3¼. **U.S.A., Australasia, South Africa.** Tape first, no need to write.

NORTHUMBERLAND

ALAN HARLAN, age 21, despatch clerk, 13a Linden Road, Gosforth, Newcastle-upon-Tyne. Collecting Irish, trad., Scottish and Folk Music. Folk, Irish and Scottish, military band marches. Philips EL3538, 7in. 3¼, 7½. **Eire, Scotland, N. Ireland, Switzerland, Germany, Sweden, Norway, Denmark, Austria, Canada, C. & S. America, Asia, Africa.** Letters first please.

NORFOLK

R. J. LUXTON, age 39, civil servant, 14 Furze Road, Thorpe St. Andrew, Norwich. Swimming, camping, youth work etc. Classical and Sacred. Ferrograph and Grundig, up to 8½in. 3¼, 7½. **Australia and U.K., Orkney Isles.**

NOTTINGHAMSHIRE

RON TANSLEY, age 23, fireman (B.R.), 1 Hodgkinson Street, Netherfield. Photography, films, record. Modern jazz, vocals, big band music. Norfield 7in. 1½, 3¼, 7½. **Anywhere English spoken.**

SOMERSET

MR. & MRS. KEITH F. J. JENKINS, age 34 and 29 years, 12 Withleigh Road, Knowle, Bristol 4. Many and varied, including young family (2 girls, 7 and 1 years). Photography, piano, current affairs, education, S.W. radio listening. Classical, piano, and some popular. REPS R10, up to 7in. 1½, 3¼, 7½. **Individuals and families in all Western Europe, Scandinavia (particularly Den-**

mark) and families in U.K., U.S.A., New Zealand. All tapes and letters treated confidentially and replied to as best possible.

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SAM BASS, engineer, 98 Orme Road, Newcastle-under-Lyme. "UKE". Producing AM shows, modelling, antiques. Lanza, Jolson, Formby, Eddy, Durbin. Shows. Philips (2- and 4-track), Grundig, Elizabethan, Carol, up to 7in. 1½, 3¼, 7½. **Anywhere — anybody interested — any time.** Don't bother to write. Just grab the mike and let's "get crackin'" as Formby might say.

SUSSEX

BEN R. CRONIN, age 20, motor-cycle engineer, 6 Norfolk Terrace, Brighton. Reading, motor-cycling, firefighting, general. Anything except chamber and heavy stuff. Peto-Scott (4-track), up to 5½. 3¼ only. **Female contacts preferred. S.E. England.** Just tape and send. All tapes answered.

WARWICKSHIRE

WILLIAM E. BURGESS, age 28, silkscreen technician, 3 Laburnum Avenue, Clifton Road, Balsall Heath, Birmingham 12. Screen printing, electronics D.I.Y., evangelism, youth work. Classic to pop (e.g. Sibelius, Gilbert & Sullivan, Shadows), National Anthems. Elizabethan Princess, 3in.-7in. 1½, 3¼, 7½. **Anywhere (special interest in Irish contacts throughout the world).**

PHILIP A. LINDOP, age 32, engineering inspector, 15 Chesford Crescent, Warwick. 35mm. colour photography, general talk. Pop, light classical. Stella (4-track), up to 7in. 3¼. **Anywhere, only English spoken.**

LEONARD MORRIS, age 23, representative, 151 Aubrey Road, Small Heath, Birmingham 10. Reading, radio, cinema, motoring. Modern jazz, pop (Ray Conniff), classical. Grundig TK24 (4-track), 5½in. 3¼. **U.S.A., Poland, S. America, Spain. Female preferred age 18-26.**

A. G. CLEEVE SCULTHORPE, age 28, formerly printer, 82 Lichfield Road, Coleshill, Nr. Birmingham. Canada, air travel, anything of interest. Pop, light. Elizabethan FT3, 3in.-7in. 1½, 3¼, 7½. **All over the world. Only English spoken.** Tapes on any subject.

WORCESTERSHIRE

BRIAN JAMES, age 11, schoolboy, 58 Moat Crescent, Malvern. Corresponding. All. Argyll, 5½in. 3¼. **Anywhere out of U.K.**

TONY WILLARD, age 20, journalist, 7 Victoria Road, Malvern Link. General, especially 'Talking shop', cinema, sport, current affairs. All except classical. Robuk, up to 7in. 1½, 3¼, 7½. **Anywhere English speaking. Journalist tapespondents wanted, preferably abroad.** Please don't write first.

Spool Talk

by tape-pals about tape-pals

More and more

THE urge to tapespond is growing at such a rate that we are now swamped with requests for entries to be printed in our "Inter-Tape Directory". Even though we have increased the Directory space, the demand still exceeds it and so we must put the brakes on for a while by omitting our Inter-Tape Directory Form. We shall be happy to accept further entry requests when it re-appears, but in the meantime why not contact one of the lucky tapespondents who have got in.

Scout-sponding

W. J. Smith, of 11 West Parade, Newcastle-upon-Tyne, 4, sees many tape possibilities in Scouting:

"Both the Training and Entertainment sides of the movement could be helped considerably by sharing ideas on tape. There is also enormous scope for 'Inter-Troop-Tape' tournaments, while, as a preparation for international camps, tape seems an ideal method of getting to know the visitors before they arrive!

"This sort of contact does not necessarily mean a home-based club, though in time, many would probably evolve, as an activity of the Senior or Rover section of various Scout Groups.

"The first need is an intermediary or clearing house, to whom all interested persons could submit a tape for either a personal reply or reallocation to another tapespondent with similar interests. Routing such tapes through a central clearing house would provide the chance of building up a library (by transcription) of all novel ideas, original sketches, songs, and special Troop programmes, for use later by other members."

YORKSHIRE

TREVOR DOWDING and WIFE, age 34, electronic engineer, 4 Segrave Walk, Acomb. Cine photography, archery, radio. Light opera, pops, no jazz. Grundig TK8, 7in. 3¼, 7½. **U.K., Malaya, Singapore, U.S.A., Canada, Europe.**

JAMES WEBSTER TAYLOR, age 45, rubber worker, 11 Aldborough Grove, Preston Road, Hull. People anywhere, travel, outdoor life. Light or anything. Walter 404 3in.-7in. Grundig TK1, 3in. 3¼, 7½. **Anywhere.**

Tape Club News CONTINUED FROM PAGE 23

Walsall

Walsall Tape Club now meets at the New Inn, John Street, Walsall.

Wartime Whitstable

A good attendance at the last meeting of the **Whitstable and District Club**. There were three main attractions, a talk on battery portable recorders by the Secretary, Tom Robinson, a sound quiz presented by his 11-year-old son Peter, and a most absorbing documentary called "Wartime Memories" for the older members. Heard again were the voices of Churchill, Hitler, Lord Haw-Haw and the sounds of battle and shelling of Dover. The Playcraft Theatre Group of Canterbury recently requested the assistance of the club in preparing and recording its entry in the *Reynold News* national competition for drama on tape.

ATR'S TAPE CLUB GUIDE

(January 1962)

ADD

Nelson and District Tape Recording Club: W. Beardsworth, 309 Barkerhouse Road, Nelson, Lancs.

Tufnell Park Tape Recording Club: G. Wilgrove, 38 Highgate Road, London, N.W.5.

AMEND

Blackpool and Fylde Tape Recording Club: Secretary is now G. C. Backhouse, 103 Keswick Road, Blackpool, Lancs.

Carlisle Tape Recording Club: Secretary is now J. E. Francis, 29 Dalton Avenue, Carlisle.

Eastbourne Tape Recording Club: Secretary is now Miss Dee Harris, 12 Victoria Mansions, Terminus Road, Eastbourne.

Southampton Tape Recording Club: Secretary is now R. J. Woolford, 16 Meadowhead Road, Bassett, Southampton.

WALTHAMSTOW CLUB BOUQUET

Sgt. T. G. Clark of B.F.P.O. 45 (Berlin) sends us a tape in which he presents a well-deserved bouquet to the Walthamstow and District Club. Having come from the Walthamstow area, he wrote to them to enquire if he could become an overseas member. They not only made him an honorary member, but have since sent him a recording of all the local sounds of Walthamstow—street traders, a meat auction, fish and chip shop, a taped bus journey to remind him of when he worked on the buses, and have found the bus driver he used to work with. Not only found him, but invited him to their club, and recorded a message from him to Sgt. Clark in Berlin.

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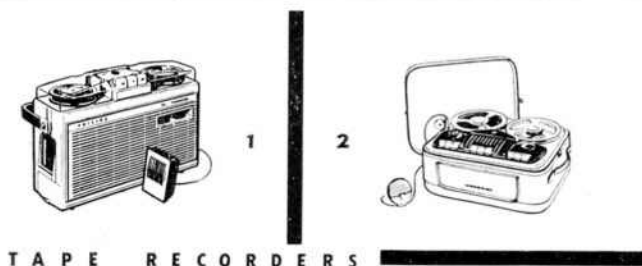
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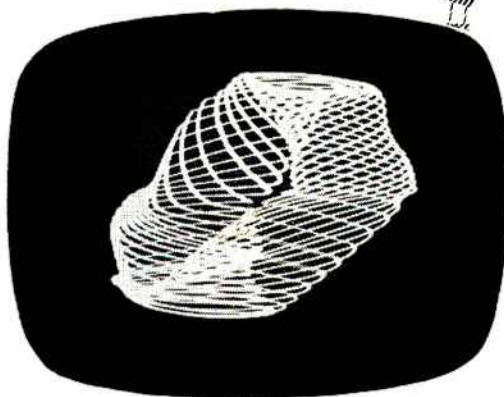
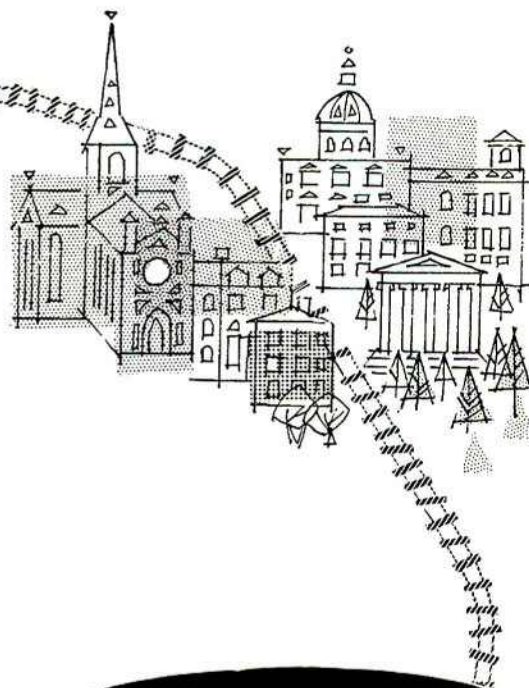
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