

# Amateur Tape Recording

May 1966 Vol 7 No 10 2/6

VIDEO&HI-FI



**Audio Fair Guide & Plan**  
**Tracking Ancient Folklore**  
**Electronic Music Makers**



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# Amateur Tape Recording

Editor: F. C. Judd, A.Inst.E. Art[Editor: Bob Gordon. Advertisement Director: Lindsay Masters. Advertisement Manager: E. McKeown. Circulation Manager: David Hughes. Editorial, Advertising and Subscriptions: Amateur Tape Recording, Haymarket Press Ltd, 9 Harrow Road, London W2, Ambassador 3200. Amateur Tape Recording is published by Haymarket Press Ltd. ©1966 Printed by The Sidney Press Ltd, Bedford. Title registered at Stationers' Hall. Subscription Rates throughout the world 30s. post paid for twelve issues.

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## EDITORIAL COMMENT

As a result of a recent survey, we are not surprised to find that *Amateur Tape Recording* is widely read in France, Holland, Belgium, Germany and other European countries, so with the event just now of the 1966 International Audio Festival and Fair in London, we would like to extend a special welcome to all our overseas readers who are here for this occasion. Naturally, we are not forgetting our readers 'down-under' in Australia and New Zealand, nor those in America, Canada and many other countries. We hope that you will all continue to enjoy the many and varied features of ATR.

Wir sind nicht erstaunt, als Ergebnis einer kürzlichen Umfrage festzustellen, dass *Amateur Tape Recording* einen grossen Leserkreis in Frankreich, Holland, Belgien, Deutschland und anderen europäischen Ländern aufweist. Wir möchten nun anlässlich des gegenwärtigen Internationalen Audio Festival und Fair in London alle unsere ausländischen Leser, die für diese Ausstellung hier sind, herzlich willkommen heissen. Selbstverständlich vergessen wir auch unsere Leser in Australien, Neuseeland, Amerika, Kanada und in vielen andern Ländern nicht. Wir

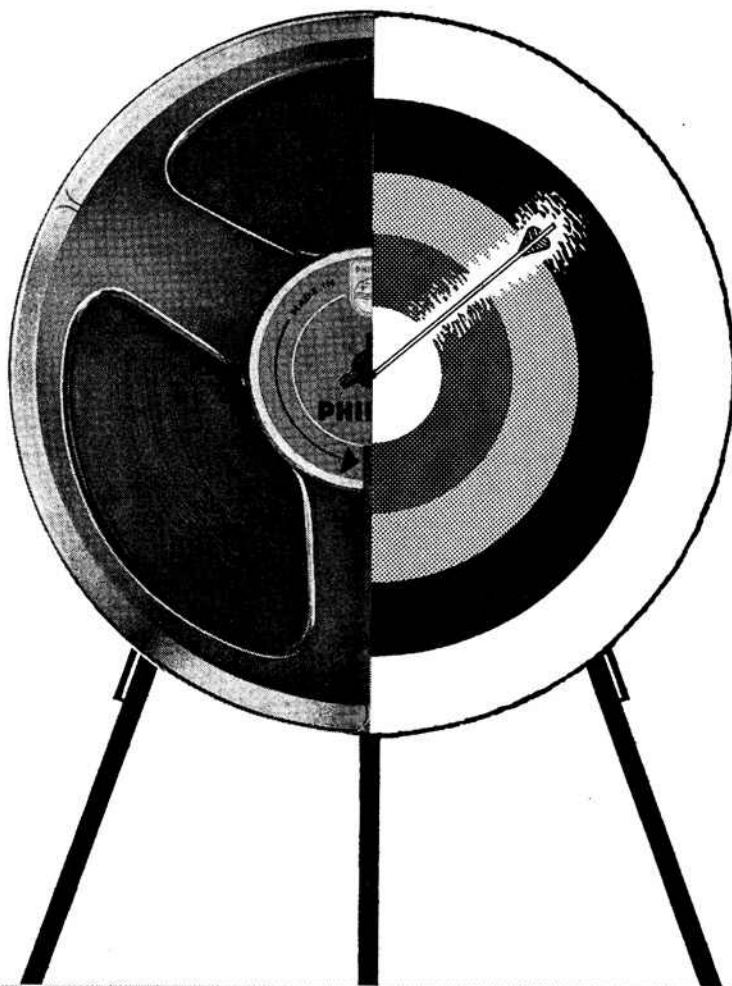
hoffen, dass Ihnen allen auch in der Zukunft die vielfältigen und zahlreichen Artikel des ATR Freude bereiten werden.

A la suite d'une récente enquête, nous avons pu constater, sans aucune surprise d'ailleurs, que l'*Amateur Tape Recording* jouit d'un nombre très étendu de lecteurs en France, en Hollande, en Belgique, en Allemagne, ainsi que dans d'autres pays d'Europe. Ainsi donc, avec l'événement de l'Audio Festival et de la Foire Internationale de 1966, ayant lieu à Londres, nous éprouvons le plus vif plaisir à souhaiter la bienvenue à tous nos lecteurs étrangers venus dans notre pays à cette occasion. Nous n'oublions guère, naturellement, nos lecteurs d'Australie, de la Nouvelle Zélande, nos lecteurs en Amérique, au Canada, ainsi que dans tant d'autres pays. Aussi aimons-nous à espérer que les aspects nombreux et variés de l'ATR, continueront à satisfaire tous nos lecteurs.

*Non siamo rimasti sorpresi di apprendere, a seguito di una recente inchiesta, che Amateur Tape Recording è letto diffusamente in Francia, Olanda, Belgio, Germania ed altri paesi europei; pertanto, in occasione dell'attuale Festival e*

*Fiera Audio Internazionale 1966 desideriamo esprimere un benvenuto speciale a tutti i nostri lettori stranieri che sono venuti qui per assistere a questo evento. Non dimentichiamo naturalmente i nostri lettori in Australia e nella Nuova Zelanda e quelli in America, Canada e molti altri paesi. Speriamo che continuerete tutti a trarre piacere dalle numerose e varie rubriche dell'ATR.*

Als resultaat van een recent overzicht zyn we tot een verrassende ontdekking gekomen, dat *Amateur Tape Recording* wordt gelezen door de meeste Europese landen, zoals Frankryk, Holland, België, Duitsland en andere. Nu tergelegenheid van het 1966 Internationale Audio Festival en Fair in London, willen wy een speciaal welkom wensen aan onze overzeese lezers die in London verblijven voor deze unieke gebeurtenis. Natuurlijk vergeten we al onze lezers niet van Australië, Nieuw Zeeland en aldegene in America en Canada en meest andere landen. Wy hopen tenzeerste dat iedereen onze uitgebreide inhoud van ATR zal blijven genieten.



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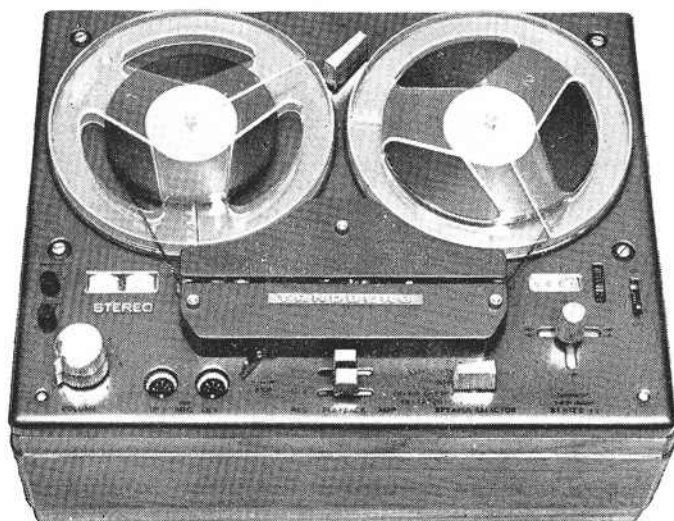
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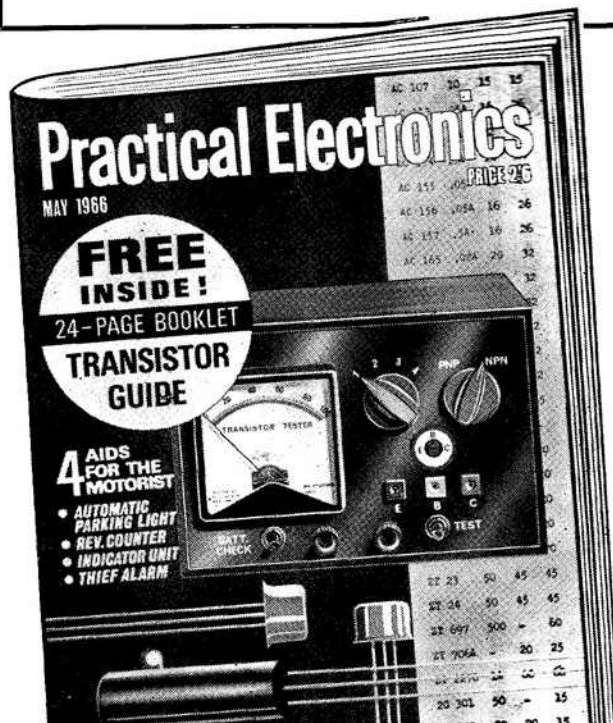
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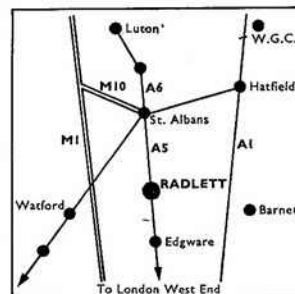
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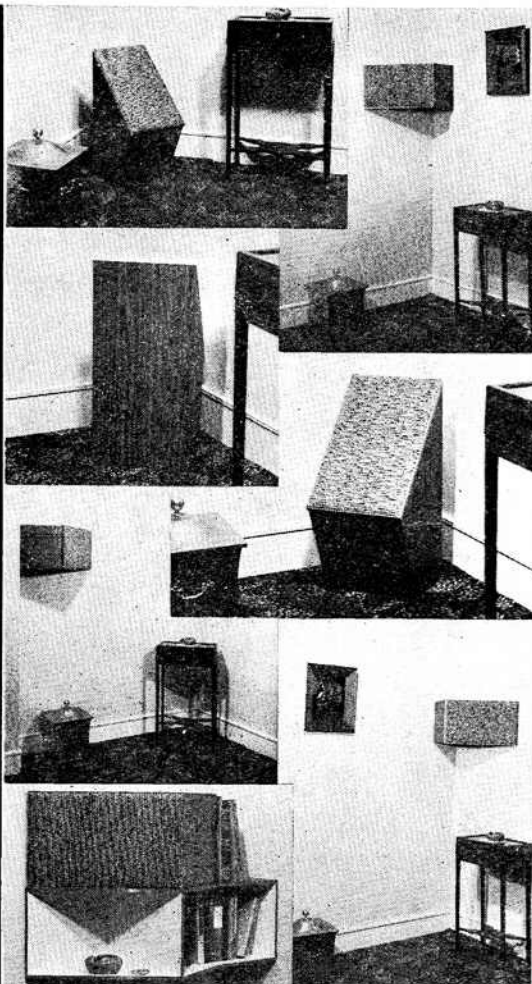


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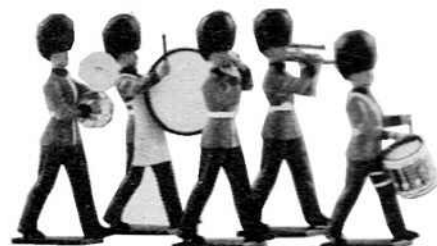
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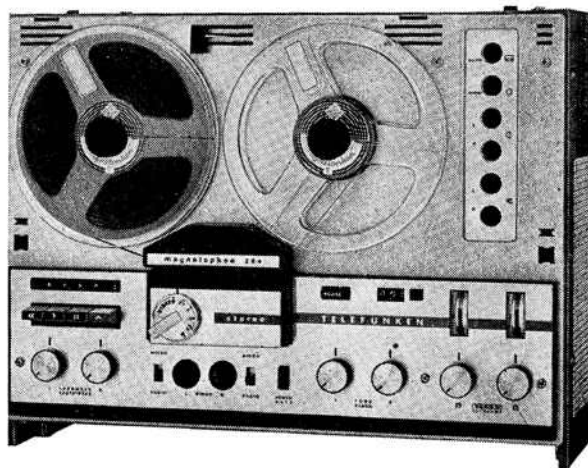
# Tape recording will never be the same again

*(Two new recorders are going to make it a whole lot easier from now on!)*

What's the big attraction in Room 202 at the Audio Fair? Two new recorders that are going to make a big difference to tape recording. The M401, Telefunken's first cassette loading recorder. The M204E, latest addition to the famous 200 range, for full stereo high fidelity record and playback.

**M401** *Cassette loading recorder.* Who likes fiddling around threading tapes? No one. You don't have to with the new M401. Just clip in the cassette, press a button and you get instant recording—or playback. When it's finished, press a button and it's ejected automatically. The cassette conforms to the 'DC System International' the system adopted by most tape recorder manufacturers on the continent. So if you want to play your tape on someone else's machine, at a party for instance, it's more than likely you'll be able to. The M401 has a unique Telefunken motor the speed of which is controlled *electronically*. No brushes, no commutator. No sparking to create interference. Negligible wow and flutter. The M401 is a half-track machine for monaural recording and playback. Complete with moving coil microphone, audio lead, and one DC90 (playing time 90 minutes) tape cassette. Price 46 gns.

**M204E** Here it is, the most sophisticated recorder you could want. It's got everything. Four tracks, stereophonic record and playback, with sound to fill the largest room from a fantastic output of 6 watts per channel. Operates either vertically or horizontally. Fully transistorised, separate level controls and VU meters for each channel. The M204E is extremely compact, with the stereo power amplifiers and loudspeakers incorporated in the main cabinet. In handsome walnut case with satin finish metal top desk. Complete with reel of tape, microphone, audio lead and empty reel. Price 109 gns.



## See them at the Audio Fair

See the exciting new M401 and M204E recorders, plus the full 200 range in Room 202, Hotel Russell, Russell Square, London WC1 **APRIL 14 to 17**

AEG (GREAT BRITAIN) LTD., 27 CHANCERY LANE, LONDON WC2  
Please send me full details of your M401 ☐ M204E ☐ (Tick appropriate square)

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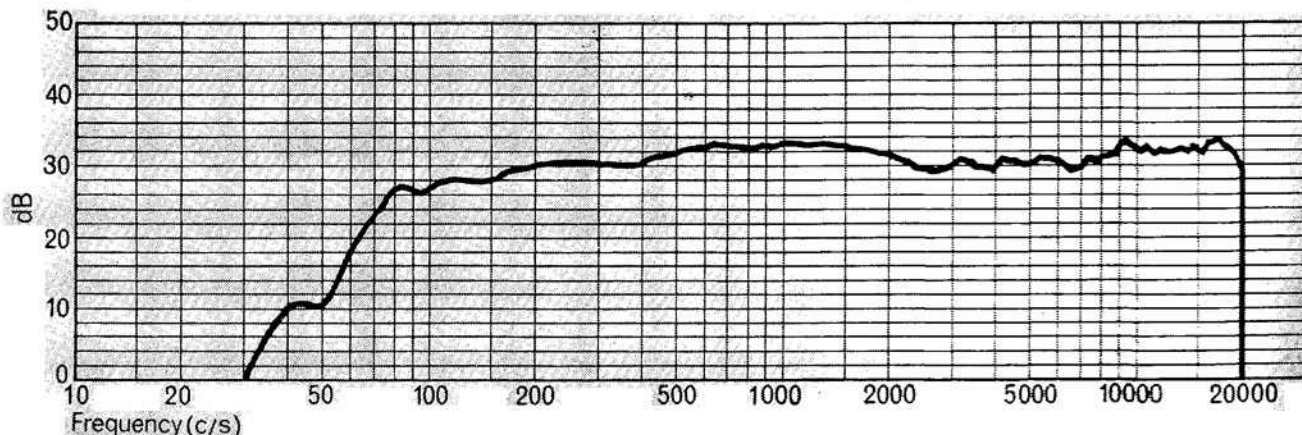
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**AEG**



# Don't buy a speaker

unless you have this Sonotone Challenge Chart with you—



This is the performance of the Solent, a new speaker by Sonotone, costing only £18 in a modern stylish veneered cabinet. You can easily pay £10 more for speakers which barely equal the performance of the Solent. Clip out this chart. Use it as your yardstick of value when you're shopping for speakers.

Hi-fi connoisseurs have long been familiar with Sonotone, as engineers of fine pick-up cartridges. Now this respected company has produced its own speaker. It's already the sensation of the Audio World. Read the facts. They may revise your thinking about what you should pay for a good quality speaker.

The problem with buying a speaker is knowing where to stop on price! Unless you are a sheepdog or an orchestra leader you may end up with refinements so acute you will rarely be able to appreciate them.

For some years Sonotone have been looking into the question of speakers and have set out to offer three important things:—

## Three Achievements

- 1). High enough performance to satisfy 99% of enthusiasts.
- 2). A unit of a suitable size to fit on a bookshelf.
- 3). A sensibly priced speaker.

It wasn't easy—but now Sonotone have achieved all three objects. But claims alone are not enough! Sonotone offer proof!

We don't think you will find a speaker that delivers so much commonsense value. And the ones that deliver this standard of performance will invariably cost you up to £10 more.

Why not write for more information to:—

# Sonotone

Technical Ceramics Limited, New Lane, Havant, Hants.

A member of Plessey Components Group.



## Attention all addicts

So far we've talked about the logic of this new speaker.

Now for the technical details:

Woofer: 6½", 10,000 gauss, 1" pole.

Free Air resonance: 50 c/s.

Tweeter: 3½"—acoustically loaded (i.e. custom made to the actual cabinet).

Frequency Response: 40 c/s—20 kc/s.

Sensitivity: 98 dB at 12 w. (microphone 6ft).

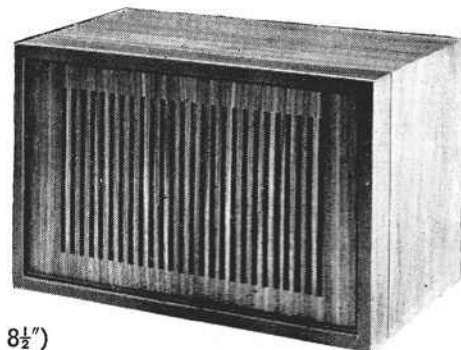
Power Handling: 12 w programme level.

Impedance: 8 ohm system suitable for 8-15 ohm valve or transistor amplifiers.

Drive units coupled with the cross over network have resulted in an outstanding and unusually smooth response. Due to the special design of the bass unit suspensions, linear restoring force against cone movement is ensured. This, coupled with a high degree of damping ensures a bass response free from resonances and other tonal colouration. The use of highly absorbent organic fibre to line the cabinet ensures a clean middle and upper response.

## NEW!

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# AUDIO FAIR GUIDE

## ATR guide to exhibitors' booths and demonstration rooms

The 1966 Audio Festival is arranged in two sections – the ground-floor display booths and the demonstration rooms on the upper floors. Against each trade name listed below is the booth number and the demonstration room number. Note that not all exhibitors have demonstration rooms and that some of the trade press have lounges on the upper floors but no booth on the ground floor. The first figure of the demonstration room number also indicates the floor number, for example BASF have demonstration room 304 which is on the third floor.

### AEG (GB) Ltd – Telefunken

**Booth 68** *Dem Room 202*  
Full range of Telefunken tape recorders, microphones and other accessories. Tape recorders include semi-professional and domestic types.

### Acoustical Manufacturing Co Ltd – QUAD

**Booth 70** *Dem Room 504*  
Display and demonstration of all Quad amplifiers, tuners and electrostatic loudspeakers. Also the new Quad 50 watt amplifier.

### Agfa Ltd – AGFA-GEVAERT

**Booth 21**  
Recording tape and tape accessories. Special 'Weekend for two in Paris' competition.

### Akustische und Kinogeräte GmbH – AKG

**Booth 63** *Dem Room 302*  
The full range of AKG microphones will be worth seeing and demonstrations can be arranged in room 302.

### Richard Allan Ltd

*Dem Room 215*  
Their Minnette high fidelity loudspeaker will be worth hearing. The complete RA range of loudspeaker units, etc, will also be on display.

### Amateur Tape Recording

**Booth 35**  
Current and back issues of ATR and the ATR Tape and Audio Circuit Handbook on sale.

### Ampex (GB) Ltd

*Dem Room 449*  
Ampex professional tape recorders and accessories. Some lower priced Ampex recorders for the amateur which are considered semi-professional.

### Arena Hede Nielsenfabriken

**Booth 10** *Dem Room 317*  
Record players, AM and FM radio tuners, stereo tuners and loudspeakers.

### Armstrong Audio Ltd

**Booth 45** *Dem Room 538*  
Full range of Armstrong amplifiers, integrated tuner/amplifiers and FM tuners on display. Frequent demonstrations of all models including the Armstrong stereo decoder unit.

### Audio and Design Ltd – QED AUDIO

**Booth 65** *Dem Room 220*  
Loudspeakers using the Jordan Watts system and integrated sound equipment.

### Audio and Record Review

*Lounge 344*

### Badische Anilin Soda-Fabrik AG – BASF

**Booth 64** *Dem Room 304*  
BASF recording tape and accessories plus a special recording demonstration in which you record sounds and take home the tape.

### BSR Ltd

**Booth 72** *Dem Room 321*  
Tape decks and record transcription units suitable for home constructors.

### Beyer Electrotechnische Fabrik

**Booth 31**  
Full range of Beyer microphones and other Beyer equipment on display.

### Boosey & Hawkes Ltd – Jordan Watts

**Booth 22**  
All Jordan Watts loudspeakers including the miniature Jumbo which handles up to 12 watts output.

### Braun AG

**Booth 32** *Dem Room 122*  
Hi-fi stereo amplifiers, FM tuners, tape decks, loudspeakers, record players and tape recorders.

### Brenell Engineering Ltd

**Booth 37** *Dem Room 149*  
All Brenell tape recorders, tape decks, accessories and tape record/replay amplifiers. Frequent mono and stereo demonstrations.

### S G Brown Ltd

**Booth 52** *Dem Room 312*  
High fidelity headphones, microphones and other audio accessories.

### Butoba Vertrieb

**Booth 59** *Dem Room 242*  
Butoba tape recorders, including portables. The outstanding model on show will be the new Butoba MT 225 portable.

### Celestion Ltd

**Booth 23** *Dem Room 349*  
Full range of Celestion loudspeaker units and enclosures.

### Decca Radio & Television

**Booth 73** *Dem Room 236*  
Decca records, transcription units, pick-ups, etc.

### Decca Record Co Ltd

*Dem Room 235*  
Special hi-fi products.

### Design Furniture Ltd

*Dem Room 114*  
Display of modern hi-fi cabinets, etc.

### Dual Electronics Ltd

**Booth 12** *Dem Room 322*  
Stereo systems, hi-fi accessories, record transcription units and tape recorders.

### Elcom (Northampton) Ltd

**Booth 51** *Dem Room 111*  
Electronic quadrant faders, transistorized sound equipment for studio use, microphones and line compensating equipment, etc.

### EMI Ltd

**Booth 39** *Dem Room 247*  
EMI professional recording equipment and magnetic tape.

### Elizabethan Electronics Ltd

**Booth 41** *Dem Room 120*  
Current range of domestic tape recorders.

### Elstone Electronics Ltd – TANDBERG

**Booth 17** *Dem Room 222*  
Current range of Tandberg tape recorders, accessories, tape and pre-recorded tapes.

### Fane Acoustics Ltd

**Booth 8** *Dem Room 214*  
Large output loudspeakers and amplifiers suitable for public address, etc.

### A C Farnell Ltd – MINICONIC

**Booth 18**  
Electronic and audio equipment. New Miniconic semiconductor pick-up cartridge.

### Ferranti Ltd

**Booth 13** *Dem Room 112*  
Special electronic equipment. Will be showing new audio developments.

### Ferrograph Co Ltd

**Booth 34** *Dem Room 542*  
Current Ferrograph tape recorders and accessories including the new Connoisseur models. Don't miss the 633.

### Fi-cord International

**Booth 30** *Dem Room 147*  
Fi-Cord portable tape recorders, accessories and Beyer microphones. Loudspeakers and amplifiers.

### N & S B Field Ltd – RECORD HOUSING

**Booth 49** *Dem Room 117*  
Excellent range of hi-fi cabinets and enclosures. The new Acoustex group will be of special interest. Also the Hi-Flex cabinets and Hi-Rak cabinet frames.

### Fisher Radio International Inc

**Booth 14** *Dem Room 320*  
Stereo amplifiers and radio tuners.

### GKD Ltd

**Booth 47** *Dem Room 212*  
Cabinets for housing hi-fi and tape recording equipment and loudspeakers.

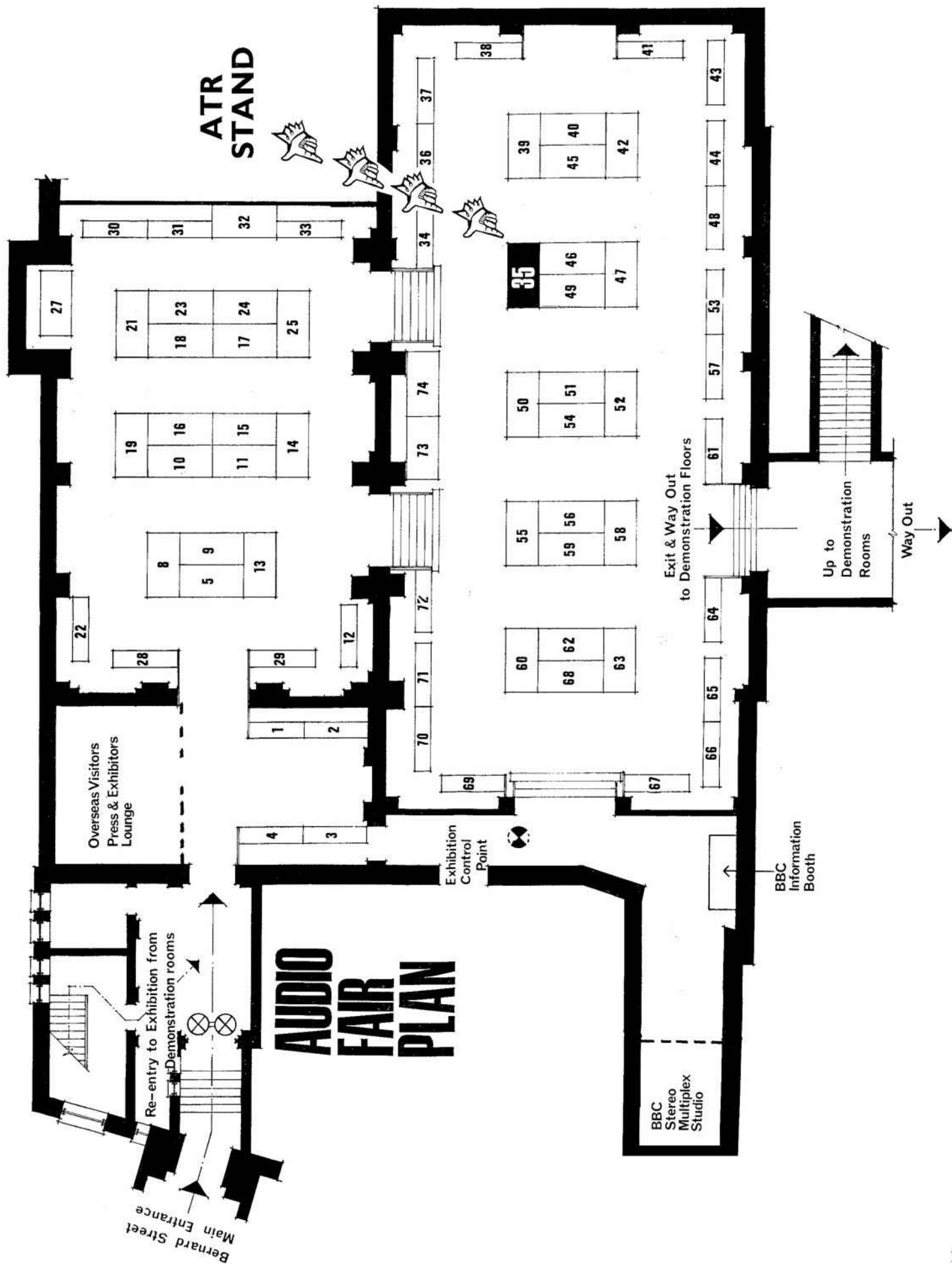
### Garrard Engineering Ltd

**Booth 57** *Dem Room 342*  
Full range of record transcription units and record player units. Two new models, the 401 and LAB80 transcription units will be shown for the first time.

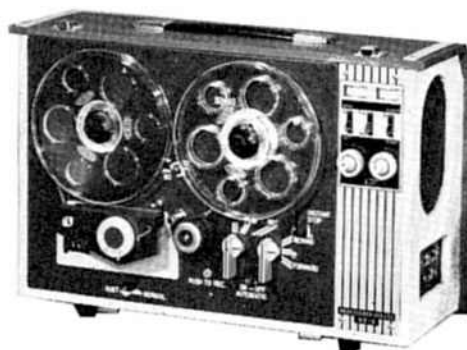
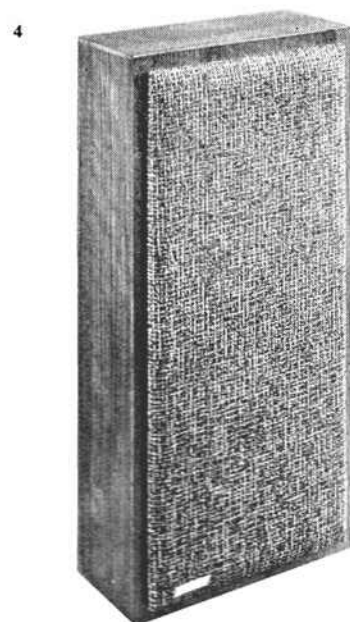
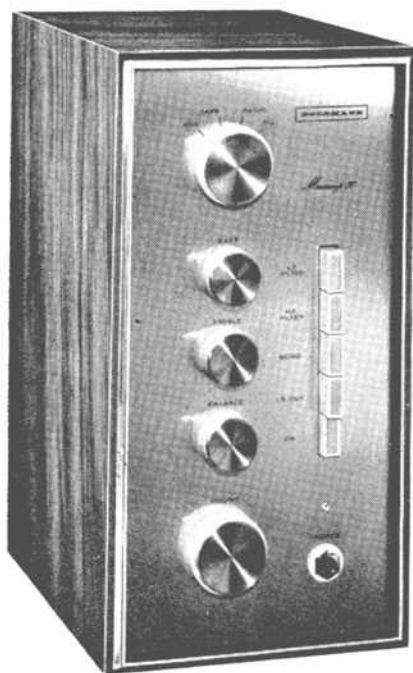
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*Lounge 152*



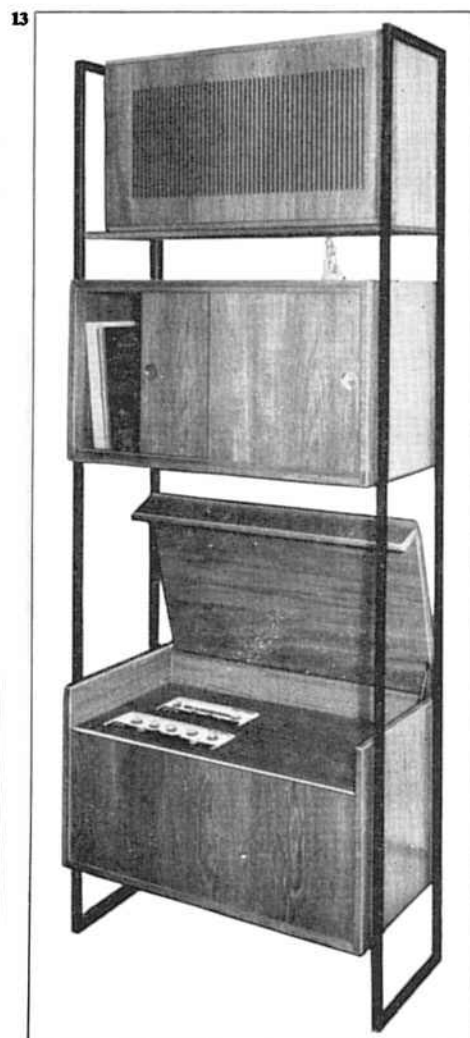
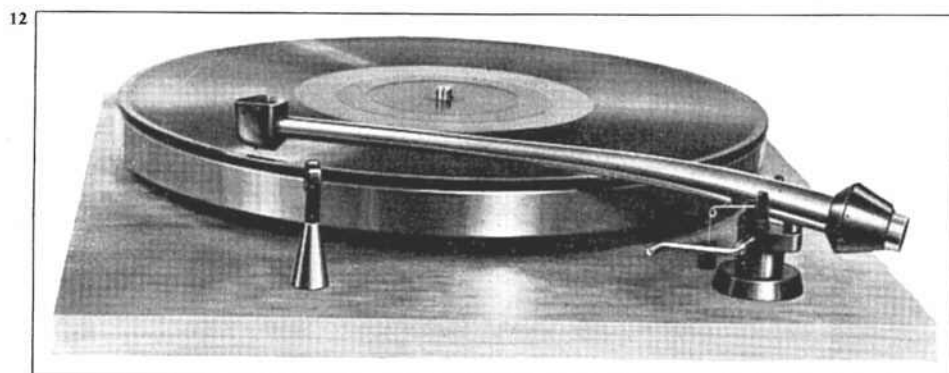
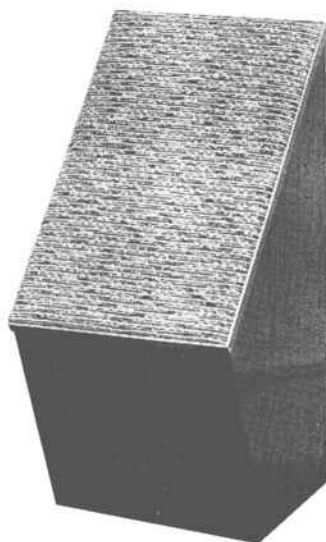


# AUDIO FAIR GUIDE *continued*





- 1 The new Radford all-transistor FM tuner. A similar model will be available with a stereo broadcast decoder.
- 2 A precision multi-plane transcription arm by Goldring Ltd - The Goldring-Lenco P77.
- 3 The S. G. Brown high-fidelity headset Type 3C-1100 for use with 8 ohm outputs. Frequency range 20-20,000 c/s.
- 4 The Richard Allen 'Jumbo', one of the smallest hi-fi loudspeakers at the '66 Audio Festival. It handles 12 watts!
- 5 The Goodmans Maxamp 30 solid state stereo amplifier with 15 watts output per channel.
- 6 A new microphone from Shure Electronics will be of special interest to enthusiasts. This is the model 581 Series Unidyne A.
- 7 The Beyer M55 microphone marketed in the UK by Fi-Cord International.
- 8 The not so widely known Truvox Model R44 tape recorder on show at the Audio Festival '66.
- 9 The Radford MA 15/25 hi-fi amplifier. One of the Series 3 models designed to perform to a very rigid specification.
- 10 Two more tape recorders by Akai - the 44S and ST-1 stereo machines.
- 11 The Rectavox Omni Mk II loudspeaker, recently selected for display at the Design Centre, London.
- 12 The new Leak integrated pick-up arm and cartridge with elliptical stylus and built-in raising and lowering device.
- 13 A set of Record Housing hi-flex cabinets mounted in a hi-rak metal frame. The latest cabinet idea to be shown at the '66 Audio Festival.



#### **Goldring Manufacturing (GB) Co**

**Booth 38** *Dem Room 248*  
Lenco record transcription units and pick-ups. The Goldring Lenco P77 multi-plane precision pick-up arm.

#### **Goodmans Industries Ltd**

**Booth 24** *Dem Room 434*  
Goodmans range of loudspeaker units, accessories, enclosures and the new Goodmans MAXAMP 30 transistorized hi-fi stereo amplifier with 15 watts output per channel.

#### **Grampian Reproducers Ltd**

**Booth 15** *Dem Room 334*  
Microphones, mixers, electronic echo units and microphone reflectors, etc. Also the new Grampian six-channel mixer.

#### **C. E. Hammond Ltd**

**Booth 33**  
Hi-fi systems, stereo amplifiers, loudspeakers and condenser microphone kit.

#### **Hansom Books Ltd**

**Booth 50**

#### **High Fidelity Magazine**

*Lounge 154*

#### **Iliffe Press Ltd**

**Booth 5**

#### **KEF Electronics Ltd**

*Dem Room 442*  
Loudspeaker units and enclosures.

#### **Kodak Ltd**

**Booth 19** *Dem Room 115*  
Recording tape and tape accessories. Demonstrations with tape and colour slides.

#### **H J Leak Co Ltd**

**Booth 69** *Dem Room 534*  
Full range of Leak amplifiers, FM tuners and loudspeakers. Also the new Leak integrated pick-up and arm and the Mini-sandwich loudspeaker.

#### **Link House Publications**

**Booth 55**

#### **Living Sound - MEDLEYMICRO**

**Booth 43** *Dem Room 221*  
Pick-up arms.

#### **Loewe-Opta Werke AG**

**Booth 11** *Dem Room 318*  
Range of tape recorders, radio and hi-fi equipment, Optacord 600 Video tape recorder and two new audio tape recorders

#### **Lowther Manufacturing Co**

*Dem Room 404*  
Lowther loudspeakers, enclosures and hi-fi amplifiers.

#### **Lustraphone Ltd**

**Booth 25** *Dem Room 145*  
Microphones, mixers and audio accessories. Lustraphone radio-mic, etc.

#### **Mallory Batteries Ltd**

**Booth 29**  
Range of dry and chargeable batteries for radios and portable tape recorders, etc., including the new Mallory alkaline long life batteries.

#### **Metro-Sound Manufacturing Co Ltd**

**Booth 4**  
Tape accessories and audio equipment.

#### **Minnesota Mining & Mfg Co Ltd**

**Booth 40** *Dem Room 234*  
Scotch recording tape and accessories. Tape storage boxes, etc. Special new Scotch Dyna-range 'low noise' recording tape for hi-fi enthusiasts, known as Type 202.

#### **Mullard Ltd**

*Dem Room 211*  
Transistors, valves and components for radio, recording and electronics. Mullard ferrite recording heads.

#### **Ortofon A/S**

**Booth 3** *Dem Room 217*  
Range of hi-fi transcription units and precision pick-ups.

#### **Peto Scott Ltd**

*Dem Room 335*  
Professional sound equipment, message repeaters, video recorders. They will also be showing the new Philips omni-directional microphone which sells in kit form at 7 gns.

## AUDIO FAIR GUIDE *continued*

### Philips Electrical Ltd

Booth 60 *Dem Room 337*  
Full range of Philips tape recorders, including cassette portables. Recording tape and accessories.

### Pioneer Electronics Ltd

Booth 42 *Dem Room 313*  
Range of high fidelity amplifiers, tuners, and radio receivers, etc.

### Print & Press Services Ltd

*Lounge 153*

### Pullin Photographic Ltd - AKAI

Booth 16 *Dem Room 213*  
All the Akai tape recorders and accessories. Also the Akai pocket tape recorder with built-in microphone.

### Pye Ltd

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Current Pye hi-fi amplifiers, radiograms and radio receivers. Also Pamphonic amplifiers and mixers.

### Radford Electronics

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### Rank Wharfedale Ltd

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Loudspeaker units, enclosures and hi-fi amplifiers, etc.

### Rectavox Co

Booth 58 *Dem Room 113*  
Special demonstrations of the Rectavox Omni Mk 2 loudspeaker and a new loudspeaker of conventional shape but matching performance and styling.

### Revox Studer AG

Booth 62 *Dem Room 315*  
Revox tape recorders and accessories.

### Rogers Developments Ltd

Booth 67 *Dem Room 402*  
Rogers hi-fi amplifiers, FM tuners, loudspeakers and other audio accessories.

### SME Ltd

Booth 28  
Range of SME precision pick-up arms and accessories.

### Saba-Werke AG

Booth 56 *Dem Room 311*  
Range of Saba tape recorders, radio receivers and amplifiers.

### Sennheiser Electronics Ltd

Booth 53 *Dem Room 121*  
Studio microphones.

### Shure Electronics Ltd

Booth 66 *Dem Room 237*  
Full range of Shure microphones and record pick-ups. Three new Unidyne microphones for enthusiasts.

### Standard Telephones & Cables Ltd

*Dem Room 249*  
Microphones, headsets and special audio equipment. Special music recording demonstration every hour. New range of microphones for the enthusiast, including a ribbon cardioid costing only 11 gns.

### A R Sugden Co Ltd - CONNOISSEUR

Booth 48 *Dem Room 347*  
Precision transcription units and pick-ups, loudspeakers and enclosures.

### Tannoy Products Ltd

Booth 54 *Dem Room 547*  
Tannoy range of amplifiers, microphones and loudspeakers. Public address equipment.

### Tape Recorder Maintenance Ltd

Booth 71 *Dem Room 314*  
Accessories for tape recorders, including range of connecting leads and plugs.

### Technical Ceramics Ltd - SONOTONE

Booth 1 *Dem Room 218*  
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### Thorens SA

Booth 2  
Pick-up arms, transcription units, motors, turntables, cartridges, etc.

### Truvox Ltd

Booth 36 *Dem Room 548*  
Truvox tape recorders and the Series 100 hi-fi amplifiers, including the FM 100 radio tuner. Watch out for a special new loudspeaker from this company.

### Vortexion Ltd

Booth 27 *Dem Room 348*  
Microphone mixers, tape recorders and accessories of the superb standard that one always associates with the name Vortexion.

### Whiteley Electrical Radio Ltd

Booth 46 *Dem Room 204*  
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Export Agents.

### Worden Audio Developments

*Dem Room 599*  
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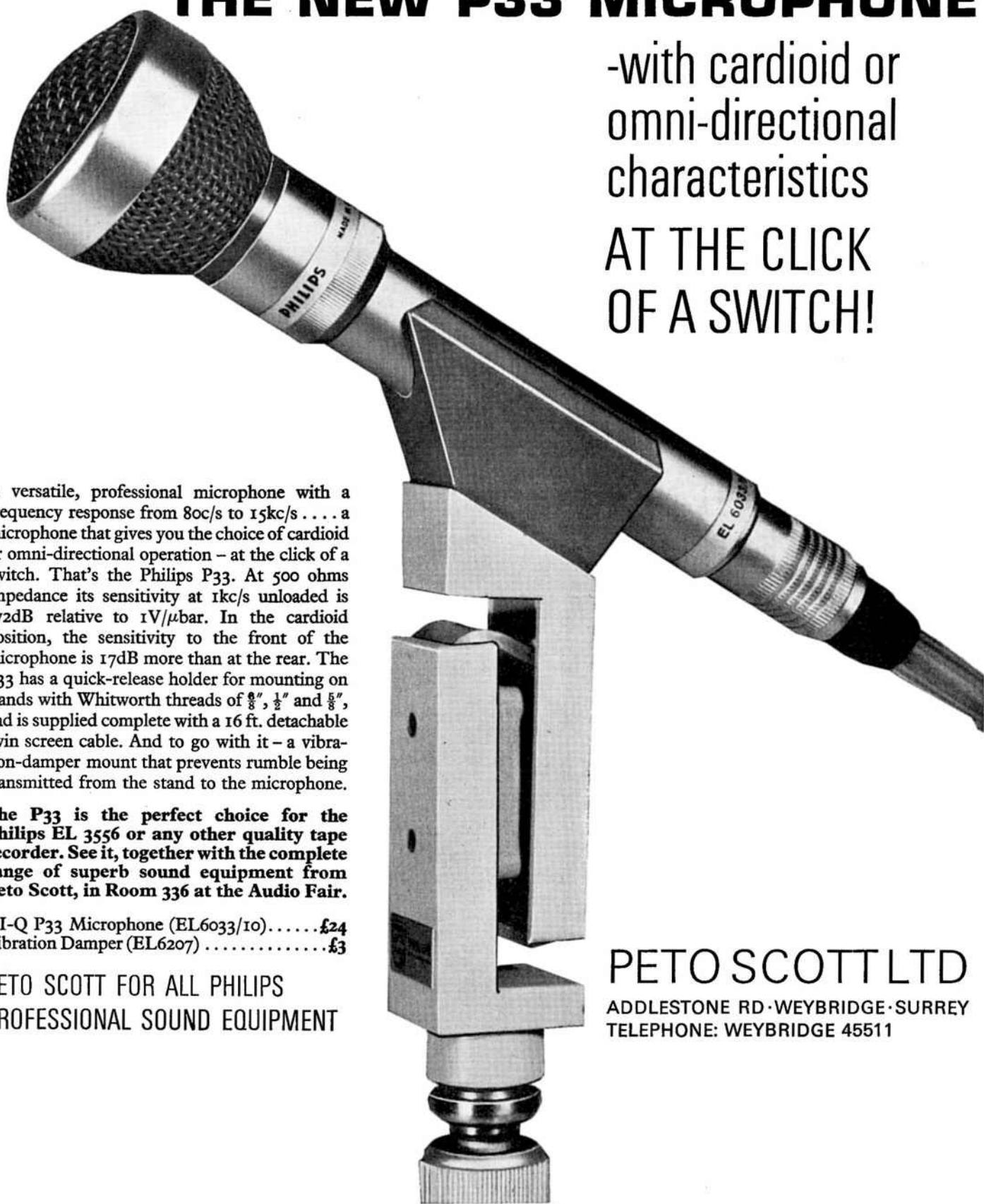
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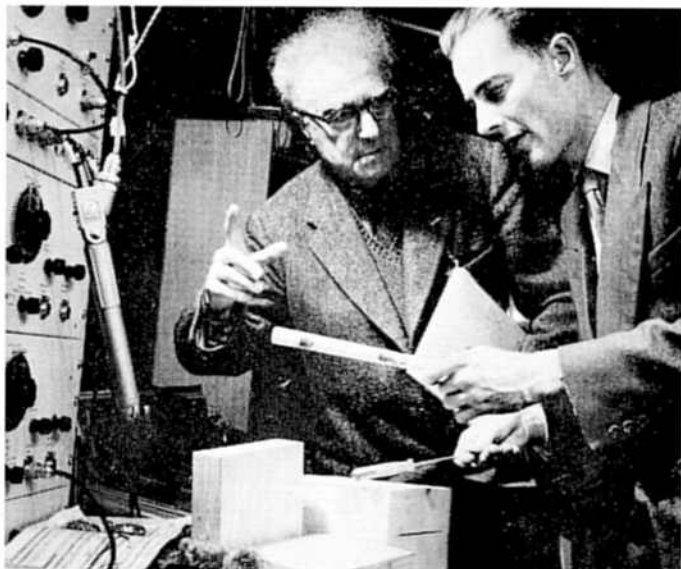
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# THE ELECTRONIC MUSIC MAKERS

**F. C. Judd introduces some of the leading composers of electronic music and explains how they produce a fascinating variety of unusual sounds in their studios and electronic workshops**



Nearly ten years ago the people in charge of the Philips research laboratories at Eindhoven were approached by a composer. Could he use the electro-acoustics laboratory and all its facilities for producing 'electronic music'? Composer Henk Badings needed tone generators, filters, amplifiers and above all tape recorders with which to produce his music and perhaps not surprisingly was regarded with some scepticism by the entire staff of the laboratory. What business had a musician in the revered temple of electronics and acoustics?

As a renowned composer Badings knew full well the limitation of traditional orchestral instruments but he knew too that electronics and tape recording could open the door to a new world of sounds. His first performance of electronic music for a ballet 'Cain and Abel' proved to be the sensation of the Holland Festival of 1956 and he received tremendous ovations in Hanover, Vienna, Monte Carlo and Edinburgh as well.

Badings was not alone in this quest for new music. Stockhausen and Koenig in Germany, Shaeffer in France, Maderna and Berio in Italy; and many more had begun to experiment with tape and electronically produced sounds. In 1958 Edgar Varèse, the composer whose photograph appears above, created the sound decor for the Poème Electronique of Le Corbusier for the Philips Pavilion at the

Brussels World Exhibition and later Stockhausen, Koenig, Badings and others had their work released on records. Electronic music was now established, not perhaps with music lovers at large but at least with a few, who like the pioneer composers were ready to accept the new music.

Two months ago I was privileged to meet some of the composers and to visit the modern studios of electronic music in Holland and Belgium. The old studio at Eindhoven where Badings and Dick Raaymakers had worked had been moved to the University of Utrecht. Here I spoke with G M Koenig, the artistic director in charge of the studio, who had once worked in the Westdeutsche Rundfunk (WDR) studio for electronic music in Cologne. The Utrecht studio can offer almost unlimited technical facilities to serious composers who wish to work there. There are two main studios, with three smaller ones being equipped, as well as an electronics workshop where specialized equipment is made to order. One such item was a most complex device that could produce every kind of waveform imaginable, all by pressing the appropriate buttons. The main studio is shown at the top of the opposite page. Here most of the recording is done and the studio also includes a bank of generators any one of which can be set to a pitch accuracy of better than one-tenth of a cycle!

Aside from producing music for films, television and radio it is also a part of the Utrecht studio function to provide lectures and music courses for students. In addition the studio works in close collaboration with other studios on the continent. There is also a secondary studio at Bilkhoven which is called the 'dictative studio', where experienced composers learn the principles of electronics and receive tuition in the specialised equipment they will need to use. The Utrecht studio is also responsible for organizing concerts of electronic music which, incidentally, take place very frequently. Up to the end of 1964 over a hundred separate compositions were produced at Utrecht for radio plays, television, concerts and records, many of which have received grand awards.

## **Electronic Music in Belgium**

From Utrecht my travels in search of the electronic music makers took me across the border to Ghent, to the modern Rijksuniversiteit in Sint Pietersnieuwstraat. Under the direction of Louis de Meester, the studio for electronic music here operates in much the same way as the one in Utrecht. It is a large studio and is part of the main electronics and acoustics laboratories which were opened about fifteen years ago. I spent the day in company with the chief electronics engineer, Walter Landrien, who explained the functions of the



*Top left: Henk Badings (right) with engineers in the original Philips electronic music studio at Eindhoven.*

*Lower left: Composer Edgar Varèse (left) directs the making of sounds from wood blocks, a hammer and a screwdriver!*

*Top right: The main studio for electronic music at Utrecht.*

*Centre right: The Ghent studio for electronic music at the Rijksuniversiteit (State University).*

*Lower right: Mixing and tone shaping equipment in the Ghent studio.*

electronic equipment and the work of the studio.

Most of the composers of electronic music have come to realize that creating electronic music entirely from tape recorded sounds is a laborious process, often necessitating months of work in the creation of one composition. This applies especially to music which is rhythmic and which borders on the so-called popular style i.e., music similar to jazz. It has therefore become customary to employ keyboard systems for rhythmic tempered scale music and feed into the keyboard the requisite fundamental notes pre-shaped for any desired tonal quality. In the Ghent studio a full length piano keyboard is coupled to a generator bank from which a tempered scale of 98 separate notes can be obtained, these being filtered into almost any desirable waveform (photograph right).

The Ghent keyboard system also provides various degrees of attack and decay and, used in conjunction with the equipment shown at the foot of this page, is in fact the nucleus of an 'all electronic orchestra'.

#### **Tape Recorders**

This story would not be complete without mention of the tape recorders employed by these studios, for without tape there is virtually no foundation on which to create electronic music. All the recorders used are of professional calibre and are mostly large studio machines operating at 15 and 30 ips with full track recording on  $\frac{1}{4}$  in wide tape. Each studio has in addition one or more variable speed recorders and a number of specially designed four track recorders which use *one inch wide tape*. This allows for four separate quarter inch wide tracks either of which can be used for recording or monitoring simultaneously. For example, a recording on one track can be monitored whilst another is being made on a second track and since the record/replay heads are in line vertically, the second, third and fourth recordings can be made exactly in time with the first and, of course, with each other.

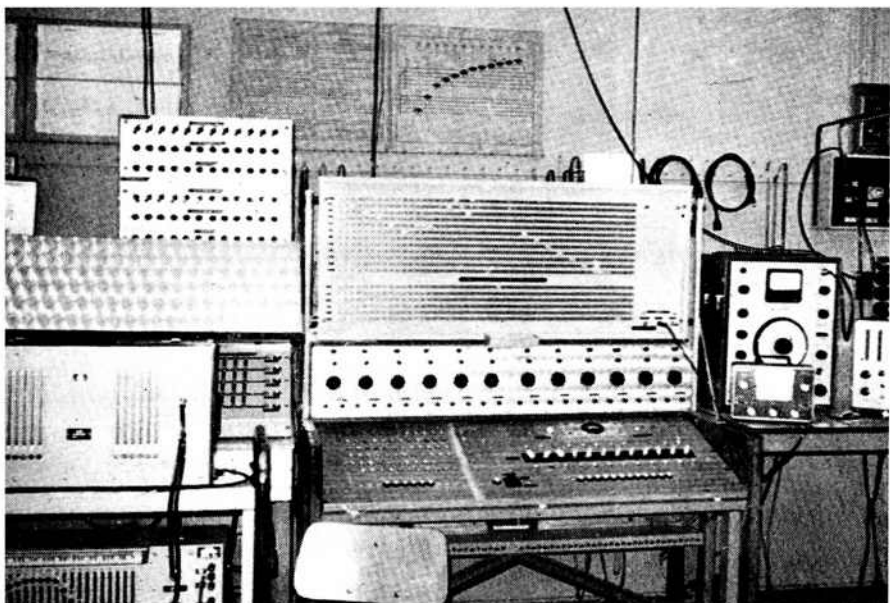
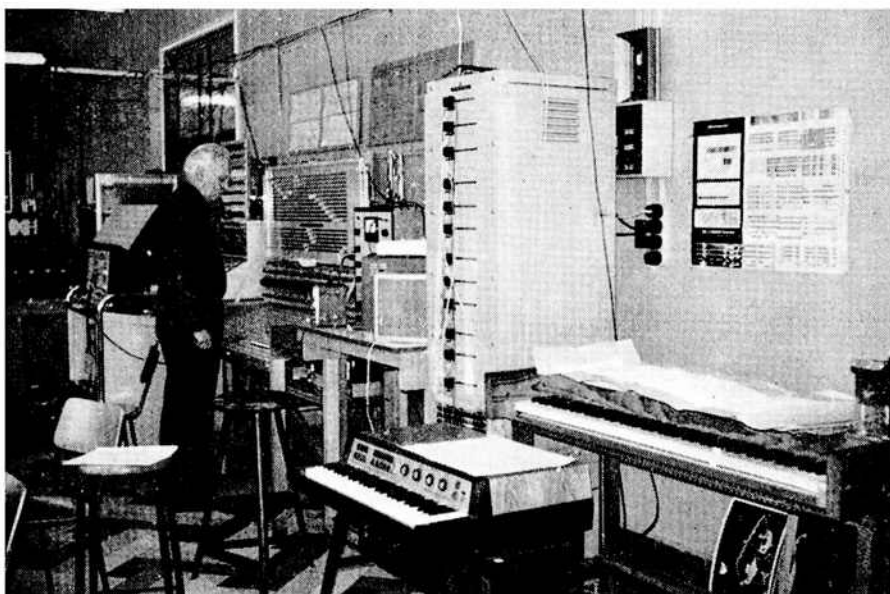
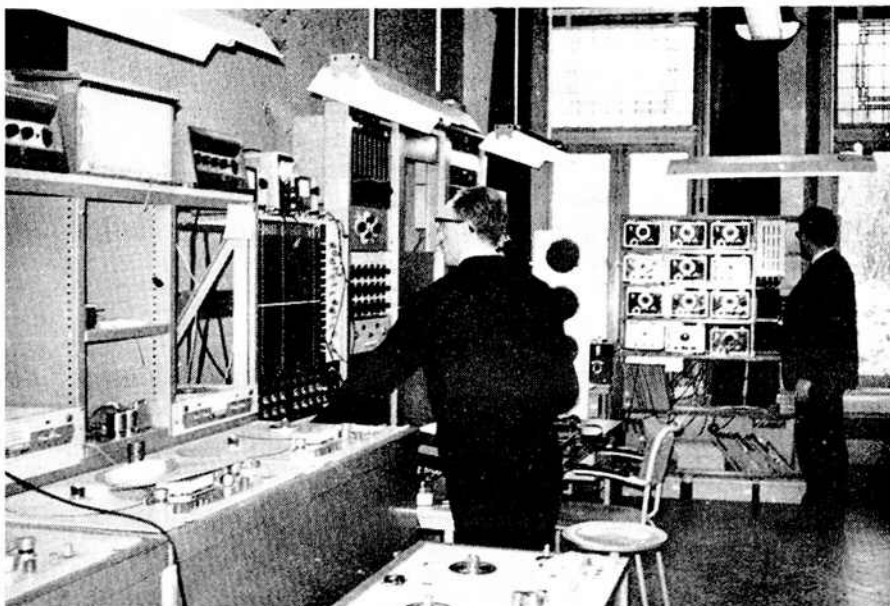
Recordings are not dubbed from track to track because of the loss in quality. Instead all four tracks are copied simultaneously on to a master tape.

#### **Working Methods**

By and large all the University studios have set rules for working and for the sake of interest here are some extracts from *The equipment and working methods of the studio for electronic music at the University of Utrecht*.

*Direction* The direction of the studio is in the hands of a managing director and an artistic

*continued overleaf*





Cover of a programme for an electronic music concert.

continued

director who is also a competent composer. The staff usually consists of a chief electronics engineer and two assistants, secretaries to chiefs of the sections and a physicist.

**Studio Layout** Generally there is a large and small production studio, multi-track studio, microphone studio, auditorium, electronics and mechanics workshops, reverberation chamber (usually with an EMT plate reverberator) and offices for the administrative staff.

**Working Methods** These are quite complex but

mainly amount to the production of electronic music and investigation into acoustics. Working methods apply to composers visiting the studios for actual production and to students who are there for lectures, courses and practical work etc.

**Concerts** Each year the studio organizes a series of public concerts in various towns. A typical programme is shown above.

#### Amateurs are Encouraged

In conclusion let me say that from my talks with the various composers and engineers at the studios I have visited, I was pleased to



Dick Raaymakers (centre) with Henk Badings (right). Dick's electronic music 'Song of the Second Moon' won him a top Italian award.

learn that the amateur electronic music enthusiast is not frowned upon but rather encouraged. Those with musical abilities and the necessary tape recording equipment will be interested to learn that Dick Raaymakers (photograph above), a Dutch electronics engineer who worked in the original Philips studio with Henk Badings, won an award from the town of Eindhoven for his own electronic composition *Contrasts*. Later a film based on Raaymakers' electronic music called *Song of the Second Moon* gained the highest award at a Venice film festival.

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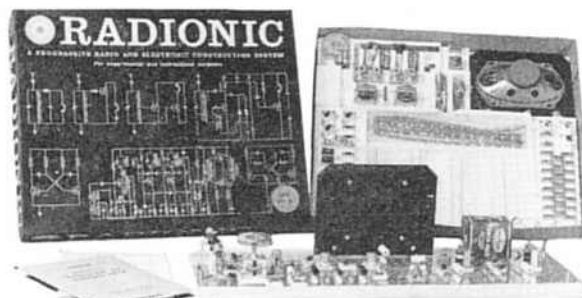
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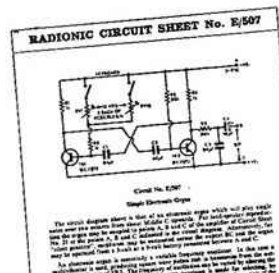
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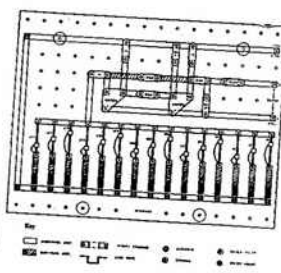
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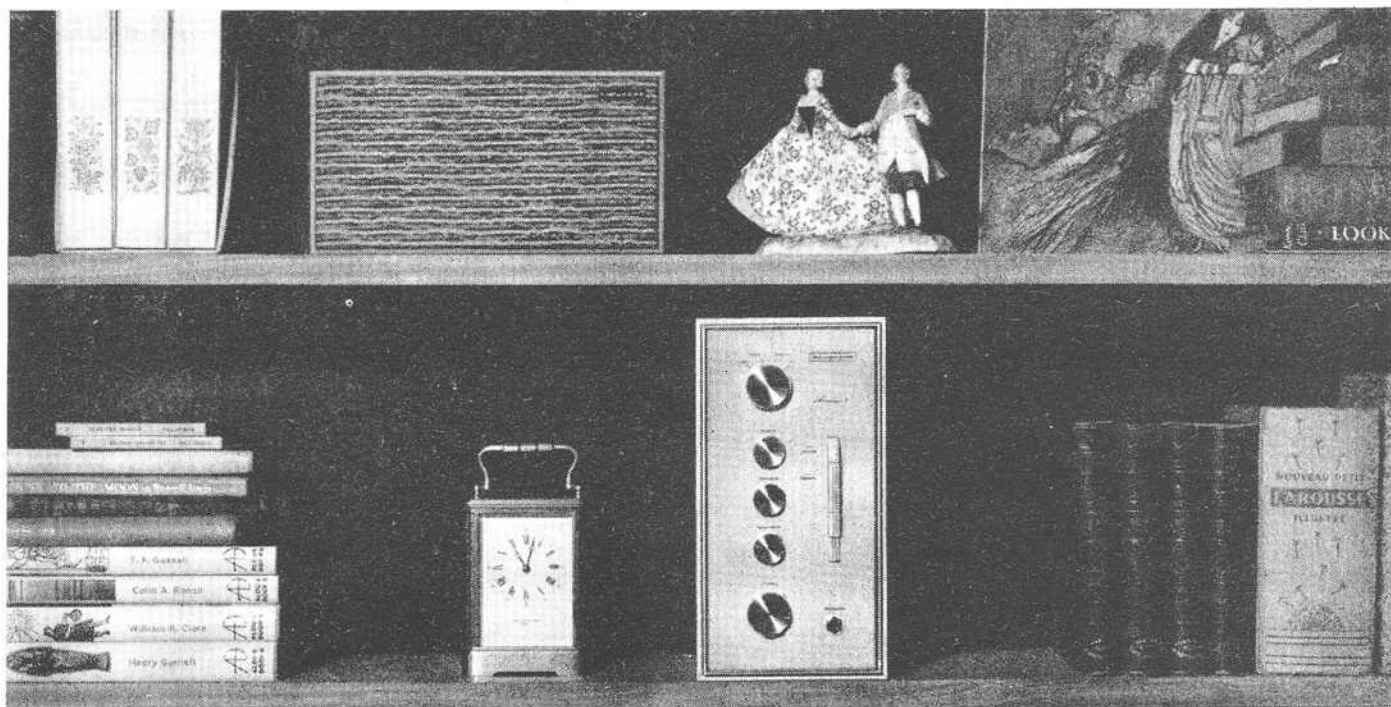


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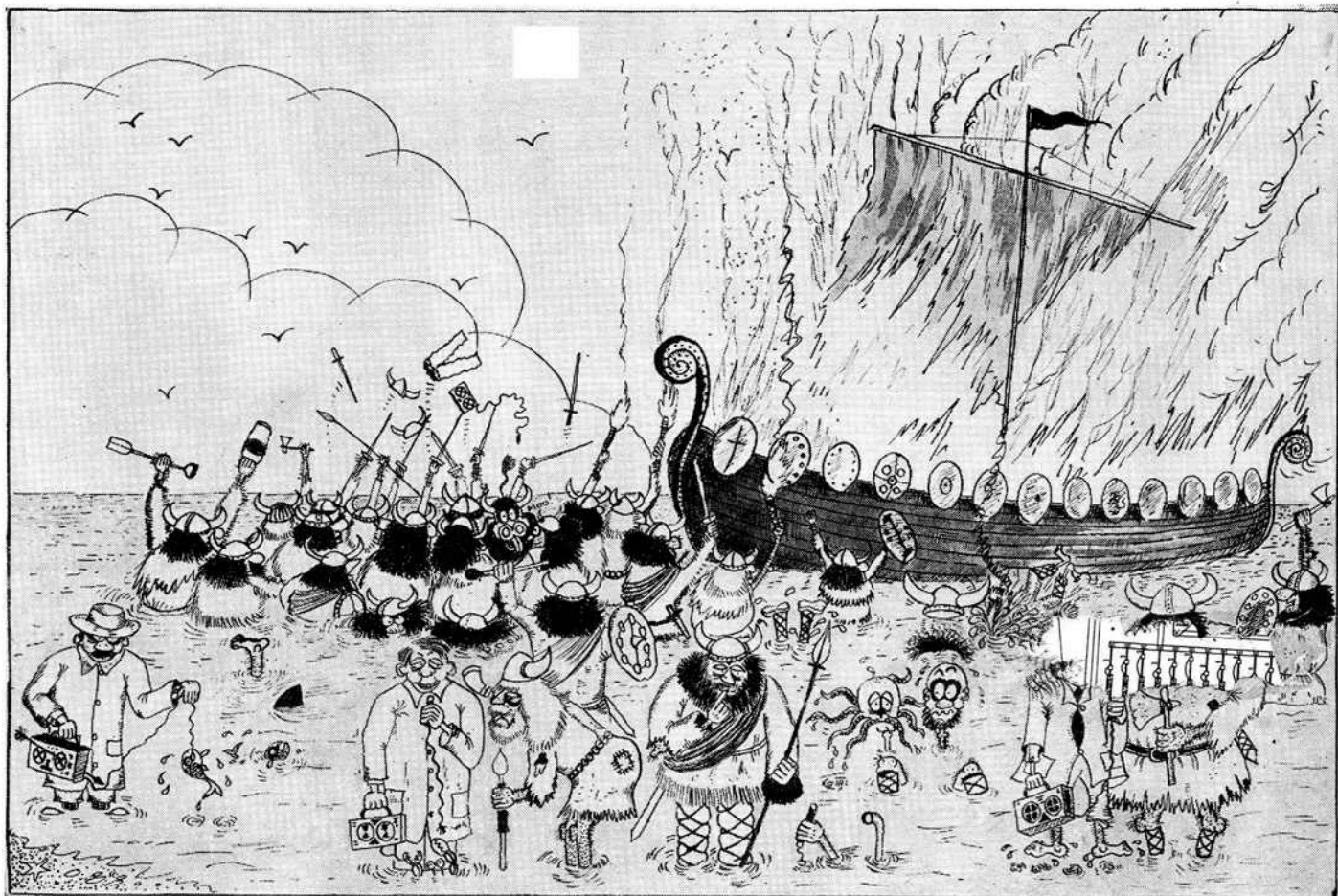
# TRACKING ANCIENT FOLKLORE

**Bob Danvers-Walker gathers sounds, music and speech from far and wide when recording old customs and ancient folklore. Many are broadcast in the BBC's *Countryside Series***

*The Viking festivals at Peel on the Isle of Man and at Lerwick in the Shetlands inspired another Peter Borland cartoon at the suggestion of the author, who advocates either of these dramatic ceremonies for members of local (and visiting) tape clubs to record.*

For well over a year now I have been contributing regular monthly items to the BBC's *Countryside* series broadcast on the last Sunday of each month between 4.45 and 5.15 pm in the Home Service; the programmes are repeated at 9.05 am on the following Wednesdays. Pictured in this issue of *ATR* are three of these old folklore customs which went into the December and January editions of the programme. Sounds, music and speech for these little five to six minute cameos I have gathered from practically all over the British Isles and further old folk customs for future editions are already mapped out and the historical research into origins begun.

First of all, a word about these ancient observances which are to be found in practically every county in the British Isles. On certain dates in the calendar in towns and villages the inhabitants gather to commemorate some old historic occasion, uphold an ancient tradition or observe a quaint custom. The farthest North I have as yet been was to Lerwick in the Shetland Islands (Britain's most northerly town) to record the dramatic Nordic festival known as Up-Helly-Aa. On the last Tuesday of every January when the temperature can sink well below zero, the Viking-clad men of the island carry out the ritual burning of a faithfully built galley, perpetuating themes taken from the classic Nordic Sagas and, when plunging their flaming torches into the waist of the longboat, re-create a moment in Viking history when the body of a departed chieftain would be committed to the flames. How I recorded the traditional songs sung by the helmeted and warrior-garbed henchmen in attendance upon the Guiser Jarl I reported fully in picture and story in the May 1964 issue of *ATR*. I mention this because next July a very similar spectacle will be





held in Peel on the Isle of Man which some of you might like to think about recording. This re-enactment of the days when the Celts and the Norsemen met in battle will be my assignment for the BBC that month.

This year it will be one thousand one hundred and sixty eight years since the first Viking raid was made on Peel. This is the kind of pageantry which no self-respecting 'tapeologist' should miss. Without doubt these folk customs provide magnificent material for taping. A complete list of them can be obtained from The British Travel Association; ask for the pamphlet *Old Customs and Ceremonial*. Let me give you a few more examples. In February there are two strange old Cornish 'games' – one in St Ives and the other in St Columb – called 'Hurling the Silver Ball', a fine old rough and tumble in which anyone may participate. It's probably a survival of ancient rites, with the ball acting as the symbol of the sun at a time of the year when the earth is at its darkest. Games where literally hundreds compete and where goals are miles (and villages) apart are not uncommon early in the year. They're not so much a ball game, more a kind of pitched battle with good humour ever tempering the rib-crushing packs (in Ashbourne, Derbyshire, called a 'Hug', in Haxey, Lincolnshire, a 'Sway'), which become locked in a steaming, heaving, straining scrum for hours on end. They board up the shop windows in Ashbourne, but the leek and celery plots around Haxey suffer somewhat as the

great press of humanity surges through the narrow streets and across muddy fields and pastures. Recording the agonizing grunts and groans (a few Anglo-Saxon phrases, too) coming from the centre of a sweating mob is no easy thing. You've just got to join in. But do as I do, go in with your back against the rugby-like scrum and hold the microphone over your head. Both of these hurley-burleys are some seven or eight hundred years old but they had vastly different origins.

More gentle customs can be found around Easter time when the Pace Egg Plays are held – particularly in the North. Egg rolling is another custom and is symbolic of the stone being rolled away from Christ's tomb. Last year (16 April) I followed the 'Mummers' (schoolboys costumed to represent St George, 'Bold Slasher', 'The Black Prince of Paradine', 'Bold Hector', 'The King of Egypt', the 'Doctor' and a crafty old rogue called 'Toss Pot') as they recited the lines of an old folk drama which portrays the fight of Good over Evil. As the lads perform at established roadside locations in Mytholmroyd, Hebden Bridge, Luddenden and Todmorden in the Pennines all on the same day, one is able to record passages from the 18th-century play from several vantage points.

Anyone in Helston, Cornwall, on 8 May without a battery portable will miss a rare treat; the famous Furry Dance, an elegant flower decorated occasion. Perhaps you didn't know it but the top-hatted gentlemen and the ladies in their

picture frocks dancing in procession through the streets and in and out of the houses are really commemorating an eight hundred year old legend. It seems that the Devil, afraid to cross the sea, lifted the stone lid off Hell and threw it at St Michael, missing him, but it fell nine miles short of its target into the centre of Helston (hence the name), without harming anyone. So today the good folk still dance for joy at their miraculous escape. The well-known dance tune is played by the Band leading the long line of dancers, but try to capture the sound of the dancing feet as well. The entrance to the local hospital has a gravel surface which is ideal for this – the performers enter here to dance through the grounds.

Scottish readers will know all about the Common Riding ceremonies in Hawick and Selkirk. What memories I have of that assignment in Hawick last June – 6 o'clock in the morning out recording over a hundred horsemen racing at full gallop to The Hut, a farmyard barn where the spirited young men foregather to toast the day in rum and milk and remember the Battle of Flodden. The day is packed with incidents, from the blood-tingling ride up the Nipknowse (tradition has sanctified this old road) by the Standard Bearer (The Cornet) and his henchmen, to the elaborate function in the Town Hall. There's the 'Bussing' of the flag, when the Cornet's Lass ties ribbons to the Colour. The processions through the streets. The drum and fife band and the

*School children from Long Wittenham have helped to revive the old custom of Wassailing in Berkshire. Bob Danvers-Walker records them for his series of folk customs broadcast by the BBC.*





Provost's proclamation from the balcony of the Council Chamber. The whole drama is rounded off with the playing by the Saxhorn Band of the Hymn of Invocation. I never expect to experience a more movingly emotional ceremony. You will, of course, appreciate that very much a part of my job is the research into the historical background to these customs. Bear this in mind yourself and add to your natural sounds a contribution from some local person in some way intimately connected with, or having knowledge about, the event. The British Travel Association, your local library and Information Office, Municipal or County Office are your best starting points.

On 20 July this year in Honiton on Saint Margaret's Day you may reasonably expect to record the strange old custom of throwing hot pennies from an upper window of the King's Arms to hundreds of local children to scramble for. Ever since the year 1247 this old Devon town has faithfully observed this 700-year-old opener to its Fair. And get your microphone near to the Town Crier as, carrying a flower-decorated pole topped with a large gold-painted glove ('The Hand of Welcome'), he proclaims 'The Glove is up. No man shall be arrested until the Glove is taken down. God Save the Queen'. And those of you on holiday in Bude, Cornwall, next August might like to make your way to the village of Marhamchurch. On Monday, 16 August last year, they faithfully held their Revel in honour of St Marwenne their Patron Saint who brought healing to the villagers stricken by plague in the fifth century. Jollification is expressed in 'all the fun of the Fair'.

In September on Wake Monday in the grounds of Blithfield Hall, the ancestral home of the Bagot family, each year is danced the Abbots Bromley Horn Dance. Since time immemorial the precise date of this picturesque Staffordshire ceremony, the origin of which is lost in the mists of antiquity, has been laid down as 'on the Monday after the first Sunday after 4 September'.

Stratford-upon-Avon has its Mop Fair in October when the Town Crier rings his bell and from the rostrum set up in Bridge Street the Mayor reads the quaintly phrased Proclamation, which includes the injunction 'that ye spend this day of Merrymaking and frolic so that recollections on the morrow may be without regret or repining'.

I wonder how many people living in Warwickshire know that before dawn on a chill November day upon a grassy mound called Knightlow Hill, said to be the burial place of a Danish giant slain over a thousand years ago, some fifty or so people huddle together to throw coppers into an ancient, hollow stone plinth. This is a strange observance symbolic of the times when dues had to be paid by neighbouring parishes to the then Lord of the Manor of the Hundred of Knightlow. If, like me, you probe into this ancient ritual on Dunsmore Heath, you'll discover fascinating things. If you dare the dark and challenge the cold you will still have to compete with the roar of commercial vehicles and heavy transport travelling down the A45 alongside which drowns the voice of the Duke of Buccleugh's Agent (unless you use skill with a directional mike or a deflector screen), as he declares the penalty for default in payment of this Wroth Silver to be 'forfeiture of twenty shillings for every penny, or a white bull with red ears and red nose'. But don't expect to be invited to the

ceremonial breakfast in the nearby Dun Cow Inn, because the drinking of toasts in rum and milk and the smoking of long churchwarden pipes is only for those who come officially in obedience to a custom dating back to King Canute's time.

Let December be represented with carols and wassail songs. Search out those old songs

because the practice of wassailing is growing rare: 'Christmas is a'coming, the geese are getting fat, please put a copper in the old man's hat'. In my view it would be a splendid thing if the tape clubs were to make it their business to track down some of the fading folk customs and on sound track put them on the track to perpetuity.

*Start of the Haxey Hood Game in Lincolnshire as 'The Fool', Charlie Cronshaw, shouldering the 'Hood', makes the traditional proclamations from the ancient mounting stone outside Haxey Parish Church.*



*'The Lord', 'The Fool' and the 'Chief Boggin', chief characters in the Haxey Hood Game (see text), sing their 'battle hymn' - 'A Farmer's Boy' - for Bob Danvers-Walker before the start of this 700-years-old contest of strength. The Fi-Cord 202A battery portable is here using a Beyer M88 microphone favoured by Bob on so many of his assignments.*



# ON TEST—WYNDSOR VANGUARD

Designed with the enthusiast in mind...

Considering its special facilities,  
this is not an expensive tape recorder

Perhaps the best thing that could be said of this tape recorder is 'buy one and have fun'. A glance at Fig.1, the deck control layout, should confirm this and show quite clearly that the Wyndsor Vanguard really is a very versatile tape recorder. The inter-track and head switching system will keep you busy for hours but once mastered will permit all kinds of recording techniques from straight quarter-track mono to quite complicated sound on sound recordings. My first attempt at sound on sound resulted in something like a nightmare of screaming devils being pitchforked into a pit of boiling water. However, a quiet half hour with the instruction book soon showed that the correct sequences of switching will allow the following kinds of recording. First it provides normal quarter-track recording and replay with direct or indirect (off tape) monitoring. Then it can be used for stereo replay by employing a separate amplifier (with head amplification and equalisation) and a loudspeaker. Recording is mono only from microphone or radio, etc., or from track to track. With the tape going through in the usual left to right direction a recording can be made on either the upper or lower track and both tracks can then be replayed simultaneously or individually as required, which is useful for commentaries with background music on separate tracks as with cine films, etc.

## Sound on Sound

First a recording can be made on say the upper track. This can then be balanced for level and re-recorded on to the lower track with new material, ie, as in multi-track music recording, etc. The first recording can also be monitored whilst the transfer and new recording is being made. The original recording is not erased during this process. One can also introduce artificial echo by connecting the high impedance output back to the high level input via a suitable potentiometer or a mixer. Here an external mixer would be useful as microphone and other signals could be mixed and echoed as required. The sound on sound facility of the recorder could also be used at the same time, which again is a point of interest to multi-music makers. In fact the only thing this recorder does not have is simultaneous mixing of the input signals, namely microphone and radio or other signal source. At least one could record say music first and then mix with microphone signals by means of the sound on sound facility.

Well, these are the main record/replay facilities although I daresay one could contrive a few more with the help of the switching system and perhaps an external mixer. I think the makers will agree that used with a three or four channel external mixer the Vanguard would do just about everything

which makes it an interesting tape recorder for the creative enthusiast.

## Some Technical Points

The Vanguard is supplied with a reel of tape, a spare spool, spare jack plugs and a BASF tape manual as well as a clear instruction book. It is not supplied with a microphone. However, Wyndsor can supply their own type WL 30 ribbon microphone which they recommend. I would also recommend this or a comparable microphone as the recorder deserves one.

Another feature of this recorder is that the loudspeaker is built into the lid thereby allowing for a larger than usual loudspeaker with more baffle area. The quality of reproduction is accordingly much better than one usually gets from an inbuilt speaker. Moreover one can have the speaker away from the tape recorder in another room, which is useful when monitoring whilst recording from the microphone.

Despite its complex nature and larger than usual loudspeaker the Vanguard is not unduly large or heavy. It is well constructed and nicely finished, yet has the technical look and performance that most enthusiasts demand. The deck facilities include fast forward and reverse rewind, three tape speeds— $7\frac{1}{2}$ ,  $3\frac{3}{4}$  and  $1\frac{7}{8}$  ips tape position indicator, an interlocking record/replay control, bass and treble controls, separate record and replay gain controls and, last but not least, an illuminated Vu type recording level meter. This lights up green on replay and red on record.

## Technical Specifications

4 Track.  
3 Speeds— $7\frac{1}{2}$ ,  $3\frac{3}{4}$ ,  $1\frac{7}{8}$  ips.  
7 in Spool Capacity.  
3 Head System (High Quality).  
Double Play Facility.  
Track to Track Recording (Sound on Sound).  
Separate Record/Playback Amplifiers.  
Monitoring from Tape or Incoming Signal.  
Meter Record Indicator. Illuminated red record, green/playback.  
Separate Record and Playback Controls.  
Separate Bass and Treble Controls.  
Separate Loud Speaker (8 in Round) fitted in Detachable Lid.  
Cabinet covered in New ICI Rexine with Chrome and Stainless Steel Fittings.  
Valve Line Up: ECC 83, ECL 86, ECC 83, ECL 86, ECC 83.  
Push Button Operation.  
Record Inter-lock.  
Pause Control.  
Digital Position Counter.  
Signal to Noise better than 50 dB.  
Wow/Flutter figures:  
 $7\frac{1}{2}$  ips = .16% rms.  
 $3\frac{3}{4}$  ips = .25% rms.  
 $1\frac{7}{8}$  ips = .3% rms.  
Oscillator Frequency: 66 Kc/s.  
Frequency Responses:  
 $7\frac{1}{2}$  ips = 40c/s—15Kc/s.  $\pm 3$  dB.  
 $3\frac{3}{4}$  ips = 40c/s—9Kc/s.  $\pm 3$  dB.  
 $1\frac{7}{8}$  ips = 40c/s—6Kc/s.  $\pm 4$  dB.  
Straight through Amplifier Facility.

Amplifier Frequency Response: 20c/s—20Kc/s.  $\pm 2$  dB.

Microphone Input: 1mV. at 1/2 meg.

Radio/Gram Input: 60mV. at 1 meg.

High Impedance Output: 10,000 ohms. at .5v.

LS Output: 15 ohms, at 4 watts.

Mains Voltage: 110v-240v ac 50c/s, 90 watts.

Standard Jack Socket Connections.

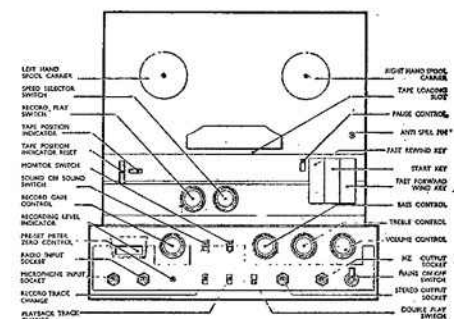
Retail price: 59 gns.

Including: 1,800 ft Long Play BASF Tape. Tape Manual (BASF). 2 Spare Jack Plugs.

Microphone £8 15s. extra.

I could say much more about this recorder, but my space for reporting on it is of necessity limited. It was no doubt designed with the enthusiast in mind and considering its special facilities is not an expensive tape recorder. The electrical and mechanical performances are both excellent in every respect and as I said, once the complexities of the controls and switching are mastered, one has a truly versatile tape recorder.

The Wyndsor Vanguard retails at 59 guineas and is manufactured by Wyndsor Recording Company, 2 Bellvue Road, Friern Barnet, London N11, who will send further details on request. F.C.J.



Deck layout of the Wyndsor Vanguard tape recorder





# LET'S MAKE A DRAMATAPE

by H. Woodman



There are several reasons for wanting to produce a play on tape. First, you might say, is an interest in the theatre. But this isn't necessarily so. I, for example, have little or no interest in theatre-going. I produce 'dramatapes' primarily for their social advantages and there is no better way of really getting to know people than by acting with them.

Then, too, I am greatly intrigued by the technical mystery of the drama studio. Can there be a more pleasurable activity than the mixing and editing of sound-effects? This is only my personal view. Other enthusiasts might well scorn a technical outlook. To them, perhaps, the dramatape is an opportunity to produce serious works of art. But one or other of these aspects must surely interest every owner of a tape recorder. Well, then – have *you* ever thought of tackling a play?

'It needs too much organization' is the usual objection. But this simply isn't true. Unlike a film or stage presentation, a dramatape can be produced by one person – literally 'by the fireside'. Many enthusiasts produce their plays in this way – without troubling over-much with technical perfection. Their dramatapes are nothing more than recorded play-readings; and this satisfies their need for recreation.

Obviously, however, a superior result is possible if you consider such matters as microphone-balance and acoustics. Yet, even here, there is nothing that calls for vast resources of time and money. You can create fabulous 'changes of scene' in one small room – all of which, being invisible, costs you nothing to construct. I won't deny that much cunning goes into advanced production work. Recording is largely an abstract craft, for it deals with the manipulation of invisible elements. And this, naturally, can only attract people of a certain temperament. To them, recording is both an intellectual and a practical challenge. Can there be anything more stimulating than the problems of creating and recording an invisible dimension?

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You'll never enjoy the hobby of recording unless you can feel something of this wonder and excitement. But, if you feel akin to the ideals of drama-on-tape, don't attempt to enter this specialized field in too much of a hurry. Don't, for example, plunge into epic-long plays. There is nothing so daunting as a dramatape of three hours or more. It is far, far better to concentrate your creative energy into a single ten-minute scene – or even a part of a scene. Never be afraid to cut down a script – even if Shakespeare wrote it.

## Dramatape technique

Twenty minutes is the ideal maximum duration for plays on tape, and six to ten minutes is the ideal average. As a guide to technique, BBC radio drama is a useful indication of how a dramatape should sound. Be warned, however – radio drama is again in the doldrums and might bore you stiff. What, then, is the best way of learning? Simply act the scene in the normal 'stage' manner – and record it as best you can! Within the confines of a sitting-room, the action will be somewhat noisy but, in discovering how to control this noise, you will discover the arts of recording. It will soon be obvious, for example, that the cast must move quietly and neatly. Then, gradually, you will discover how you can eliminate stage action altogether – and yet convey the same impression of movement.

A whole dramatic theory has been evolved concerning this technique – known as 'aural perspective'. You will also discover how the quality of the recording is affected by the furnishings of the room. By re-arranging these furnishings, you can drastically control this quality – a technique known as 'scenic acoustics'. Thus, you create aural dimensions – through which your invisible characters stroll at will.

Several years have passed since my first production. But I never cease to be fascinated by the problems I've mentioned – and I hope this brief article will open the door for other amateurs. Then, like me, they can say to their friends 'I'm tired of work, the news is depressing – so let's make a dramatape!'

## AN APOLOGY

We regret that, due to a printer's error, the Vortexion CBL Tape Recorder illustrated on page 34 of the April issue of ATR was incorrectly described as a Type WVB Tape Recorder.

Reference to this Vortexion advertisement will readily show that there is a great deal of difference between the CBL and WVB Tape Recorders, and we offer our sincere apologies to all our readers and to Vortexion Limited for any annoyance or misunderstanding that may have arisen as a result of this printer's error.

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# REVIEW SPECIAL

## ATR takes a look at a loop cassette, comedy scripts for tape recording, the Grampian DP6 microphone and some interesting books

### The Audio Vendor - Loop Cassette

We frequently receive enquiries about loop cassettes that will fit more or less any tape recorder and we believe that readers will be interested in the *Audio Vendor* distributed by the DTV Group, 126 Hamilton Road, West Norwood, London SE27. This little cassette is available for various modes of operation ie, for tape recorders with normal left to right tape travel, for those which operate in the opposite direction and for different running times. These cassettes are designed to feed tape in a continuous loop for repetitive non-rewinding playing. The tape is pulled from the centre of the cassette over a special feed channel and is then taken through the head assembly of the tape recorder in the usual way. The tape then returns into the cassette by winding up again on the outside of the special spool (Fig.1A). The cassette will fit any standard hub spindle but the spindle must not rotate ie, the hub must be stationary when used as a bearing for the cassette. This is usually the case with most tape recorders, but if not a mounting spindle which requires no special fitting can be supplied (see Fig.1B). The cassettes are available with running times of 3, 5, 8, 12 and 15 minutes at 3½ ips but can be used at any other tape speed with an increase or reduction in running time accordingly.

The *Audio Vendor* has many useful applications such as for language practice, sales displays, audio visual displays, sleep learning etc, and the 15-minute cassette complete with special tape retails at 5 guineas. We have had one on test and found it operated quite well on three different makes of tape recorders. Prices of shorter running time cassettes, available on request from DTV Group.

### Comedy Scripts for Tape Recording

Planning a comedy tape? Would you like to try your hand as a comedian? Well, *Comedy Scripts for Tape Recording* by Peter Cagney will provide all you need for some really

hilarious tapes, complete with sound effects. The booklet tells you how to create the sound effects for your comedy playlets as well as offering many hints and tips on successfully recording them. Peter Cagney, the author of this unique little booklet, has written scripts for famous comedians, Tommy Cooper, Ken (diddy) Dodd, Ben Lyon, Max Miller etc.

There are ten separate scripts and a page of mock radio advertising commercials. The comedy playlets run from two to six minutes and each script is arranged for cueing in sound effects, fades and music bridges etc. The booklet costs 3s 6d and is published by Scotch Magnetic Tape, 3-M House, Wigmore Street,



Fig.2. The Grampian DP6 microphone.

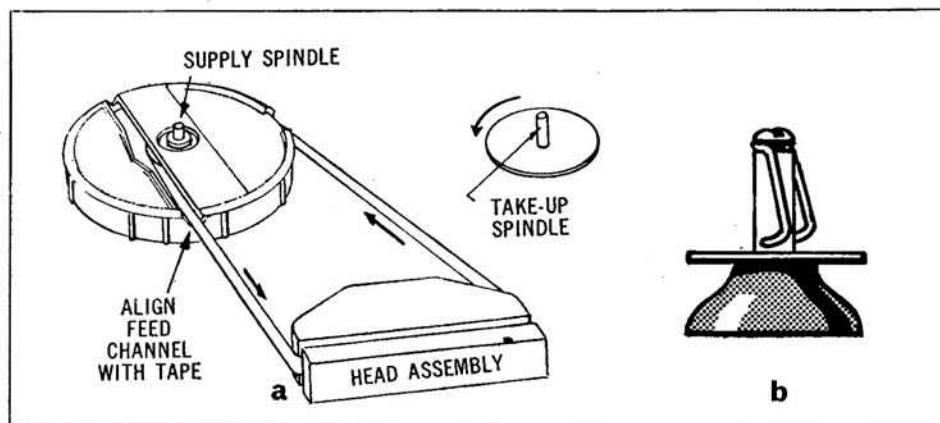


Fig.1. (a) Method of mounting and using the Audio Vendor. (b) Deck mounting spindle - if required.

London W1, or is available from Queen Ann Press Limited, York House, Queen Square, London WC1. Your local dealer should also have it in stock.

### The Tape Recorder

This is the title of an excellent handbook on tape recorders by C. G. Nijssen and published by Philips Paperbacks. The author deals with tape recording right from basic sound through to professional recording applications. There are twelve chapters in all, dealing with recording and reproduction, the principles of the tape recorder (in ten sections), acoustics, stereo, choosing a recorder, advice on making recordings etc, and each chapter is profusely and clearly illustrated. It is not a highly technical book, yet the technicalities are explained in a clear and easily understood manner. We recommend this book to beginners and advanced amateurs alike. Incidentally, the author has had extensive amateur and professional experience in tape recording and was one of the judges of the recent International Tape Contest.

### Two More Books

*Building and Using Sound Mixers and Transistor Receivers and Amplifiers*, both published by Focal Press Limited, have plenty to offer the home constructor. The first is by R. E. Steele and deals very thoroughly with the design of mixers, their construction and operation. The book contains many practical circuits employing both valves and transistors. Price 30s.

The second book, *Transistor Receivers and Amplifiers* by F. G. Raynor, is a comprehensive work on the use of transistors in receivers and amplifiers and covers theory and practice with equal thoroughness. There are many practical circuits and the book includes a chapter on printed circuit techniques and test equipment. Price 30s.

### Elektronische Musik (Musik aus der Retorte)

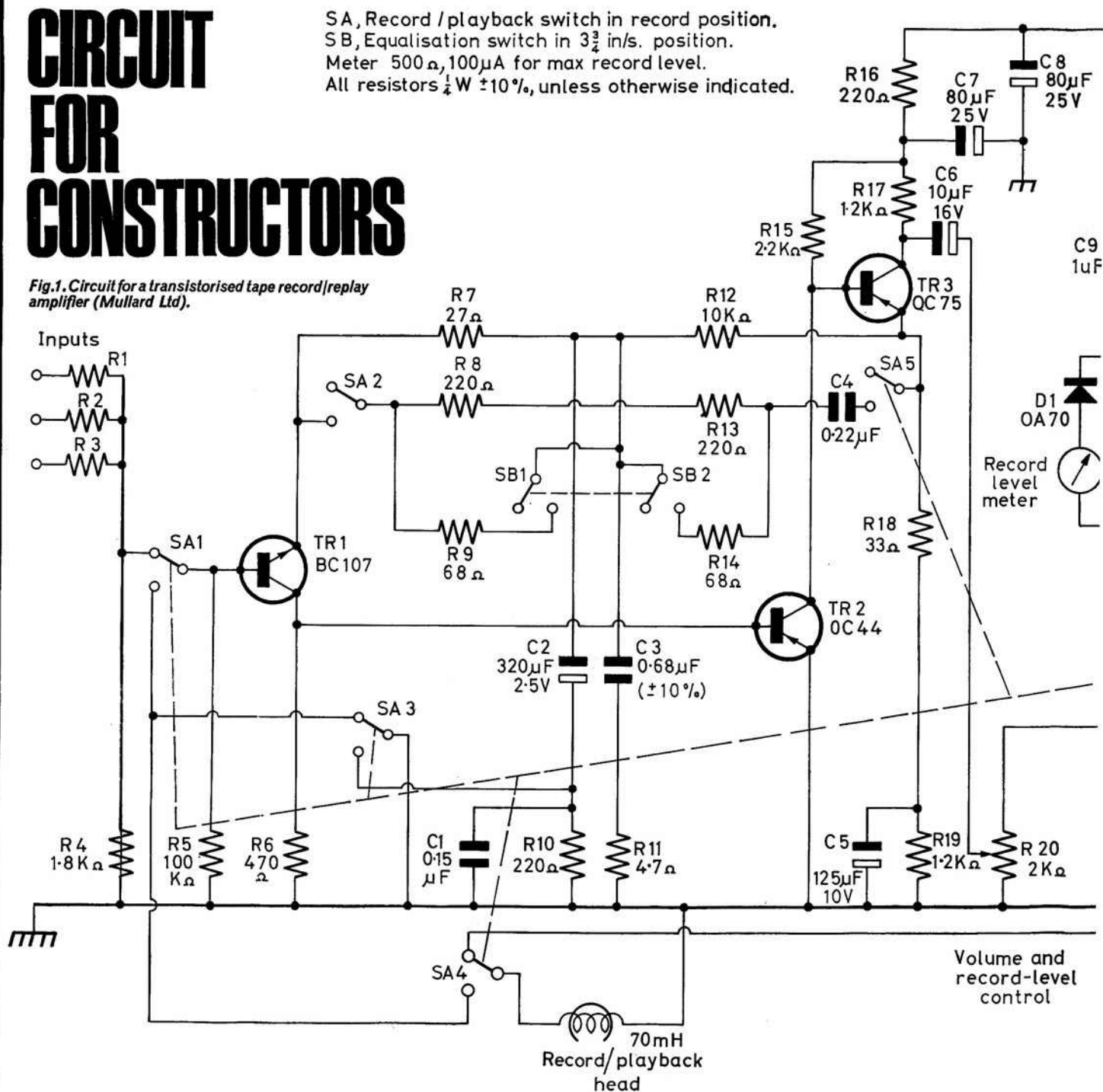
Yes, the title and the book is in German. We thought perhaps that ATR readers in Germany might be interested to know that this book by F. C. Judd originally published in English (*Electronic Music and Musique Concrète*), is now published in Germany by Franzis-Verlag of Munich. The three main chapters are: 1. Die Elemente der Elektronische Musik. 2. Die Elektronische Klangquellen und die Tonbildung. 3. Die Komposition elektronischer musik und von musique concrète. The many electronic circuits contained in the German version are printed in continental style. The English version is available from the ATR Postal Bookshop.

### The Grampian DP6 Microphone (Fig.2)

This moving coil omnidirectional microphone by Grampian is not so widely known as the DP4 and is a smaller version of it. It also has different characteristics and is perhaps more suited to high quality recording of speech and for outdoor recording of sounds etc. The low frequency sensitivity is reduced to make it more responsive to speech at close range and so obviate unwanted background sound. It is also less prone to wind noise and even less so if used with a windshield. One supplied to us by Grampian for test obviously showed these special characteristics from practical use of it. The reduced bass sensitivity in no way detracts from the excellent and crisp quality of recordings made outdoors. It is particularly useful for interviews and can be obtained with a neck cord. The DP6 is available with low, high or medium impedance output. Prices are £8 5s. (low impedance) or £9 5s. (medium or high impedance).

# CIRCUIT FOR CONSTRUCTORS

Fig.1. Circuit for a transistorised tape record/replay amplifier (Mullard Ltd.).



Recently, Mullard Limited introduced a new range of audio transistors, known as the 'harmonious range', which have proved particularly suitable for transistorised tape record/replay amplifiers. The circuit shown in Fig.1 (above) employs six transistors and will deliver approximately 4 watts of audio on replay. A bias and erase oscillator is also provided but readers should note that the oscillator makes use of the erase head inductance as an oscillator coil.

A power supply of 22 volts dc is required for operation of the amplifier and a cir-

cuit for a suitable mains power supply is shown in Fig.2. (right.)

The input stage employs a Mullard B 107 low noise transistor. This is dc coupled to an OC 44 around which is the negative feedback playback equalisation circuitry for tape speeds of  $3\frac{3}{4}$  and  $7\frac{1}{2}$  ips. The output stage consists of an AD 162 and an AD 161 which are directly coupled to a 4 ohm loudspeaker. Note that suitable heatsinks must be used for the output transistors. The amplifier is designed for operation with a quarter track Marriott record/replay head type X/RPS/18

and Marriott erase head type X/ES/11.

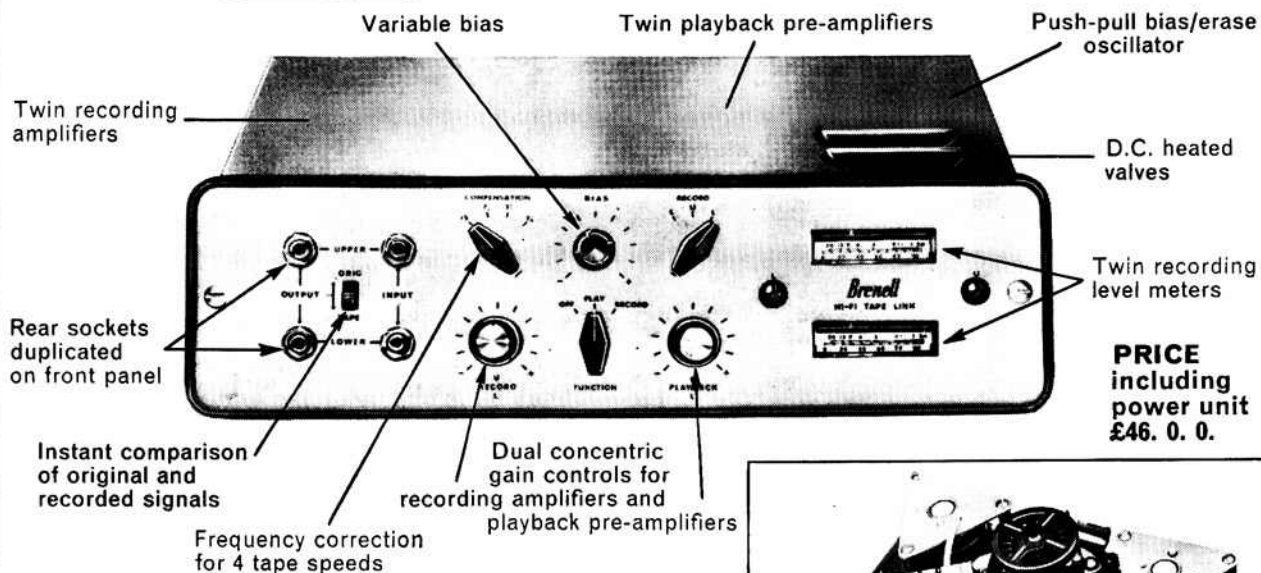
There are also various modifications which make the circuit eminently suitable for home construction. These include the use of a 15 ohm loudspeaker with a reduction of audio output power to about 3 watts, the provision of a peak to peak record level meter, a monitoring output, and one or two circuit modifications which may be of use where individual requirements are concerned ie, a low level playback output, disconnection of the loudspeaker during recording and so on.





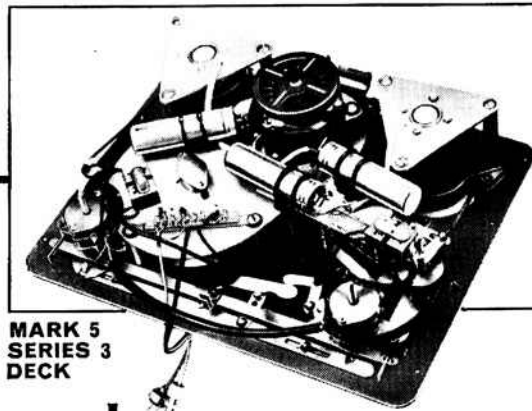
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**MARK 5  
SERIES 3**

**MONO—HALF TRACK—TWO HEADS—MAGIC EYE**  
(Available with recording level meter at extra cost.)

High quality amplifier with power output of 2 1/2 watts r.m.s. and a frequency response of 40—20,000 c/s—can be used independently of tape recorder—narrow gapped record/playback head for extended frequency response—double gapped ferrite erase head to minimise erase noise—headphone monitoring.



**MARK 5  
TYPE M SERIES 3**

**MONO—HALF TRACK—THREE HEADS—RECORDING LEVEL METER**

Separate record and playback heads—separate record and playback amplifiers—amplifier frequency response 25-26,000 c/s  $\pm 3$ dB—power output 2 watts r.m.s.—separate bass and treble controls—mixing of input signals—speaker monitoring whilst recording.



**STB2**

**MONO/STEREO—HALF TRACK (Record/playback)—QUARTER TRACK (playback) FOUR HEADS—TWO EDGEWISE METERS**

Designed for use with high fidelity stereo installations—adjustable attenuators on all input channels to ensure perfect matching with all auxiliary equipment—dual concentric recording level and playback level controls—cathode follower output—four channel mixing on mono programme sources—twin recording and twin playback pre-amplifiers—comparison of original and recorded signal—adjustable bias level—recording facilities for 1/2 and 2 1/2 track—playback facilities for 1/2, 2 1/2, 1/4 and 2 1/4 tracks—sound-on-sound facilities—two edgewise meters for recording level, tape output level and bias level. **Optional extra: stereo power amplifiers and monitoring speakers.**

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# TAPE RECORDER SERVICING

## Part VI of the series by Gordon J. King

Last month we finished by considering the symptom of recording failure accompanied by lack of response on the recording level indicator, playback normal. We saw that this could be caused simply by lack of input signal due to a faulty microphone or other programme signal source. A simple microphone test was suggested using a dry cell and current limiting resistor.

Now, let us suppose that we have proved without doubt that a programme signal – from a microphone, gramophone pickup, radio tuner or some other source – is getting into the recorder and yet the symptom persists. What does this indicate?

It depends to some extent on the nature of the circuit employed. If the machine, for instance, switches in all amplifier stages between 'record' and 'playback', then almost certainly the first amplifier stage in the 'record' position would also double as the first amplifier in the 'playback' position, and since the playback function is normal, the trouble must lie somewhere in the circuit between the signal input source and the first amplifier. We have checked the input signal previously, so one can be pretty sure either that a wire is off, say, the microphone jack socket or that the 'record/playback' section of the switch associated with the head/microphone change-over is faulty.

Block diagrams in earlier articles have revealed the position of this switch section, and Fig.1 in this article shows its position in the actual circuit. This is a little simplified and in a practical circuit it may be necessary to explore the wiring to locate the changeover switch S1. Nevertheless, it will be there somewhere, but it may be tied to a track changeover switch or to another changeover switch which in the 'record' position introduces signals from the record amplifier, as previous articles have shown.

Looking again at Fig.1, it is easy to see that in the 'record' position signals from the microphone jack are fed through the coupling capacitor C1 to the grid of the first valve. The head under this condition, of course, would then be receiving signals from the record amplifier, as already mentioned. The valve – which in this example is one half of a double-triode valve – amplifies the microphone signal and sends it out to other amplifier stages via

C2. Resistor R1 is the ordinary anode load resistor, while R2 is the grid leak or grid resistor.

### Grid Current Biasing

A point which may be queried in this circuit is the direct connection of the cathode to chassis, for it has been told in a past article that valves are biased by the voltage drop across a resistor in the cathode circuit (cathode bias). On the face of it, therefore, it appears that the valve in Fig.1 is unbiased.

This is not really true because the bias here is obtained by virtue of a small flow of current in the high value grid resistor R2. The voltage is developed by virtue of the current flowing through the resistor and is negative at the grid of the valve. This is called 'grid current biasing'. Many modern circuits in which a relatively high slope valve is employed in a low-level amplifier stage feature this kind of biasing. The clues revealing this arrangement are (i) very low value or lack of cathode resistor and (ii) a very high value resistor on the grid – usually 10 megohms. Of course, with this technique it is not possible to connect the head direct to the grid, since this would short the grid resistor. A coupling capacitor, such as C1 is thus employed.

The current in the grid resistor results from electrochemical activity between the grid and cathode electrodes. The potential developed across the grid leak is sometimes called 'contact potential'.

Fig.1 clearly shows that if the first valve is working correctly for playback, only the input circuits can be wrong if the valve fails to produce a programme signal from the microphone or other source at its anode for, apart from the input circuit, nothing else is switched between the two functions.

*continued overleaf*

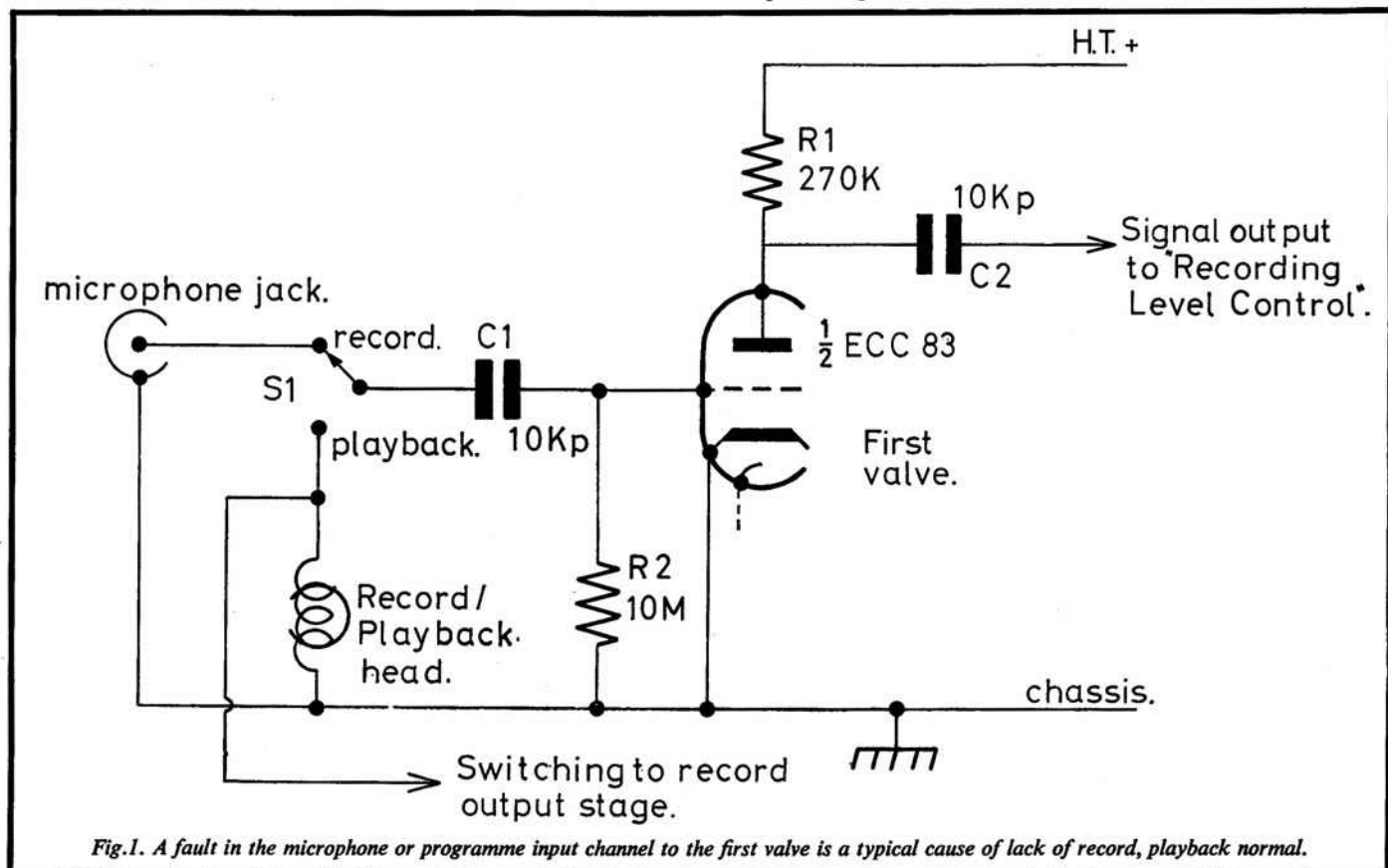


Fig.1. A fault in the microphone or programme input channel to the first valve is a typical cause of lack of record, playback normal.

P.U. Input

560 K

400 P

Record/Replay switching here (see fig.17)

10 Kp

10 K

10 Kp

10 M

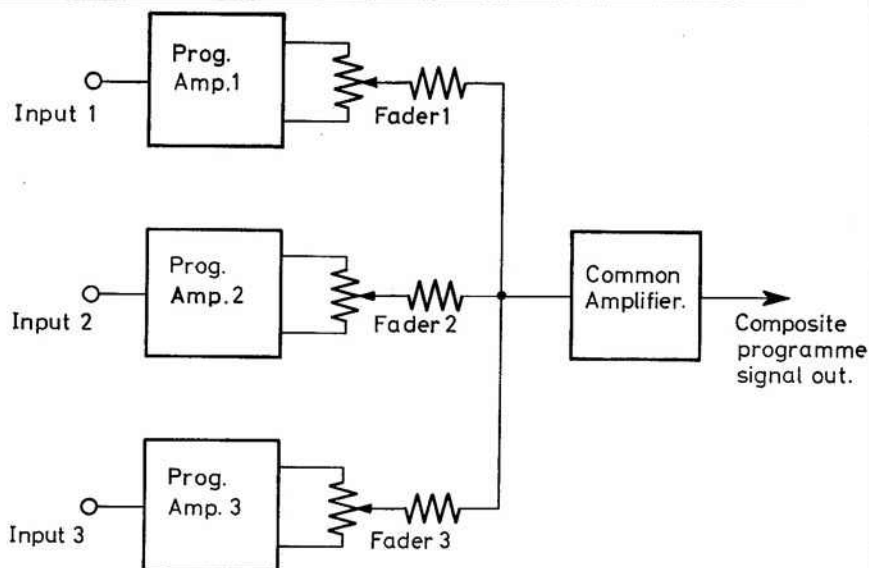
microphone input

First valve

Here the pentode valve V1 amplifies the low-level microphone signal, which is passed to the recording level control R1 through the coupling capacitor C1 and thence to the triode amplifier V2. V2 in this circuit is rather like the valve in Fig.1, but instead of the microphone signal being applied direct to the grid it is first passed through the pentode stage. High-level signals from a pick-up, for instance,



Fig.4. Block diagram showing the arrangement of individual programme amplifier channels leading to mixer controls and feeding into a common amplifier.



bypass the pentode and arrive first at the triode through the equalizing network, R2/C2, switch S2 (which is equivalent to S1 in Fig.1), R3 and R4.

Points of interest are the grid-current bias of V1 due to the 10 megohm grid resistor and lack of cathode resistor, switch S1 which shorts out the recording level control R1 on playback and mutes the playback amplifier on record, the recording level control R4 for the pick-up signal and the frequency compensation provided by C3.

Signals from the head amplifier are passed through S2 in the 'playback' position and thence to the grid of V2, via R3 and R4, the latter which then becomes the volume control. In the machine using the circuit of Fig.3, a

single transistor is used to amplify the head signal, it not being applied direct to the grid through S2, as in Fig.1.

This arrangement is fairly versatile. For instance, while the playback signal from the head is being carried by the amplifiers, a second signal from a microphone can be mixed with it, R1 adjusting the level of the microphone signal and R4 the level of the tape signal.

Now, with a circuit of this nature failure to record from a microphone, accompanied by lack of response of the recording level indicator, may simply mean that the pentode microphone amplifier stage is defective. However, in this event the machine should record from signals applied to the pick-up or high-level input.

#### Input Mixing

Another arrangement which is featured in the more expensive machines is shown by block diagram in Fig.4. Here are three separate programme input channels, each with its own amplifier stage. The output of each one feeds into a fader control, and the outputs of these controls are combined to the input of a 'common amplifier' stage. The output from that stage, therefore, consists of a mixture of all the required programme signals at pre-selected levels. This is the ideal situation, of course, for each programme amplifier can be 'tailored' to suit the input signal applied to it. This means that a programme amplifier can incorporate equalization to suit, say, a magnetic pick-up or piezo pick-up, while another can be balanced to suit a specific microphone, and a third could be arranged for optimum acceptance of a radio tuner signal. Alternatively, the amplifiers could all be arranged to accept microphone signals, thereby giving a three-channel microphone mixer facility.

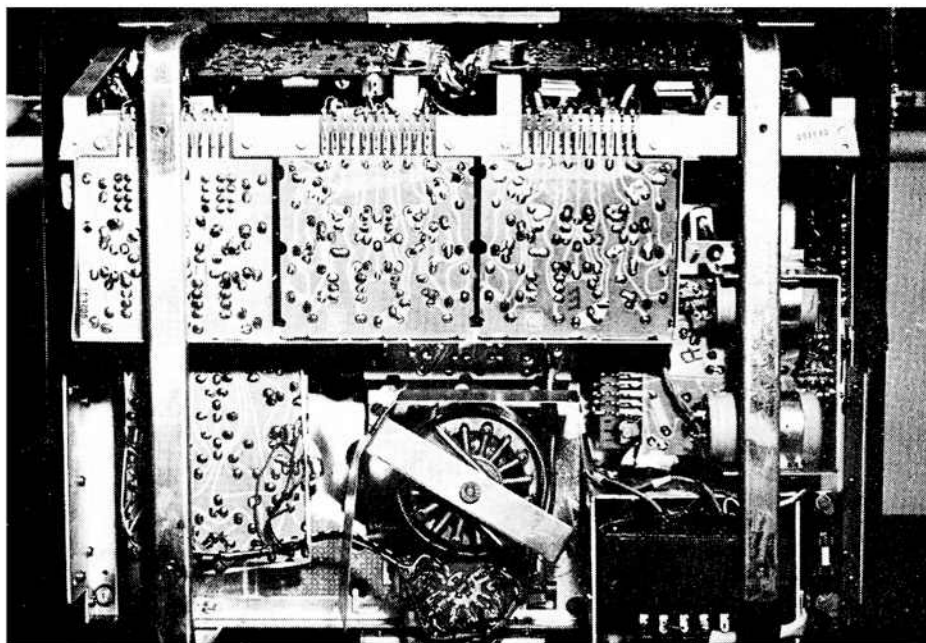
This sort of thing is adopted in the B & O 2000 series recorders, as an example. Transistor modules comprise the programme amplifiers and these are very easily changeable in the machine to suit whatever programme signal needs to be recorded.

Fig.5 shows the underneath of the B & O 2000 series with the case removed. Three of the plug-in modules can be clearly seen in line at the top of the picture. Servicing this type of recorder eventually boils down to the replacement of the suspect or defective module. Some of the switching for speed-change and equalization change can be seen at the bottom of the picture, directly beneath the large drive motor. Other switching - by press-buttons - is located beneath the modules themselves and cannot be seen in this picture.

This recorder also has a separate playback channel, so if the playback function is working properly this is not an indication that the recorder amplifiers are also in order, and that the trouble must lie in the switching, as in the less expensive type of machine considered in the major part of this article.

Next month we shall look at some of the causes of failure of the playback section - record normal.

Fig.5. Showing the module programme amplifier technique used in the B & O 2000 Series recorders.



# PARDONNEZ MOI!

## Or 'I have lost the tape of the Japanese gardener' — an amazing excursion into Language Learning by David (English only spoken here) Lazell

The Russians say that they're going to teach English in ten weeks, using the latest methods of sleep learning. It makes my four years mastering 'avoir' and 'être' (to say nothing of countless hours ignominiously thrust into the corridor) so much spliced tape. I don't think our languages teacher knew anything about the new methods – he always insisted on waking us up when we drowsed off. Had he spoken to a completely slumbering class, we might all have obtained our GCE (even poor Sidney who, afflicted with a strong Welsh accent, produced a strange verbal mixture whenever he tackled 'la petite femme avec une grande bouche', one of the charming tales in our French text book). What we really need, of course, is a self-computing tape recorder with a built-in translating mechanism. Just speak the English text into the mike, press the button and hey presto! (or 'vivement', according to your mood) it all comes out in Gaelic, Greek or Tibetan Chinese. Just carry a few spare tapes in your old kit bag, and the world could be your linguistic oyster. And it would save all that sleep learning stuff. In time, the really advanced model machines

could carry out conversations with each other. The international conferences of the future may well consist of a score of tape recorders chattering away, with some remote master machine computing the final outcome. I suppose the ultimate would come when some nasty-minded anarchist dropped a bulk eraser down the chimney!

Not that I would discourage anyone from learning a language. In fact, we tend to be a little backward as far as this goes. So many of us expect the Continent to be inhabited by people who speak English better than we do (that's often the case – but think of all the tape recorders they've got). Quite often, the touring Englishman, stepping from the boat at Calais, asks for the nearest fish-and-chip shop and Bingo Hall. Avez-vous une maison de Bingo? In my day, we were only taught vital phrases like 'I have lost the pen of my grandmother's gardener'. That's why I've done so little travelling.

Tape has done a great deal to encourage language learning. For example, the ability to circulate tapes as easily as books means that

any student can hear *authentic* pronunciation. In my hapless schooldays, it was a matter of doing one's best; you could only discover your error the painful way, ie, by reading your piece aloud in class, when the teacher threw (jeter; to throw, French) his chalk, notepad, etc at your head when you went astray. All the same, I often wondered what happened to Monsieur Duhamel and his little family, whose adventures were chronicled in our text book. Maybe *he's* in the language tape business these days.

Sleep learning, associated with tape, works on the theory that, since acquiring a language is largely a matter of storing information in the brain (like stuffing a cushion with liquorice allsorts) the best time to thrust this information inward is when the brain is relaxed. No outward distractions – like gazing through the window and counting the lorries passing the school gates, or inventing nicknames for the pink-faced languages master – when you're asleep, mate! Thus you sleep (dormir; to sleep) with the tapes whizzing away. And in the morning, you rush downstairs feeling very cosmopolitan and asking for sauerkraut and spaghetti on your porridge. One word of warning though ... this knowledge has to be used to be retained. If you learn another language, you'll have to practise it. Try swapping tapes with people overseas, especially those who are using sleep learning techniques to master English. You can help each other in a big way – especially if you have a sonorous voice like mine. Many people, replying to my tapes, gratefully tell me that my spools send 'em to sleep. If you really want to be challenged, try translating some of the wiring diagrams and homespun instructions that arrive with machines of oriental origin.

All this will be very handy when (should I say 'if'?) we join the Common Market. Not so long ago, the bright lads of *Candid Camera* offered Londoners copies of French and German newspapers instead of their customary London evening papers. They explained that, in anticipation of events, the newspapers had gone over to Continental editions. I must say that I was surprised at the number of folks who looked momentarily surprised, but who went away with the foreign language newspapers. Who knows? they may be some of the very people bashing away at language learning, deluded that, at any moment, their favourite newspapers are to burst into Spanish, Dutch, Italian ... The recent translation of 'The Mikado' (Gilbert and Sullivan, that most venerated of English institutions) into French can only confirm their fears for the imminent obsolescence of English. Any day now, Emma Peel will collapse into the vernacular – 'Bonjour, Monsieur Steed. Avez-vous la plume de ma grand-mère?' And the search for the lost pen of Emma's grandmother could become the biggest event in an eventful series.

As for yours truly, I'm a great believer in sleep learning, using tape. But I'm taking it in stages. I'm learning to sleep better and better every day. Sometime, I'm going to plan a trip abroad and get my own sleep learning device ... with my luck, English will be spoken everywhere by the time I arrive with my flamboyant French and insomniac Spanish. 'Avez-vous la plume ...?' I'll begin, and the entire quayside will collapse in roars of laughter. I suppose it'll be worth recording, really.

Please Note: Any French phrases included herein may be subject to error, as the writer's tape recorder is in a bad way, and plays back *all* languages in a somewhat unpredictable manner. Ah, c'est la vie!



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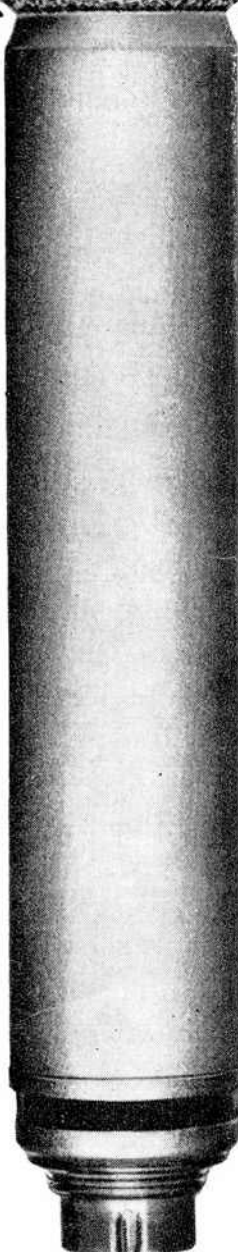
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# ON TEST - GRAMPIAN REVERBERATION UNIT

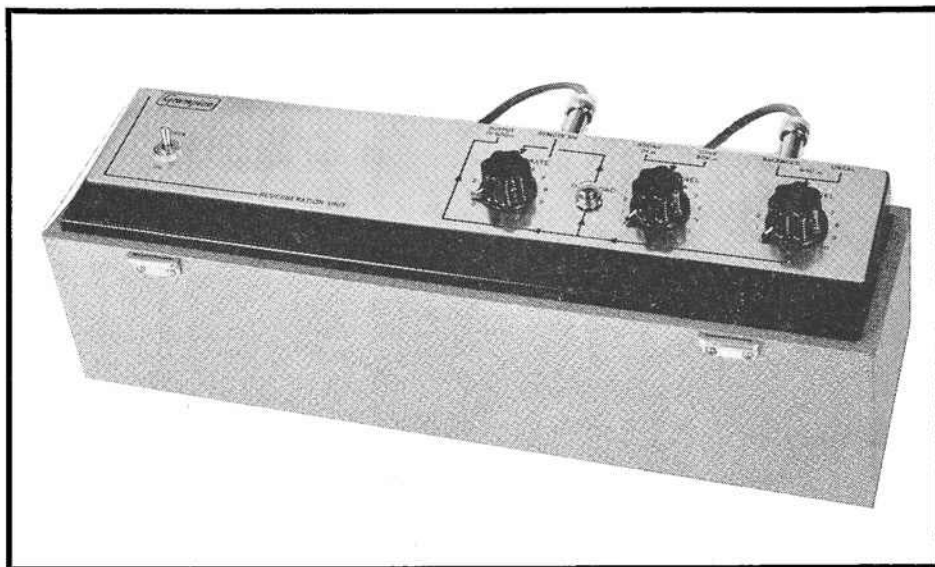
The Grampian reverberation unit has been designed for amateur or professional use and can be used to simulate the effect of sound reproduction in a large hall in which the natural reverberation might well last for several seconds. It is not intended to be used purely as an echo unit such as the tape echo devices and for electric guitars and the like. Its primary use is to provide a degree of reverberation for the enhancement of vocal or instrumental recordings or where reverberation is required for recording or replay of music etc, originally performed in an acoustically dead environment. It can also be used to add reverberation to voices whereby the effect of speaking in an empty hall or corridor is required. For these purposes the unit is widely used by recording, broadcasting and television studios.

The Grampian unit employs a pair of mechanical (spring) delay lines and electro-mechanical sound transducers. The delay lines have nominal transmission times of 29 and 37 milli-seconds respectively - this is the time taken for a sound to travel up and down the lines. The total reverberation time, which is the time taken for a sound to die away completely is greater than 2 seconds. The delay lines are deliberately mis-matched in order to simulate the effect of two pairs of parallel walls spaced approximately 32 and 41 feet apart.

There are two signal paths through the unit - a direct path whereby the signals are as injected into the appropriate input socket and the reverberation path which is controllable from zero to a maximum of 1:1 ratio of direct and reverberated signal. A muting switch can be connected in the reverberation path. The direct signal path has a flat frequency response over the whole of the audio spectrum as shown in Fig.1 but the reverberation path response is deliberately limited from 100 c/s to 6,000 c/s.

Two independent input channels are provided one being a low level input for a microphone (medium or low impedance - balanced or unbalanced) the other being a high level high impedance channel for the output from a tape recorder, pre-amplifier, crystal pick-up or from a 600 ohm line. The output from the unit is one volt maximum across 600 ohms which is suitable for direct connection to the radio input of most tape recorders, high level mixer inputs, or a hi-fi amplifier. The 600 ohm output also allows for a fairly long line between the unit and whatever it may be connected to. A unique feature of this unit is the overload indicator which flashes when too strong a signal is being used to drive the delay lines and which could result in distortion.

Yet another feature of the instrument is that it employs transistors which operate from an internal battery. Hum problems are therefore eliminated and the unit is completely portable. I have only one observation here and that is the need for some form of luminous indicator to show when the unit is switched on. It is quite easy to forget to switch off battery operated equipment after



use because unlike a radio receiver this reverberation unit makes no sound of its own to attract attention.

## Circuit Design

The Grampian unit is built around a printed circuit board on which all components except the panel controls, etc are mounted. Great care has been taken to ensure maximum working stability and the absolute minimum of first stage noise which is due to the special transistor microphone pre-amplifier circuitry and screening. The auxiliary channel pre-amplifier is an emitter-follower stage followed by a gain control and the outputs from the two pre-amplifiers are mixed and fed to a buffer-splitter amplifier. The microphone pre-amplifier also has its own gain control thereby making it possible to mix the input signals. The spring lines are driven by a separate amplifier and finally the reverberated and direct signals are mixed and fed to the output amplifier.

The complete specification of the Grampian reverberation unit is as follows:

## Technical Specification

**Inputs** Two independently controlled input channels are provided, one for 600 ohm microphones, and the other for high impedance signals.

## Microphone Channel

Connection: Balanced or Unbalanced lines

via two alternative standard jack sockets. Matching Impedance: 25 ohms (600 ohms to order).

Sensitivity: 20  $\mu$ V across 25 ohms. Maximum level: 25 mV.

## Aux Channel

Connection: Unbalanced via two standard jack sockets.

Matching Impedance: (a) 50 Kohms.  
(b) 1 Megohm.

Sensitivity: (a) 10 mV.

(b) 500 mV.

Maximum level: (a) 300 mV.

(b) 15V.

## Output

Connection: Unbalanced, via standard jack socket.

Direct Path Programme level: (Reverberation off) at rated input -8dbm (=300mV).

Source Impedance: 600 ohms.

Absolute Maximum level: +2dbm (=1 volt).

## Direct Path Gain

Mic Channel 72 dB (86 dB voltage gain) maximum.

Aux Channel:

(a) 52dB (32dB voltage gain) maximum.

(b) 30dB (-2dB voltage gain) maximum.

Frequency Response:  $\pm 2$ dB 35c/s - 20Kc/s on all inputs.

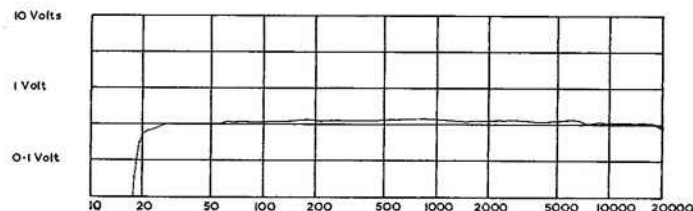
Gain control Interaction: Less than 1dB.

## Noise

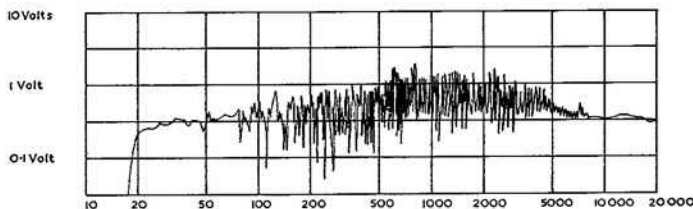
Both channels closed -68dbm at output.

Fig 1.

Response of the direct signal path.



Response of the combined direct and reverberation paths.



Reverberation fully on.

Aux Channel open terminated in 50 Kohms.  
Reverberation fully on —63dbm at output.  
Both channels open correctly terminated.  
Reverberation fully on —45dbm at output.  
Noise Factor of Mic channel less than 5dB,  
400c/s to 10 Kc/s,

#### Distortion

Less than 1% Harmonic content at maximum input and output levels. Reverberation off.

#### Reverberation Path

Delay Times: 29 and 37 milliseconds nominal.  
Reverberation Time: 2 seconds at 300 c/s.  
Frequency Response: 100 c/s to 6 Kc/s  $\pm 3$ dB.  
Direct/Reverberation Ratio: 1/1 maximum.  
Overload Indicator: 6.5 volt, 1 watt LES panel lamp.

Remote Switch: Mutes reverberation, connected via standard jack socket, isolated from earth.

#### Power Supply

Two 9 volt dry batteries, Ever Ready type PP9 or equivalent.

Consumption: 25 mA idling.

150 mA on full drive.

50 mA average on speech and music.

#### Controls

Three rotary controls (numerically calibrated) for Mic gain, Aux gain and Reverberation, together with overload indicator lamp, and on/off switch, mounted on vertical front panel.

#### Connections

6 standard jack sockets grouped in pairs on top of the instrument.

#### Operating Temperature

0°-50° C.

#### Transistors

2-AC107

2-OC71

3-OC45

1-OC81D

2-OC81

#### Size

Approximately 17½ in × 5½ in × 6½ in overall.

#### Weight

12 lb complete with batteries and lid.

#### Finish

Grey Vynide covered wooden carrying case with lid. Panel finish satin silver and egg-shell black.

#### Plugs Supplied

2 standard jack plugs (BS 666).

1 TRS jack plug (GPO type).

#### Performance

Each input is provided with two sockets which are intended for alternative use, i.e., microphone—balanced or unbalanced. The high level sockets provide for inputs of 10 mV or 500 mV across the impedances quoted in the specification. These sockets cannot be used together. The input socket impedances and sensitivity are more than adequate for all normal requirements as also the output voltage and impedance at the output socket. Since it performs to a very rigid specification this unit should be used in exact accordance with the instructions supplied. For example it is quite easy to overload the input to the spring line and this is quickly shown by the flashing overload indicator. If the gain isn't reduced, however, considerable distortion of the reverberated signal will occur. Properly used on signals

which really require reverberation the Grampian unit will introduce no distortion at all and will provide more than sufficient reverberation for normal purposes.

The excellent performance of this unit is due not only to careful transistor circuit design but also to the spring line unit itself which is made by the Hammond company. Used excessively or with too high a signal the line will introduce mechanical ringing. Otherwise the reverberation is completely natural as one would expect in a large room or hall with little or no furnishing.

The unit is completely self-contained and economical to use, and is quite compact. It is housed in a metal case which, in turn, is fitted into a nicely finished wooden carrying box complete with handle. In operation it is not sensitive to external vibration caused by people walking about, etc, although a hard knock will produce a thunderous clang from the lines. It would also appear that the line assembly is quite robust, too, in fact the unit submitted for review was sent through the post without any elaborate packing and nothing seems to have suffered.

By and large this would be a valuable accessory for the serious tape recording enthusiast and of course an essential item of equipment in the professional studio. Grampian have gone to a good deal of trouble to provide a high degree of technical performance and at the same time turn out a really versatile unit.

The Grampian reverberation unit is manufactured by Grampian Reproducers Limited, Feltham, Middlesex, and retails at £52. Further details available from the manufacturer.

A. L. R

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Side 1—Fire engines with bells Fire engine—alarm and sirens  
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Side 2—Clock chime Alarm clock Westminster chime Bow bells

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Side 1—Male and female lions Gibbons Chimpanzees Bell bird  
Rattlesnake Baboon Viper Emperor geese Fish eagles Mountain lion (yowls) Kookaburra (laughing jackass)

Side 2—Elephants Mississippi alligator Indian tiger Sea lions  
Male lion In the jungle (a background of typical sounds)

#### C BGX/1—BACKGROUND SOUND EFFECTS

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Side 1—Sea (breakers) Wind (howling—erie) Thunder (light rain)  
Side 2—Rain (heavy shower) Factory sounds (industrial) Traffic (busy street)

#### D EFX/1—ELECTRONIC SOUNDS AND MUSIC

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Side 1—Space ship—take off Space vehicle—imaginary take-off  
Space vehicle—imaginary landing Ring modulation—tonal Modulated tone glide (descending) Modulated tone glide (ascending)  
Sibilant—white noise (pitch octave low)  
Side 2—Sibilant—white noise (pitch) Sibilant—white noise (pitch octave high) Three-tone modulation Filtered tone Stridor (tonal) Ring modulation and sibilant

#### E EFX/2—ELECTRONIC THEMES AND MUSIC

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Side 1—Delta F Study in Sine-tones  
Side 2—Sound object Montage

#### F HMX/1—HAUNTED HOUSE, MYSTERY SOUNDS AND MUSIC

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Side 1—Thunderstorm Mysterioso Electronic Music  
Side 2—Spooky Intruder Creaks Fright Dungeon Ghosts Ghouls  
Maniac laughter

#### G MFX/1—AUTHENTIC HIGH-FIDELITY SOUND EFFECTS

Price 7/6

Side 1—Lion roaring Twin piston aircraft landing Building and debris falling Road drills and compressor Ship's siren Steam train leaving station Small steam loco and whistle Cell door, keys and locks  
Side 2—Police car and bell, chase Police launch and siren Steam goods train and whistle Car door alarm, and starter Storm at sea, thunder, wind and gulls Tube train, stop, doors and start

#### H MFX/2—AUTHENTIC HIGH-FIDELITY SOUND EFFECTS

Price 7/6

Side 1—American police car with siren—arriving American police car with siren—departing American police car escort with siren—passing American police motor-cycle patrol with siren—stopping Applause (hand clapping) Orchestra tuning up Car crash Glass breaking (repeat)

#### I MPX/1—MILITARY PARADE AND WARFARE SOUNDS

Price 7/6

Side 1—March past—Guards and crowd sounds, etc. Royal Salute—Parade commands and National Anthem Drums and pipes—with parade commands  
Side 2—Aircraft—low level attack (bombs, machine-gun fire, aircraft) Artillery—tanks—rifle fire, etc.

#### J TFX/1—AUTHENTIC BRITISH TRAIN SOUNDS

Price 7/6

Side 1—Train departure—main line Train arrival—main line Express train passing—with whistle Fast goods train passing—with whistle Express train passing Small tank loco—passing  
Side 2—Local passenger—arrive and depart Fast goods train—passing Central London tube train—arrive and depart Train over points and crossing Slow goods train passing—with whistle

#### K MFX/3—HORSES

Price 7/6

(10 effects) Trotting Walking Jumping Composite recording of foxhounds, calls, horns, etc. Cows Cats Pigs Blacksmith's shop

#### L LFX/1—SOUNDS OF LONDON

Price 7/6

Guards, Bow Bells, River, Markets etc., etc., with linking commentary. Ideal for cine films and colour slides

#### M RSX/1—ROAD SAFETY

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# THE THINGS YOU SAY

Each month the writers of the most interesting letters selected from our post bag and published on this page will receive a useful accessory to tape recording.

The awards this month are pre-recorded music tapes, one to each of those whose letters are published below.

Letters for this page should be addressed to *Things You Say*, ATR, 9 Harrow Road, London, W2.

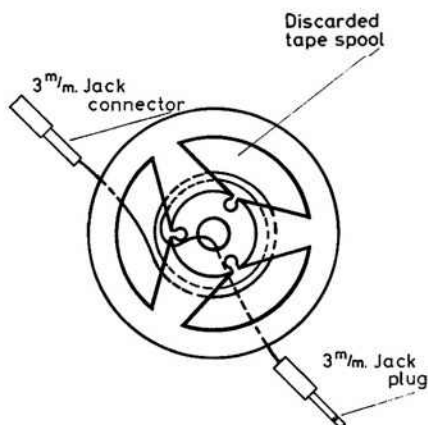
(Letters containing general technical queries, etc, should be addressed separately to the Editor. These do not, of course, qualify for prizes.)

## No more tangled cables

For years now (in fact, ever since I started tape recording as a hobby) I have been plagued with the eternal problem of disentangling yards and yards of cable every time I wanted to use extension cables for either microphones or speakers. It never ceased to amaze me that, however hard I tried to roll up the cables neatly after use, they always became tangled up by the time I next had occasion to use them. This problem became even more acute when eighteen months ago I acquired a stereo tape recorder, as everything was then in duplicate!

Happily, I have now resolved this problem and I thought you might be interested in the way I have done this. I possessed a few empty tape spools which had become so dusty and discoloured that I preferred not to use them as take up spools. A co-axial cable with a 3 mm jack plug was inserted through the centre hole of the spool and, after about 12 inches had been pulled through, the remainder of the cable was inserted between the spokes of the spool and then wound round the spool until all cable had been taken up. My diagram enclosed (which, for the sake of clarity, does not show a full spool of cable) shows the method employed. To secure the loose end of the cable with the 3 mm jack connector it is possible to insert this through one of the three tape anchoring holes provided by some tape manufacturers or to insert the cable in the tape slot, but this latter course is not advised. Various sizes of tape spools will take various lengths of cable and I find this method very convenient as the amount of cable I use is insufficient to occupy one of the spools on which cable is supplied to retailers.

Orpington, Kent



## Pirates

In a recent issue of *ATR* you printed an article on the evils of infringing copyright on records and pre-recorded tapes. It would seem that your magazine is not received by a certain 'pirate' in

W— who recently inserted an advertisement in a weekly advertising paper offering a complete set of recordings by a well known group of artists which the 'pirate' had copied from his collection of discs. According to the price asked for the copies – on tape – he would have netted at least £10 profit.

There may be a lot of us who are pirates in a small way but I doubt if any of us would be foolish enough to enter into open combat with the recording companies – using their own material!

Liverpool 17

T. O'Connor

## Postal Rates

I am rather puzzled by your editorial in the March issue of *ATR*. You appear to welcome the new *Phonopost*. At first reading I thought of the many pounds I would save but a second reading plus a little arithmetic left me disappointed.

I have been sending 5 inch tapes to a friend in Canada for years. These tapes when packed weigh nearly 8 ozs. By airmail 'parcel' post they cost 5s 6d. According to the figures you quoted they would cost 10s 8d (at 8d per ½ oz) or 9s 4d (at 7d per ½ oz) by *Phonopost*. So obviously I ask – why the jubilation?

Overton, Hants

M. W. Denny

The charges quoted in our March issue are quite correct but we advise *tapendents* to secure a copy of the special supplement to the 1965 *Post Office Guide* which was issued on the 1st February, 1966. Apply to the local Postmaster.

## Club speakers

... I should like to say a few words about tape recording clubs. My views on this matter may be entirely wrong because I am not a member of a club and my only real contact has been from lecturing to several clubs, and recently a pleasant evening as a visitor to Windsor Club when staying in that area.

From the reports I have read of club activities it does seem to me that more use could be made of amateurs who are willing to visit clubs to speak to them and perhaps demonstrate certain aspects in which they are particularly experienced.

The majority of speakers appear to be drawn from manufacturers and representatives who undoubtedly will tend to talk about their own equipment. This is only to be expected and it is without being disrespectful to these people, for I know they give a great service to clubs, that I suggest that ideas – irrespective of equipment – can be spread better by amateurs. For this to be effective speakers must be prepared to move around the clubs.

I have seen this system working among photographic societies who have an excellent speaker's panel from which secretaries are able to build up a programme of regular – often weekly – meetings offering speakers on a wide variety of subjects.

I feel that tape clubs would do well to follow a similar line for they should now be strong enough to build up a speaker's panel. On such a panel I imagine one would expect to find perhaps three types of speaker:

- the representatives sponsored by a manufacturer who would visit at no cost to the club;
- the professional who, if not sponsored, may require a fee;
- the amateur who would naturally expect to have his travelling and out-of-pocket expenses covered.

I wonder if the federation has given consideration to the possibility of preparing such a panel for circulation to clubs or for publication in periodicals. I have had much pleasure in speaking to several clubs, one involving a round trip of 80 miles in an evening, and am prepared to do more of this work, within certain limits, if there is a call for it.

Atherstone, Warks

Richard Margoschis

Would Mr O'Connor and Mr Denny please write to confirm the addresses to which we should send their pre-recorded music tapes.

## ALMOST ANY PROJECTOR CAN BE SYNCHRONISED

All you need is the Synchrondek and a tape recorder. Then you can have perfectly synchronised, high quality sound with your films. Full details and FREE literature from

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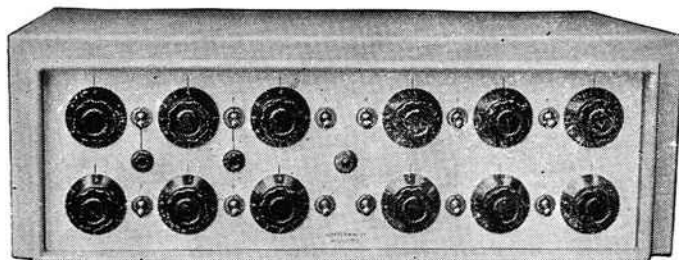


# **—Vortexion**

## **quality equipment**

### **12-WAY ELECTRONIC MIXER**

The 12-way electronic mixer has facilities for mixing 12 balanced line microphones. Each of the 12 lines has its own potted mumetal shielded microphone transformer and input valve, each control is hermetically sealed. Muting switches are normally fitted on each channel and the unit is fed from its own mumetal shielded mains transformer and metal rectifier.



### **FOUR-WAY ELECTRONIC MIXER**

This unit provides for 4 independent channels electronically mixed without "spurious break through" microphony hum and background noise have been reduced to a minimum by careful selection of components. The standard 15-50 ohm shielded transformers on each input are arranged for balanced line, and have screened primaries to prevent H.F. transfer when used on long lines.

The standard 5 valve unit only consumes 18.5 watts. H.T. is provided by a selenium rectifier fed by low loss, low field, transformer in screening box. The ventilated case gives negligible temperature rise with this low consumption assuring continuance of low noise figures.

20,000 ohms is the standard output impedance, but the noise pick-up on the output lines is equivalent to approximately 2,000 ohms due to the large amount of negative feedback used.

For any output impedance between 20,000 ohms and infinity half a volt output is available. Special models can be supplied for 600 ohms at equivalent voltage by an additional transformer or 1 milliwatt 600 ohms by additional transformer and valve.

The white engraved front panel permits of temporary pencil notes being made, and these may be easily erased when required. The standard input is balanced line by means of 2 point jack sockets at the front, but alternative 3 point connectors may be obtained to order at the rear.

Mixer for 200-250 V AC Mains .. .. .	£40 8 6
Extra for 600 ohm output model .. .. .	£1 18 6
Extra for 600 ohm 1 milliwatt output .. .. .	£3 0 6
Size 18½ in. wide × 11½ in. front to back (excluding plugs) × 6½ in. high.	
Weight 22 lb.	

### **THREE-WAY MIXER and peak programme meter, for recording and large sound installations, etc.**

This is similar in dimension to the 4-Way Mixer, but has an output meter indicating transient peaks by means of a valve voltmeter with a 1 second time constant in its grid circuit.

The meter is calibrated in dBs. zero dB being 1 milliwatt-600 ohm (0.775V) and markings are provided for + 10 dB and - 26 dB. A switch is provided for checking the calibration. A valve is used for stabilising the gain of this unit. The output is 1 milliwatt on 600 ohms for zero level up to + 12 dB maximum. An internal switch connects the output for balance unbalance, or float. This output is given for an input of 40 microvolts on 15 ohm.

An additional input marked "Ext. Mxr." will accept the output of the 4-Way Mixer converting the unit into a 7-Way controlled unit. This input will also accept the output of a crystal pick-up, but no control of volume is available.

The standard input is balanced line by means of 3 point jack sockets at rear, but alternative 2 point connectors may be obtained to order at the front or rear as desired.

The 8 valves and selenium rectifier draw a total of 25 watts.

P.P.M. for 200-250V AC Mains .. . . .	Price on application.
Size 18½ in. wide × 11½ in. front to back (excluding plugs) × 6½ in. high.	
Weight 23 lb.	
10/15 watt Amplifier with built-in mixers.	
30/50 watt Amplifier with built-in mixers.	
2 × 5-way stereo mixers with outputs for echo chambers, etc.	

*Full details and prices on request.*

**VORTEXION LTD, 257-263 The Broadway, Wimbledon, S.W.19**

Telephone: LIBerty 2814 and 6242-3-4

Telegrams: "Vortexion London S.W.19"

Audio Festival and Fair, Hotel Russell, Demonstration Room 348

# TAPE REVIEWS

by Russ Allen

## An all-stereo review of music from a bawdy house to the United States Coastguards

**Honky Tonk Piano.** Sounds from a Bordello in hi-fi. Hiftape R802. 4 track 3 $\frac{3}{4}$  ips.

Don't let the title fool you, they emanate quite innocuously, but amusingly from a Nelson Wiggins mechanical music maker, which includes simulated piano (true to life), mandolin, xylophone and (ugh) bells.

Quite a lot of the early jazz musicians rose to fame (or was it 'ill-fame'?) in the bawdy houses of the USA. Perhaps their human frailty led to the madams going in for mechanical music. This particular job, we are told in the sleeve notes, was a box-like affair with glass doors and was actuated by a perforated roll passing over a vacuum tracker bar which in turn worked the notes.

The tunes are mostly familiar old pops, *If you were the only girl, It had to be you, Sonny Boy, Please*, etc. Recording is good and the musical arrangement quite interesting. Style is appropriate to the early 1900's up to about 1920, in what might be called good class 'pub' standard. Most interesting.

**The Exotic sounds of Arthur Lyman at the Crescendo.** Music Tapes Inc., MGN 605. 3 $\frac{3}{4}$  ips. Four Hawaiian musicians who manage to make themselves sound like twice as many, each man being a multi-instrumentalist.

They have got away from the stereotyped (no pun intended) glissing guitars usually associated with Hawaii and play instead a very exciting and highly musicianly blend of exotica that delighted this nasty old critic's ear. I still haven't worked out how they manage to get so many instruments going at once, particularly percussive ones, while at the same time having bags of melody. Their musical approach is modern and they get quite a swinging beat again.

Climax of track two is a delightful arrangement of *Slaughter on Tenth Avenue* that really demonstrates their instrumental dexterity and togetherness. A tape for worthwhile serious listening.

Reaches a crescendo in exotic light entertainment!

**The Art of the Accordion** played by Mogens Ellegaard. Recotape 201. 4 Track 3 $\frac{3}{4}$  ips.

Certainly not one of my favourite instruments. I well remember it's heyday, some twenty years ago when every village seemed to boast an accordion band – a dozen squeeze boxers, all playing as near as possible the melody, with a drummer struggling to keep them all on the beat. It was hell in there! Now of course, like so many things, the accordion has grown up and in most cases is played through a complex amplifier with echo chamber, vibrato and lawdy knows what.

Mr. Ellegaard who was champion soloist of Denmark in 1950, eschews anything other than the naked, standard squeeze box and he plays it straight.

His technique is quite frightening as he uses all ten fingers and fumbs to produce the maximum tonal effect.

Items like *Finlandia* are tackled with great intensity and I have to admire his pluck though not his interpretation which tends to the sacrilegious.

Students of the accordion will doubtless get a kick from this and will probably trade their present instrument in for an electric organ.

Recording is very accurate and you can almost hear the sweat dripping from his brow on track one but on track two the quality fell off a little, which sounded like a dodgy master.

**Liszt Hungarian Rhapsodie No.2: Brahms 6 Hungarian Dances.** Music Tapes 4 Track Stereo 3 $\frac{3}{4}$  ips.

From a 35 mm recording. *Austrian Symphony Orchestra.* Conducted by H. Hagen (?). The perpetrators of this sound highly bogus to me, but they do treat Liszt and Brahms with the respect they deserve. In fact they attack the music with great gusto and fairly gallop through the Hungarian Rhapsody like a veritable cavalry charge. I'm not complaining I'm complimenting. The recording level was very high and twice I had to turn the volume down to avoid being beaten against the wall. Quality was not so good, having a dirty sound. Pity.

**More George Wright. The Mighty Wurlitzer Pipe Organ.** Hi-fi Tape. Stereo Album No.707. 4 Track 3 $\frac{3}{4}$  ips.

Frankly, I detest the Mighty Wurlitzer and have said so in this column on several occasions, but I felt I must suffer a little and so sat quietly and listened right through both tracks.

George Wright, it suggests in the sleeve notes, is a genius. Not sufficiently though to make me like the Wurlitzer sound, but I do have to admit that he does his best.

His arrangements and command of the instrument are prodigious and he has a far greater talent for the instrument than the majority of our home grown organists who approach popular music with all the ignorance at their disposal.

His delightful lack of corn when playing dance tunes underlines exactly what I mean. He knows what he's doing and to use a contemporary phrase, *he's with it*.

The stereo effect is quite considerable and I half expected to see my tape recorder rising like an organ console and falling out of sight again at the end of the performance. Luckily it did not.

Sleeve notes give a description of the organ and the recording, but there was less than 850 feet of tape.

For 'Mighty Wurlitzer' lovers.

**Sing along with the Idlers of the Coast Guard Academy Cadets.** Pickwick 4 Track Stereo. P4T-427. 7 $\frac{1}{2}$  ips.

If you like male voice choirs singing popular songs, then you should enjoy this very much indeed.

*The Idlers* are sixteen men on a four year course at the Coast Guard Academy, New London, Connecticut and are under the direction of Bandmaster Donald L. Janse, US CG. The group broadcasts regularly and appears on television and in 1959 even performed before Congress. I trust that Congress was as impressed as I.

Arrangements are tastefully modern and cover such items as *Catch a Falling Star, Scarlet Ribbons to Blow the Man Down*. Musical backing is subdued and right and, in Pickwickian tradition, recording is first class and stereo very good.

Quite delightful!

**Britten. Four Sea Interludes Op 33a** from Peter Grimes.

**The Young Persons' Guide to the Orchestra.**

*The Philharmonia Orchestra* conducted by Carlo Maria Giulini.

*Angel 4 Track Stereo 7 $\frac{1}{2}$  ips. £3 15s 0d.*

Again we have good recording quality. A well-conducted, splendidly performed and interesting work from one of our better known composers. The variations on a theme of Purcell (*The Young Persons' Guide*, etc.) is an intriguing work and one I always enjoy if only to hear the excellent writing for double basses (*Cominciando lento ma poco a poco accelerando al Allegro*, 2/4).

Intended as a guide to the use of orchestral instruments, it is of course useless to the uninitiated unless they can be told what's what as it goes along. The sleeve notes tell you most explicitly all you should need to guide your tiny lug holes, but I wonder if perhaps it might have been improved upon had it been given a Peter Pears narration, 'and now the two bassoons, etc.'. Well, maybe that is a bit basic but then for the kiddies one does sometimes have to be. Nevertheless, some of our readers may well find the track a help in learning to appreciate still further the sounds which emanate from their recorders.

The *Sea Interludes* include some highly colourful and exciting descriptive music. The storm particularly can run shivers up and down your spine. Britten is a brilliant writer and naturally this track will be preferred by most people.

**The Twin String Orchestra play 'George Gershwin'.** Conducted by Warren Edward Vincent. Pickwick P4T-403. £2 5s 0d.

Another splendid Pickwick tape. Great stereo, tip-top recording of a large (61-piece), all-string ensemble playing some of those gorgeous Gershwin themes, *Love Walked In, Foggy Day, They Can't Take That Away* and some of those sturdy bright jobs like *Liza* and *I've Got Rhythm*.

As seems to be standard practice with this company, the sleeve notes are copious and interesting and include a run-down on the recording technique.

Stringy but pleasing and my only crit' is of the lousy half-tone illustration on the case.

I have received various comments on my article about pre-recorded tapes (March ATR) and I hope to be able to say more about your letters in the next issue. So until then, good listening.

# TEMPOTAPE

**SUPERB PROFESSIONALLY RECORDED MUSIC—PLUS 600 ft OF EXTRA TAPE FOR YOUR OWN HOME RECORDINGS ALL FOR 21/- (3 $\frac{3}{4}$  I.P.S.  $\frac{1}{2}$  track) MONO**



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1 EROTIC PERCUSSION. 2 BIG BAND BLAST. 4 TCHAIKOVSKY'S PIANO CONCERTO. 5 THE KING AND I. 6 CAMELOT. 7 FEATURING BILLY DANIELS. 8 HAPPY HARMONICA. 9 SOUTH PACIFIC. 10 ANDRE PREVIN. 11 GREAT THEMES FROM GREAT MOVIES. 12 BIG BAND SWINGS THE CLASSICS. 13 TRIBUTE TO DUKE ELLINGTON. 14 FLAMENCO. 15 UNDER PARIS SKIES. 16 ROMEO AND JULIET OVERTURE. 17 ORGAN POP CLASSICS JOHN KILEY. 18 TCHAIKOVSKY'S 1812 OVERTURE. 19 L'AMORE D'ITALIA. 20 OKLAHOMA. 21 FAMOUS OVERTURES. 22 MUSIC FROM IRVING BERLIN. 23 MUSIC FOR LOVERS. 24 THE GOLD RECORD. 25 SOUND OF MUSIC. 26 TRIBUTE TO WOODY HERMAN.

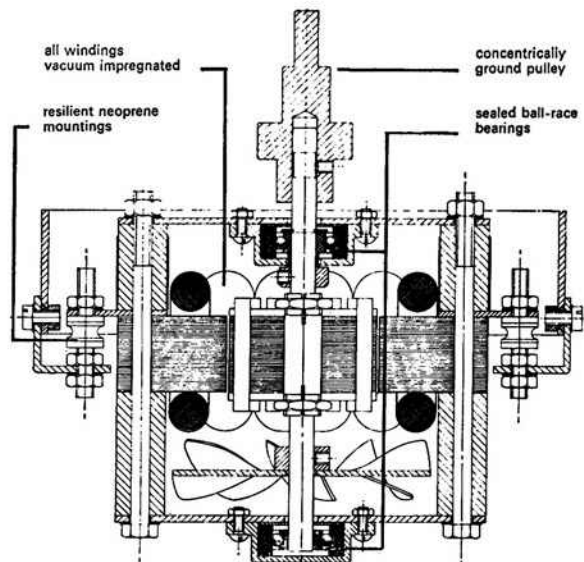
## STOP PRESS — LATEST ADDITIONS

27 An Evening with Tony Laurence, Tony Laurence and His Music. 29 My Fair Lady, Hollywood Radio City Orchestra and Singers. 30 Porgy and Bess, Hollywood Radio City Orchestra and Singers. 32 Tony Laurence Goes Latin American, Tony Laurence and His Music. 33 West Side Story, Marie Goossens (Harp and Instrumental). 34 Five of Harts, Gerry Hart (Multitrack Guitar Recording).

All are specially selected for your enjoyment and equivalent in playing time to both sides of an L.P. record.

In addition to providing you with a pre-recorded tape of superlative quality, TEMPOTAPE provide a bonus of 600 feet of blank tape, and all you do is turn over the reel and make your own recordings on the bottom track. You can later erase the top pre-recorded track making a further 600 ft. available for your own use and at 21/- you can afford to do this.

Ask your dealer for details or write to: Dept. Y.4, Tempotape Division, A. C. Farnell Limited, 81, Kirkstall Road, Leeds 3. Phone: 35111.



## THIS IS A CAPSTAN MOTOR. ONE REASON WHY A FERROGRAPH TAPE RECORDER COSTS 95 GNS

Every Ferrograph tape recorder is fitted with three independent motors each designed for its specific task and built by Ferrograph to give enduring reliability over a long, long period of time. The Capstan Motor is synchronous, mounted on resilient neoprene pillars for lowest mechanical noise and is fitted with ball-race bearings to ensure a maintenance-free life and assist speed accuracy. Its design minimises hum fields. This motor is just one reason why Ferrograph tape recorders are incomparable. Other reasons include:

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If you are satisfied only with the best, and want an instrument that records faithfully and gives you an unequalled quality reproduction, there's no substitute for the Ferrograph. For further details, fill in the coupon and you will receive an illustrated leaflet. Or, if you prefer, we will send you the comprehensive 64-page Ferrograph Manual—at the price of £1 refundable when you buy your Ferrograph.

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AT2

# Ferrograph

THE INCOMPARABLE TAPE RECORDER



# SOUND SCENE

## Pre-recorded Tapes

Among the 27 pre-recorded tape labels now being handled by Transatlantic Music Tapes (Distributors) Ltd are 36 numbers from the famous DGG list being manufactured now in the USA by Ampex. The entire range is available in 4-track stereo  $7\frac{1}{2}$  ips, many in 4-track  $3\frac{3}{4}$  ips and a goodly number in mono  $3\frac{3}{4}$  ips.

The list includes background music tapes from American Airlines, Continental Air and includes A & M, Archive, Astex, Atco, Atlantic, Audio Fidelity, Coliseum, Col-Pix, Fantasy, Fontana, Four Corners, Hi, Limelight, L'Oiseau Lyre, London, Mercury, Parrot, Philips, Richmond, Vanguard, Warner Bros, World Pacific, Pickwick, Musicor, Music Tapes, Mahale, Monitor, Starday, GNP Crescendo, Recotape and Vee-Jay recordings.

## 3M Breakthrough

3M has released a revolutionary new magnetic tape called *Dynarange*. This is *Scotch* magnetic tape, specially made at an economical price for the many hi-fi connoisseurs and is a 'low-noise' tape developed after extensive research. The coating is a new 'low noise' oxide, which reduces background noise to a minimum and provides a signal to noise ratio of three to five decibels better than conventional tape – with about two decibels more headroom – resulting in an increase in dynamic range. It also ensures an improved frequency response, particularly in the critical high frequency range. *Dynarange* has all the advantages of *Superlife* coating and reduces recording head wear. *Scotch Dynarange* is supplied in standard play (Type 202) in three reel sizes – 5,  $5\frac{1}{2}$  and 7 in – and in long play (Type 203) in four reel sizes – 5,  $5\frac{1}{2}$ , 7 and  $8\frac{1}{2}$  in. Prices range from 24s to 83s 6d a reel, which is only a small increase over the cost of standard tapes.

## The Electronic Mood

A programme of electronic music was recently broadcast over New Zealand radio station 2YC. This is what one of the listeners thought about it: 'What a lot of unmitigated rubbish you jokers foisted on us over 2YC last Wednesday night . . . Well it was electronic – but it wasn't no music, mate, and I don't give a damn what anyone says. Anyone who reckons he enjoys such stuff is either a bloody liar or a case for the nuthouse.' The letter goes on: ' . . . so I settled back, closed my eyes – you know what flitted through my mind's eye? . . . a 1908 Ford cranking up on a winter's morning – a hippopotamus with bronchitis – the mating call of a constipated yak – two skeletons dancing a tango on a tin roof – a frustrated cash register – a set of bagpipes with indigestion – a toothless saw trying to cut through concrete – false teeth chattering in stereo – a guy eating celery in an echo chamber and the rumblings of a volcano that can't quite make it!'

If the writer of the letter happens also to be an *ATR* reader there's a free 7 in spool of tape waiting here for him. For recording, well, music anyway.

## Anechoic Chambers and Reverberation

We have often mentioned anechoic chambers, which are acoustically dead rooms normally used for testing the frequency and polar responses of loudspeakers and microphones. The wedged-shaped projections which can be seen in the photo (Fig 2) are made of sound-absorbing material. To be inside one is quite uncanny for there is not the slightest trace of reverberation. In order to produce a special dead effect to a voice an anechoic chamber was used for recording Annette de la Bije for her part in an opera backed with electronic music. The opera was composed and produced by Henk Badings.

Sometimes, however, the opposite effect may be required, ie, a controlled degree of reverberation. In this case a tape loop device like that shown in Fig 1 is used. This tape reverberation unit was designed by Philips for use in theatres and churches where natural reverberation can render speech unintelligible to everyone except those nearest to the speaker. The unit is used in such a way that the electronically produced reverberation cancels the natural reverberation. It is also used to introduce reverberation to any given degree to music, etc, recorded in an otherwise acoustically dead environment.

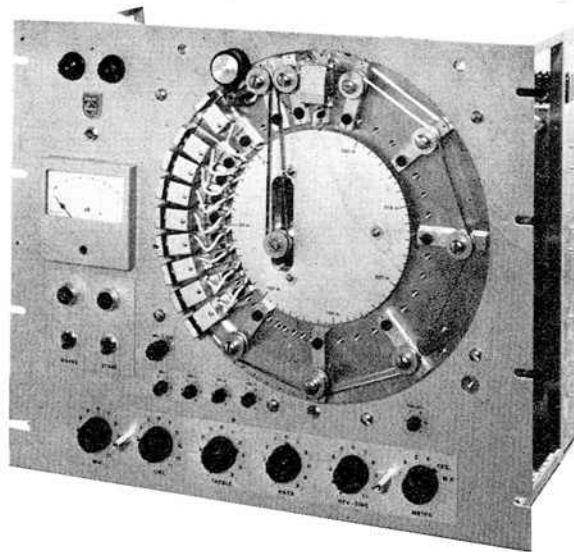


Fig.1. A special tape loop reverberation unit for theatres and churches, etc.



Fig.2. Recording in an anechoic chamber for special effect in an opera of electronic music (see text).

## Audio demonstrations

There will be several demonstrations of tape recorders and hi-fi equipment in London at the same time as the 1966 Audio Fair. These details were available at the time of going to press:

### Mastertape (Magnetic) Ltd

Tape demonstrations.

Morton Hall (next door to Hotel Russell), Woburn Place, London WC1. 14–17 April.

### Bosch Ltd

Uher tape recorders.

205 Great Portland Street, London W1 (LAN 2672). 14 and 15 April.

### Sony UK Sales Division

All the Sony tape recorders.

70–71 Welbeck Street, London W1.

14–16 April (14 April for trade visitors only).

### Daystrom Ltd

Complete Heathkit range.

Grand Hotel, Southampton Row, London WC1. 14–17 April.

### United States Trade Center

The latest American hi-fi equipment.

57 St James's Street, London SW1.

14–22 April (14 and 15 April for trade visitors only; closed Sunday, 17 April).

### Bang & Olufsen UK Sales Division

All B & O tape recorders and hi-fi equipment.

70–71 Welbeck Street, London W1.

14–16 April (14 April for trade visitors only).



## Poor little rich boy!

When you've got a name like Akai you've got a problem. Everyone knows your family. The big expensive stereos. Then you come along. All the family attributes. Superb engineering. Fantastic sound reproduction. Except for two things. You're Mono. And you don't carry the big price tag the others do. That's the problem. How to persuade people (a) that you're a blue blooded number one Akai and (b) that price is no judge of quality.

Tell them this. Tell them you've the same deck as the Stereos. 4 track or 2 track; 2 speeds -  $7\frac{1}{2}$  i.p.s. and  $3\frac{3}{4}$  i.p.s. Response 40-12000 - 2 db. at  $7\frac{1}{2}$  i.p.s. Built-in speaker or monitor headphone. 3.2 watts output. P.A. system amplifier isolated from deck; can be used separately or together. Mixing facilities provided; VU meter; 3 digit counter; Pause control. Tell them that, then invite them to their dealers to hear how you

sound. That'll convince them. And then tell them the price. An Akai for only 62 gns. The way you say it it'll sound like you're doing them a favour!

## The Akai 910 Mono

**PULLIN**  
PHOTOGRAPHIC  
(A Company within The Rank Organisation)

# AUDIOVIEW NEW PRODUCTS

**Seven new tape recorders this month – from Ultra, Telefunken, Standard, Robuk and Grundig – and an ultra slim loudspeaker from Rogers**

## New Standard Tape Recorders

Two new portable tape recorders are being added to the standard range of transistor radios, record players and tape recorders from Japan which are being imported by Denham & Morley Ltd. One of these is the Standard SR-200 – a miniature recorder, small enough to be carried in a pocket, yet with features hitherto only found in instruments many times larger in size and price. Its specification is as follows – automatic recording level control, with indicator lamp – 300 mW output – two tracks – dynamic microphone with remote switch – tape speed  $1\frac{7}{8}$  ips – spool size 2 in – de-luxe leather carrying case supplied – retail price 18 guineas complete with leather case, demonstration tape and microphone as shown in Fig.1.



Fig.1.

The Standard SR250 shown in Fig.2 is a very powerful portable tape recorder with a built-in mains unit, two speeds and high fidelity performance. It is also outstanding value in its price range. It has two speeds,  $3\frac{3}{4}$  and  $1\frac{7}{8}$  ips – 1.5 watts output – recording level/battery meter – two tracks – up to 1 hour playing time per  $2\frac{1}{2}$  in spool – dynamic microphone with remote switch – power supply ac mains or five U2 batteries, etc. The retail price is 28 guineas supplied complete with demonstration tape, carrying handle, remote control microphone in leather case and ac mains lead.



Fig.2.

## Rogers Wafer Speaker System (Fig.3)

The new Rogers wafer ultra-slim speaker system represents a breakthrough in speaker design. Measuring only  $2\frac{1}{2}$  in back to front, this ingenious design sets a new standard of performance for ultra-compact speakers. Ideal as the main speaker in a mono or stereo system where space is at an absolute premium, the enclosure lends itself particularly to wall mounting, where it occupies no more space than a small picture. It is equally suitable for placing on a window ledge, room divider or bookshelf. The Rogers Wafer speaker employs two units, one covering bass and mid-range, the other covering treble. Power rating is 12 watts (music power) at 15 ohms and the frequency response is 40–16,000 c/s. It should make an ideal extra to a tape recorder, price £14 10s 0d, plus £2 9s 6d purchase tax. More details from Rogers Developments Ltd, 4/14 Barmeston Road, Catford, London SE6.

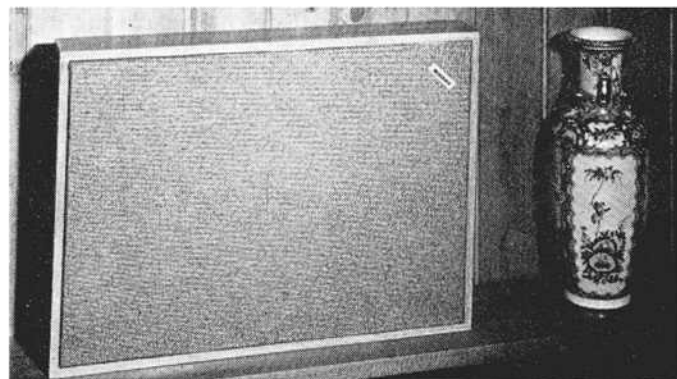


Fig.3.

## Grundig EN 3

Grundig announce that they now supply a carrying case with the EN 3 electronic notebook recorder, but which can be purchased separately at 19s 6d for existing EN 3 recorders.

## More from Grundig

The new Grundig C100 portable should be of interest to the outdoor recording enthusiasts. It is shown in Fig.4 and is a battery-operated cassette-loading tape recorder using the new dc International System. It is a twin-track single-speed recorder finished in charcoal grey and silver leather-grained, shatter-proof Novodur. It measures  $11\frac{1}{2}$  in  $\times$   $7\frac{1}{2}$  in  $\times$   $3\frac{3}{4}$  in and weighs  $7\frac{1}{2}$  lb approx. It has simple piano key controls and a battery voltage/recording level meter. Mains operation is possible by replacing the battery compartment with a mains power pack. The C100 uses dc motor electronically controlled and stabilized and which uses no brushes or commutator, resulting in excellent reliability and freedom from noise. Compensating flywheels are fitted to allow operation whilst being carried. The C100 is supplied complete with high-performance moving coil microphone, connecting lead and cassette of tape. Recording sense is half track – tape speed 2 ips – frequency range 40–10,000 c/s – signal to noise ratio better than 45 dB – output power 2 W. Further details from Grundig (GB) Ltd, Newlands Park, Sydenham, London SE26.



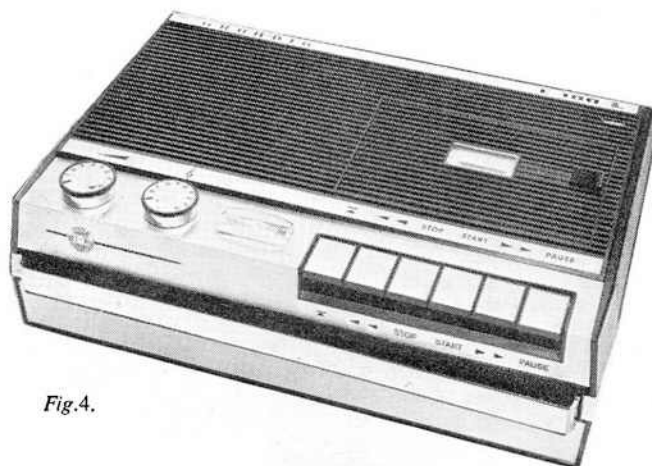


Fig. 4.

#### New Ultra Four-track

This is the model 6206, the largest tape recorder yet introduced by Ultra. It is a four-track three-speed machine able to take reels up to 7 in diameter and is priced at 44 guineas. Features include remote stop/start/pause control from the microphone, latching pause key, automatic tape stop, tape inching either way, double recording/replay and facilities for straight-through amplification. The cabinet is attractively finished in black leather cloth with a matt silver control panel.

#### New Tape Recorder by Robuk

Under the brand name 'Regal', the RK 5 (twin-track) and the RK 54 (four-track) set a new standard in the medium-price range; the units are priced respectively at 42 guineas and 45 guineas. A successful effort has been made to present a machine which is at once both attractive to the non-technical yet possessed of the 'professional' styling demanded by the serious tape amateur. The cabinet is large enough to take advantage of the full-sized 8 in elliptical speaker used and at the same time give the unit pleasing proportions showing off the very high

quality finish of the instrument. As might be expected from the push-pull amplifier, sound quality is quite exceptional and every possible variation of usage is catered for in the facilities offered.

#### A New Full Stereo Recorder from Telefunken (Fig. 5)

Shown for the first time at this year's Audio Festival the Magnetophon 204E is a four-track stereo recorder housed in a handsome wooden case in walnut, with satin-finish metal top deck. It is the first Telefunken mains model to permit vertical operation as well as the usual horizontal position. The stereo power amplifiers and loudspeakers are incorporated in the main cabinet, which gives a very compact layout, and the unusually high output of watts per channel gives excellent stereophonic reproduction on playback. The machine is fully transistorized and separate level controls and VU meters are provided for each channel. The price of 109 guineas includes a reel of tape, a microphone, audio lead and empty reel. Special features are - multiple sound on sound - sound with sound - two input selector switches - illuminated meters - record interlock - electrical tape end stop.

Fig. 5.



## THE RECORDER CO.

*for best machines on advantageous terms*

	Deposit	12 Monthly Payments	Cash Price
	£ s. d.	£ s. d.	Gns.
<b>4-TRACK STEREO/MONO</b>			
Sony TC200	18 18 0	4 14 6	72
Philips EL3534	24 3 0	6 0 9	92
Tandberg 74	24 8 3	6 2 1	93
Sony TC500	27 11 3	6 17 10	105
Grundig TK46	28 1 9	7 0 6	107
Beocord 2000TM	31 4 9	7 16 3	119
Beocord 2000SC	32 5 9	8 1 6	123
Akai M8	38 6 6	9 11 8	146

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Ferguson 3214	11 11 0	2 17 9	44
Grundig TK400	12 6 9	3 1 9	47
Grundig TK23L	12 17 3	3 4 4	49
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# tape club news

## Brighton

Membership of the Brighton Tape Recording Club has now increased to thirteen, which secretary Keith Upton hopes will not be an unlucky number. A number of members and guests welcomed Mr Ken Smith and Mr Freeman of Truvox Ltd, who demonstrated the current Truvox models and answered questions. During the demonstrations one recorder was turned completely upside down during operation, with no obvious ill effects on the sound or the recorder.

Future demonstrations of this sort have been planned for the club programme, the first being a Grundig night.

Member Eric Savage has again been entertaining fellow members with his 8mm and sound shows. Two films, one of a tour of Austria and another of Italy, were much admired. Ian Herwood, a newcomer to the club, has demonstrated his Truvox 40 (one not included in the earlier demonstration) and explained its operation and works. Members are still busy working on their entry for the 1966 BATR Contest. It is also hoped that a visit to the local police station (by strictly legal means) can be arranged so that members can glean some documentary recordings of the police at work.

## Coventry

The eleven entries to the annual tape competition of the Coventry Tape Recording Club were judged by a panel of members from the Coventry Film Production Unit. First prize and trophy went to Mrs F. Atkins, with Mr Cyril Stanley, the club secretary, taking second place and Mrs M. Woodier third. The judging session was followed by an excellent demonstration of tape editing and splicing by Messrs R. Reynolds, P. Warden and R. Smith. One of the most enjoyable club nights was the open meeting to which members' families and friends were invited in unlimited numbers. The main item on the evening's programme was a cine film show, 'Holiday in Spain', by Olive and Cyril Stanley. The film, which ran for 51 minutes, was preceded by a recorded talk on the Costa Brava recorded by Mrs Stanley. One of the highlights of the film was a 12-minute sequence of bull-fighting, taken at the bullring at San Feliu, and much of the background for the film was recorded in Spain by Mr Stanley on a Grundig TK 6 portable. The evening was concluded by a tape of poetry and prose read by Mr Rupert Gillard, well known in Coventry for his recordings for the blind.

## Derby

Attendance at the meetings of the Derby Tape Recording Club has again been good, with over

thirty members attending. Members have been taken back into the past by Mr Bland, who played a tape about the Zeppelin air raid on Derby in the 1914-18 war, showing the reactions of the local people at the time. In fact, the reactions to the raid were by no means panicky, for as this was their first-ever air raid, the local people didn't realize the danger they were in! The reactions of tapespondents all over the world were included in a tape specially compiled by Mr D. Hill. Comments, on a variety of subjects, were often surprisingly blunt and frank, and many Derby members were amazed, as few of them tapespond. However, it is hoped that Mr Hill's tape will have converted some of them.

A demonstration of portables and an exercise in interviewing completed the programme.

## Doncaster

The past weeks have been very full ones for the members of the Doncaster and District Tape Club, for following the recent AGM an organized programme has been planned for the first time three months in advance. Officers elected at the AGM included C. K. Young as treasurer and secretary, Mr G. Allsop as assistant secretary, Mr E. Kibblewhite as chairman, Mr G. Swan as vice-chairman, Mr R. Broome as technical adviser and Mr R. W. Brackenbury as studio manager/press secretary.

One of the main items discussed at the AGM was that of finance, and, as a result, subscriptions were increased to 5s 0d per quarter plus YMCA subscription. Another method of raising cash was suggested, involving the charging of a hiring fee for the use of the recordings in the club library.

Demonstrating the practical advantages of a parabolic reflector is not the easiest of tasks when you are confined to a clubroom, but the technical adviser R. Broome managed it very well. Bird noises were produced by another member walking round the room with a tape being played on a Telefunken Magnetophon 300 battery-operated portable.

## Friern Barnet

Another club which held its AGM recently was the Friern Barnet TRC. Three new faces have been elected to the committee - S. Buszard is now chairman, and new secretary is Mr R. Longhurst, 72 Grosvenor Road, Barnet, Herts. The new team has got down to work quickly and is planning many programmes of interest as well as launching a new recruiting drive. The club continues to be busy offering practical and speedy servicing of Talking Book machines provided by the Nuffield Organization for blind people. Further books are being recorded for the use of the Talking Book Library by selected members of the club.

Tape enthusiasts in north and north-west parts of London are always welcome at club meetings and are invited to contact the club secretary.

## Furness Soundtrack Club

The Furness Soundtrack Club, which is now nine months old, continues to be very active with members meeting regularly every week in their own recording studio. Regular sound effects are still being made for the Barrow Repertory Theatre and record request programmes for six hospitals in the Furness area are now well under way. Notice boards, made by club member Brian Rayner, are placed at the hospital entrances giving a list of records available. Visiting relatives then take a slip from a pocket

on the board, write in the patient's name, their choice of record and a message. Each club member in turn then compiles a 45-minute programme and many letters from grateful patients have been received.

A weekly visit to the recently opened Ostley House for the Blind in Barrow is being made by each member in turn, and a 40-minute tape of short stories is played to the residents and staff.

## Great Yarmouth

Members of the Great Yarmouth and District TRS recently visited the Norwich Tape Recording Club to hear and see a demonstration by Fi-Cord. Besides tape recorders, a full range of Fi-Cord and Beyer microphones was shown, and highlight of the evening was a very humorous and entertaining talk by Bob Danvers-Walker (Bob is well known to readers of *ATR* for his tape and travel articles, as well as for his many radio and TV appearances.) He played extracts from sounds he had recorded during his travels around the world, explaining in exceptionally amusing language what had led up to the recording of the sounds. Following this a meeting was held at which a number of Philips educational films were shown.

## Harvey Grammar School Tape Club

Exams and half-term brought about a temporary halt in the activities of members of the Harvey Grammar School Tape Club, but events are now back in full swing again. At one recent session the professional tape 'Tapecraft' was played back, and members discussed the 1966 BATR Contest and distributed entry forms.

The boys have been in touch with members of the Singapore group who appealed for contact in this country through these columns some months back. Members are very enthusiastic, but experience both in tapecraft and the running of a tape club are, understandably, lacking. Help from any individual or club in these respects will be much appreciated. Organizer is Paul Markland, of 4 Crossways Close, Sands Estate, Dymchurch, Romney Marsh, Kent.

## Leicester

The older hands of the Leicester Tape Recording Club recently spent an evening mainly for the benefit of the newer members, listening to rewind highlights of its first seven years. Among these tapes were heard villagers of the older generation singing local folk songs that are fast dying out. At the time this was recorded the BBC Midland Region used part of the tape in a broadcast on village affairs. Other tapes were of old musical instruments including a polyphon, the bands at a charity cricket match and the bells of the carillon at Loughborough.

At another recent meeting members brought as many different types of recorder as possible and then each gave a ten-minute talk on its operation, and explained the advantages and disadvantages. This was a particularly interesting evening, as some of the recorders shown were models no longer in production.

## Merseyside Tape Recording Society

A new club serving the Liverpool area has now been formed and is going from strength to strength. The Merseyside Tape Recording Club came into existence as the result of two moves. The first was a letter sent by Ted Elcock to John Ashcroft who runs a tape recording column in *The Liverpool Daily Post*, asking for help in forming a local club. Less than a fortnight later *ATR* appeared on the local book-

*Continued on page 48*

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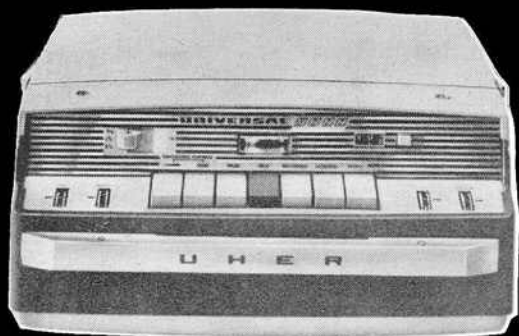
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## Tape Club News continued

stalls bearing a tape directory entry for one Sam Williams of Liverpool, who had added to his entry the fact that he was interested in forming a local tape club. The three got together for many tape and business meetings and a write-up in the *Liverpool Echo* brought in replies from local enthusiasts.

Matters have now been settled, a committee has been elected and a constitution drawn up. A church hall has been found in which members will be able to meet regularly on Friday evenings. Plans include a Round Robin tape to keep district members in contact, preserving some of the less famous Liverpool sounds, and the organizing of hospital programmes. It is also hoped that members will be able to have a crack at this year's BATR Contest.

The three principal officers of the club are, not unnaturally, the three founder members. John Ashcroft is chairman, Sam Williams is treasurer and Ted Elcock of 37 Rockbank Road, Stoneycroft, Liverpool, is the secretary.

### London

More members are still wanted at the London Tape Recording Club, and secretary David Campbell of 46 Aberdare Gardens, London NW6, would like to hear from any London area enthusiasts interested in joining.

At a recent meeting member Mike Avel brought along a film with taped sound track made by another organization to which he belongs – the Triumph Owners Club film and tape unit. The film was a very good and amusing one based on the James Bond epics.

The recent playback of the programme 'Air Space' was accompanied by photographs taken during the preparation of the programme by Bill Bennett.

### Montrose

Attendance at meetings of the Montrose and District Tape Club has been much improved recently, and a large gathering heard tapes from Radio Scotland and from the club's ex-chairman, Jack Gordon, now in South Africa.

Bill Paton, last year's winner of the Trefor Jones trophy, has undertaken the mammoth job of editing, equalizing and re-recording the many tapes left by the late Trefor Jones. These recordings vary from the very classical to folk music and there are about a hundred items awaiting classification. From these it is hoped that suitable master tapes can be made and from these at least a thousand records sold. The proceeds from the sale of these records are to be generously donated by Mrs Trefor Jones to a music charity.

Mr and Mrs Murray have been busy making local surveys from interviews recorded on their Philips cassette recorder. Verdict on certain local shops was very scathing, but the verdict on the recorder was 'ideal for the job'.

### Newcastle

An excellent demonstration of new equipment by local dealers Richley and Freeman was well received by members of the Newcastle and District TR Club. Particularly interesting was the radio microphone by Eagle. A signal generator and output meters were used to check the frequency response of various recorders, and once again the Philips cassette recorder showed up very well indeed.

An hilarious evening was spent when members recorded the six parts of a ten-minute tape sketch on various machines and then attempted to play them back in synchronism. The speed

variations between record and playback on some machines were amazing.

### Norwich

When the Norwich Tape Recording Society held its much-publicized sound and cine meeting, over thirty members and guests turned up, and two new members were enrolled. A taped talk on taping and recording was given to members of the local 'hard of hearing' club, and this enterprise was well reported by the local press. A local Baptist church which had a number of entertainment items in haphazard fashion on a tape enlisted the club's help in editing, dubbing and arranging the items into a decent programme. Club members have also been asked to record a local folk-singing contest. Although the club has now been established for over five years, this year has proved the most progressive yet, and it is hoped that the current committee will be re-elected at this month's AGM to keep things going at the same lively pace.

### Park

Eight members of the Park Tape Recording Club made their way over to Southall for an exchange of tapes and points of view. At their own meeting, Park members were invited to bring along their items of equipment, discuss the way they work and disclose any problems, so that all members could have the chance of learning about as many machines as possible. Arrangements for complete coverage of the boat race had been completed by chairman Doug Morris, who has also been encouraging members to enter the BATR Contest.

### Radio Scotland

Despite bad local weather conditions in recent months, attendance at meetings of the Radio Club of Scotland Tape Section meetings has never fallen below 60% of the total membership.

Peter Douglas has given members a most informative talk and demonstration called 'Echo when taping', in which he reproved the old adage of practice makes perfect.

At another meeting the 22 members present were divided in two groups – group one building a detective story around set sound effects, and group two splicing out clicks and bangs on a specially recorded tape. For the third year running a party of members will fly south to London for the Audio Fair. Although they are by no means a rich club, members save very hard for this annual trip.

### Reading

The Reading Cine and Tape Recording Society recently held their annual Grosvenor competition for the tape of the year. Chairman Doug Noyes' recorder certainly turned out to be his best friend – this being the message of his entry 'My Friend' which won him the cup. His approach was to produce a dialogue between two recorders – one with a recording of his own voice and pointing out the virtues of the tape medium, while the second machine was coupled up to this and was switched on automatically by a signal from the first recorder to illustrate each point as it was raised.

Runner-up was Derek Hold with his 'Fairground Memories', and in third place was James Helder, who, having interviewed local inhabitants on the subject of the local paper, substituted the question 'What do you think about sex?' which gave the answers a very amusing touch.

### Rugby

Other members of the Rugby Tape Recording Society transported two of the machines belonging to blind member Jack Willis when he demonstrated his methods of editing. Prior to this, Gordon Routh had read a short story on to tape, using his own Ferrograph recorder. He then proceeded to edit the recording by splicing and at the end of the meeting played back the results of his work so that members could see for themselves the difference good editing can make to a tape. Membership has again climbed to an all-time high of 66 and further signings are expected in the near future. A number of demonstrations have been booked and visits and talks from the local camera club and from Richard Margoschis are also on the agenda.

### South Devon

Recent meetings of the South Devon TR Club have been very varied. Don Aldous, club president, has discussed the testing of professional and amateur tape recording equipment. This was followed by a special joint meeting with the Torbay Natural History Society for the showing of three BBC natural history films – *The Major*, *Unarmed Hunters* and *The Unknown Forest*. Ladies' Night was, as usual, produced entirely by the womenfolk of the club and proved an interesting and entertaining evening. *The Manufacture of Magnetic Recording Tape* was the title of a film and talk by Mr Graham C. Balmain, quality control manager for Mastertape (Magnetic) Ltd.

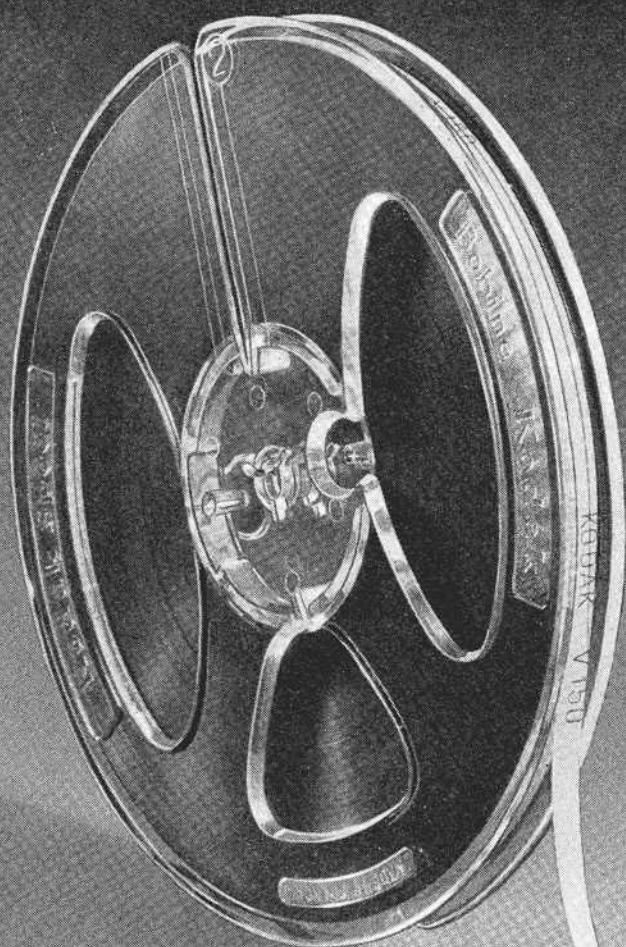
### Thornton Heath

The latest of the monthly tape contests run by the Thornton Heath TRC was won by a joint documentary by Christine Thompson and Barry Griggs about a visit to a dairy farm in Kent. Second place in this contest was again a tie this time between Morris Webb with a very good tape 'My Private Collection' and Nicholas Brown who managed to make a very musical excerpt from 'Swan Lake' using a signal generator.

The club, in conjunction with PJC Sound Recording, is going ahead with the formation of the nucleus of the South East Regional Association of the Federation of the BTRC, and invite all clubs in the south-east to contact them either at 4 Dunheved Road North, Thornton Heath, Surrey, or at 33 Fairlawnes, Maldon Road, Wallington, Surrey, so that an inaugural meeting may be arranged as soon as possible. A local film group has undertaken a film venture which includes a scene in a Croydon nightclub, and have asked the Thornton Heath members to take all the sound on this occasion. The machine being used is – wait for it – a Nagra with the neopilot head synchronized with the camera! —K.C.

## SPECIAL NOTE

Will Club Secretaries please note that copy intended for the July issue should arrive by 13 May, and for the August issue by 10 June.



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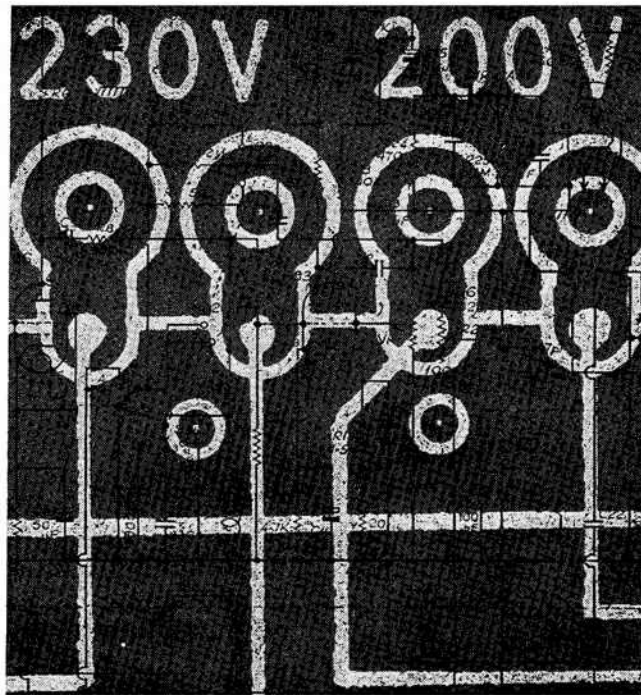
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## AUSTRALIA

Brian Harris, 16, school student, Box 154, Loxton, South Australia. All sports, philately, taping, guitar; modern. Philips EL3541, Sanyo MR322, 3 1/2 in, 7 in, 1 1/2, 3 1/2. Anywhere.

Caroline Davy, 21, stenographer, 80 Undercliffe Road, Harbord Beach, Sydney, NSW, Australia. Guitars, surfing, bushwalking, folk music; most kinds. Philips 4-track mono, Sony TC200 4-track stereo, 7 in, 3 1/2, 7 1/2. England, Scotland, USA.

Ronald Leech, 33, mechanical engineer, 1 Bushell Street, Carey Park, Bunbury, West Australia. Model-making, pistol shooting, amateur gunsmithing; popular, folk. National RQ303, 3 in, 1 1/2. Anywhere English speaking.

## CANADA

R. G. Jones, 35, lab technician, Apt 1013, 700 Ontario Street, Toronto 5, Ontario, Canada. Dialects (Cormish, Scots, Yorks, etc), FX, British scene, Canadiana; most music. Uher 4000, 5 in, 1 1/2, 3 1/2, 7 1/2. Anywhere.

## MALAWI

M. C. Desai, 31, Secretary/treasurer, PO Box 74, Limbe (Malawi), C. Africa. Providing sound effects to stage dramas; classical. National RS772, 7 in, 1 1/2, 3 1/2, 7 1/2. India, Pakistan.

## MAURITIUS

Sulaiman Ibrahim Patel, 20, teacher, 41 Gladstone Street, Rose-Hill, Mauritius. Sports, underwater exploration, theatre, sound, hiking, folklore; light. RQ-151 National, 5 in, 1 1/2, 3 1/2. Anywhere (English and French speaking). All tapes answered.

## SOUTH AFRICA

Hugh G. Clarke, 24, public relations, 82 Lancaster Avenue, Craighall Park, Johannesburg, South Africa. Very wide, humanities rather than mechanical, philosophy, current politics, travel; all music, especially guitar. Philips, 7 in, 3 1/2 or 7 1/2. Everywhere except South Africa and Rhodesia.

Victor Anthony Grispos, 16, scholar, 41 Jacaranda Street, Kempton Park, Transvaal, South Africa. Reading, radio and live plays, sport in general, location recording; pop music. Pilot, 5 1/2 in, 1 1/2, 3 1/2. UK, USA, anywhere English speaking; no letter required.

## USA

Wylie V. Dunn, 1034 James Shaw Road, Marietta, Georgia, USA. General interests, home life, nature study. Various recorders but only 2-track, 5, 3 1/2. All tapes answered.

Frank J. White, 31, chief salesman, c/o G. L. Cole, R-D. 1, Rte 518, Brookside, Hopewell, NJ, USA. Humorous people, general; folk music, national anthems. Grundig, Concord 440, 4-track, 7 in, 1 1/2, 3 1/2, 7 1/2. Norway, Scotland.

Duane Davidson, 44, factory supervisor, RR-12, Box-172, Lafayette, Indiana, 47905, USA. Many and varied; all except classical. Emerson SS-333, Graetz M50K, 7 in, 4 speeds. Any country.

## BRITISH FORCES

Sgt Dyke Ray, 42, RAF Regiment, No 1 Sqdn (LAA), RAAF Base, Butterworth, Penang, Malaysia. C & W service, natter, RAOB. Grundig 23L, Repts 10, Philips portable, 5 1/2 in, 1 1/2, 3 1/2. Anywhere. 22526048 S/Sgt Henry Whitehead, 30, HM Forces, 1 Staffords, Connaught Barracks, Dover, Kent. 35 mm photography, films, tape recording, travel, general; all except classical. TK 60 and TK 27, 7 in, 5 in, 3 1/2, 7 1/2. Norway, Sweden, Denmark, Germany (female preferred).

## BERKSHIRE

Neville John Forrest, 22, clerk, Flat 47, Hunters Hill, Burghfield Common, Nr Reading, Berks. Electronics, tape recording, photography; all except opera. Truvox PD86, 4-track, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere. William J. Hall, 18, commercial apprentice, The Hollies, Lower Broadmoor Road, Crowthorne, Berks. Motor racing, veteran cars, photography; pop, folk, c/w. Philips EL3548, 7 in, 1 1/2, 3 1/2. Anywhere.

## BUCKINGHAMSHIRE

John K. Green, 38, technical sales engineer, 16 Knight's Hill, High Wycombe, Bucks. Hi-fi music, photography, travel; all types. Simon SP5 (stereo) and Q-Cord, 7 in, 3 1/2, 7 1/2. UK only, female preferred; letters first please.

## CO DURHAM

Malcolm Wood, 21, joiner, 82 Bensham Road, Darlington, Co Durham. Singing folk songs, folk customs, camping, drinking; British folk music. Stella, 5 1/2 in, 1 1/2, 3 1/2. Anywhere English speaking; no need to write.

## CORNWALL

Philip Broad, 17, engineer apprentice, 25 Penpons Close, Alverton Estate, Penzance, Cornwall. Motorcycling, records; pop, organ music. Ferguson 3204, 5 1/2 in, 1 1/2, 3 1/2. USA, UK, Austria, Australia.

## ESSEX

Harry Prickett, 21, iron moulder, 15 Cleland Path, Loughton, Essex. Hi-fi, photography, general chat; folk, trad, pop, classical. Philips 4-track, mono, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere English speaking; no letters needed.

Michael A. Tidd, 21, publishing/advertising, 3 Graylands, Theydon Bois, Essex. Cricket, photography (slides); Glen Miller, most pop, some classical. Robuk RK4 2-track, 7 in, 1 1/2, 3 1/2, 7 1/2. New Zealand, Australia, S Africa, preferably rover scouts or scoutmasters.

John Hopes, 19, professional photographer, 5 Pemberton Avenue, Ingatestone, Essex. Macro-micro photography, tape recording; country and western, light opera. Brenell Mk 5, Series 3, 8 1/2 in, 1 1/2, 3 1/2, 7 1/2, 15. Anywhere English-speaking.

Alfred Tingey, 23, lorry driver, 3 Boleyn Gardens, Dagenham, Essex. Camping, tape recording, taping, motoring, hypnosis. Philips EL3536, 4-track (mono), 2-track (stereo), 1 1/2, 3 1/2, 7 1/2. Anybody anywhere.

## GLOUCESTERSHIRE

Michael Portman, 15, 27 Bruce Avenue, Greenbank, Bristol 5, Glos. Cycling, fishing, tape recording; pop. Stella ST459, 4-track, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere English speaking.

Edwin Kemmett, 26, electronics engineer, 29 Vauxhall Road, Gloucester. Motoring, touring, electronics, radio, 35mm photography; all but heavy opera. Sony 464CS, 4-track (mono/stereo), 7 in, 3 1/2, 7 1/2. Anywhere English-speaking.

## HAMPSHIRE

Vack Canty, 55, municipal employee, 1 Craigwell Road, Purbrook, Portsmouth, Hants. French language, people and their customs, music, painting, sculpture; classical, genuine folk, jazz. Philips EL3549, DG8108, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere, but especially France.

## KENT

Lil and Arthur Nevard, 50/51, compound worker/housewife, 4 Killick Road, Hoo, Nr Rochester, Kent. 35 mm photography, motoring, gardening, tape recording, fishing; light classical and pop. Fidelity twin track, 5 1/2 in, 3 1/2. Anywhere English speaking.

John Williams, 26, freelance photographer, 90 Cramptons Road, Sevenoaks, Kent. Hypnotism, travel, photography, ham radio; all except modern jazz and opera. Brenell Mk5, SR2, 8 1/2 in, 1 1/2, 3 1/2, 7 1/2, 15. Anywhere English speaking.

John Conry, 15, schoolboy, 210 Officers' Married Quarters, RAF West Malling, Maidstone, Kent. Taping, printing, photography; pop. Riviera (Sound), 5 1/2 in, 3 1/2. Anywhere English-speaking.

John MacDonald, 22, photographic salesman, 2 Bethel Road, Sevenoaks, Kent. Photography, badminton, hi-fi, films; pop, light classical. Simon SP5, 7 in, 3 1/2, 7 1/2. Male contacts anywhere.

## LANCASHIRE

Michael M. Cliff, 31, 21 Hastings Drive, Flixton, Urmston, Manchester, Lancs. 8 mm stripe sound, motor racing, karting, photography; light classical, pop, c/w. HMV, Stella battery portable, 5 1/2 in, 1 1/2, 3 1/2. UK.

Derrick Greene, 19, cinema projectionist, 57 Adelaide Street, Blackpool, Lancs. Tape recording, '22 shooting, girls and films; cha-cha, Latin-American, pop. Brenell Mk 5, Series 2, 8 1/2 in, 1 1/2, 3 1/2, 7 1/2, 15. Anywhere English-speaking.

## LEICESTERSHIRE

Alvin Jackson, 29, teacher/chemist, 28 Steyning Crescent, Glenfield, Leicester. Science, education, sport; general. B & O 1500, 2-track, 7 in, 1 1/2, 3 1/2, 7 1/2. Japan, Sweden, Latin America. (English or Spanish.)

Peter Leonard Brown, 32, builder's manager, 22 Factory Street, Shepsed, Leics. Music, 8mm cine, 35mm photography; all but pop and opera. Beocord 2000, 7 in, 1 1/2, 3 1/2, 7 1/2. USA, Canada.

## LINCOLNSHIRE

E.M.C. Rowe, 35, air traffic control officer, 3 Harris Road, Waddington, Lincs. Photography, still and cine, colour and monochrome, learning Russian and German, motoring; classical, jazz. Grundig TK35 and Grundig TK4, twin track, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere, especially Europe, New Zealand, Australia; no need to write.

Pete Rogers, 26, assistant air traffic controller, 4 Fury Avenue, Manby, Louth, Lincs. Recording, stereo, hi-fi, FM, electronic music, sound effects; all except heavy classical, opera. Tandberg 64, Tandberg 62, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere overseas. No letters needed.

## LONDON

Richard Arnold, 28, airline clerk, 24 Cawdor Crescent, Hanwell, London W1. Ten pin bowling, tape recording; C & W, folk, pop. Wyndor Viscount, 7 in, 3 1/2, 7 1/2, 15. USA, Canada, Australia, Europe, Great Britain.

Fred Harper, 54, bowling green keeper, 100 Selworthy Road, Catford, London SE6. Colour photography, tape recording in the open air; light, piano music. HMV mains, Philips battery, 5 1/2 in, 1 1/2, 3 1/2. Anywhere English speaking. Peter Maxwell, 15, apprentice joiner, 27 St Stephens Terrace, London SW8. Fishing, tape recording; pop, Irish folk. Ferguson 3210, 5 1/2 in, 3 1/2. Ireland or English speaking countries.

David McConnell, 29, fitter, 8 Nightingale Place, London SE18. Good laugh, sport, photography, travel; anything. Elizabethan Essex, 7 in, 3 1/2, 7 1/2, 15. Anywhere.

## NORFOLK

D. J. Button, 23, granary worker, 121 Brandon Road, Watton, Thetford, Norfolk. Dance band music, some pop. Ferrograph 3AN, National portable, 8 1/2 in, 1 1/2, 3 1/2, 7 1/2. Anywhere.

## NOTTINGHAMSHIRE

C. F. Beesley, 17, student, 1 Cyril Road, West Bridgford, Notts. Recording, swimming, books, photography; pop. Philips EL 3549, 4-track, 7 in, 1 1/2, 3 1/2. Anywhere English speaking.

Arthur Draper, 40, master joiner, 9 Clifton Street, Beeston, Notts. Tape recording, cricket, motoring, motor racing; folk songs, country and western, J. Reeves. Telefunken Magnetophon 85, 7 in, 3 1/2, 7 1/2. Anywhere English-speaking.

## SHROPSHIRE

A. M. Smith, 53, government employee, 4 Turrell Avenue, Donnington, Wellington, Shropshire. Development of German language by tape exchange. Grundig, 5 1/2 in, 3 1/2. German speaking.

Trevor Rathbone, 27, salesman, 138 Abbey Foregate, Shrewsbury, Shropshire. Amateur drama, reading, music, travel, records; all kinds. Civic (2- and 4-track), 7 in, 1 1/2, 3 1/2, 7 1/2. Male contacts only in Holland, Italy, France, USA, Great Britain.

## SURREY

Bernard Ashfold, 21, shop assistant, 11 Sixth Avenue, Brackendene, Addlestone, Surrey. Ballroom dancing, theatre, motoring; general. Cossor, 7 in, 1 1/2, 3 1/2. All. Stan and Ivy Young, 45/36, engineer/housewife, 8 King's Road, Egham, Surrey. Anything; trad jazz, swing, pop. Grundig TK 46, 7 in, 1 1/2, 3 1/2, 7 1/2. Anywhere.

## WARWICKSHIRE

David Chuck, 15, schoolboy, 43 Clifford Chambers, Nr Stratford-upon-Avon, Warks. SWL, amateur radio, electronics, tape recording; mainly pop. Philips EL3301, Philips cassettes. Anywhere English speaking.

Jeffrey Link, 19, BBC technical operator, 14 Lightwoods Hill, Smethwick, Birmingham 41, Warks. Tape recording, painting, electronic music; orchestra, pop, film. Ferrograph 3AN, 8 1/2 in, 3 1/2, 7 1/2. English speaking.

A. C. Cleeve Sulthorpe, 30, printer-designer, 82 Lichfield Road, Colehill, Nr Birmingham, Warks. Travel, camping, physique, gardening, 35 mm and 16 mm photography; any from swing to Schubert. Alba, Ferguson 3210, 3214, Elizabethan FT3, Grundig TK1, Ficord 202A, Truvox 40, 2 and 4-track, 3 in, 7 in, 1 1/2, 3 1/2. Male only in UK, USA, Canada, Europe; no need to write.

## SCOTLAND

C. MacPherson, 40, labourer, 62 Anderson Avenue, Hilton, Aberdeen, Scotland. SWL, radio, tape recording; all kinds. Grundig TK14, 5 1/2 in, 3 1/2. European.

Stuart McKeever, 15, scholar, 5 Foyers Terrace, Glasgow M1, Scotland. Chemistry, amateur rocketry, books; pop, R & B. Philips EL3548, 4-track, 7 in, 1 1/2, 3 1/2. UK, USA. Thomas Ralston, 29, life-boat mechanic, 8 Loch Nevis Terrace, Mallaig, Inverness-shire, Scotland. Tape recording, 8 mm cine films, sea fishing, music; light classical. Cossor CR1601, 7 in, 1 1/2, 3 1/2, 7 1/2. New Zealand and USA.

Thomas Toal, 23, civil servant, 31 Coathill Street, Coatbridge, Lanarkshire, Scotland. Football, church work; folk and pop. Challenge 4462, 7 in, 1 1/2, 3 1/2, 7 1/2. Ireland, USA.

## WALES

Tudor John Butler, 21, general labourer, 21 Crown Terrace, Ynyswen, Rhondda, South Wales. Tape recording, speleological expeditions, photography; classical. Fidelity TR7, 7 in, 1 1/2, 3 1/2, 7 1/2. Spain, Australia.

Ralph Down, 15, schoolboy, 20 The Crescent, Machen, Monmouthshire, South Wales. Electronics, music hi-fi, electronic organ; pop, classical. Grundig TK20, Truvox, 7 in, 3 1/2, 7 1/2. Any English-speaking country abroad, girls preferably.

Terrance Shirley, 35, process worker, 9 Holly Lodge Green, Croesyceiliog, Cwmbran, Monmouthshire, S Wales. Speedway, badges and programmes, 35 mm colour photography; modern folk songs, pop. Elizabethan LZ29, 7 in, 1 1/2, 3 1/2, 7 1/2. Male tapespondents only in Scandinavia, Poland, Australia, New Zealand, Canada, USA.

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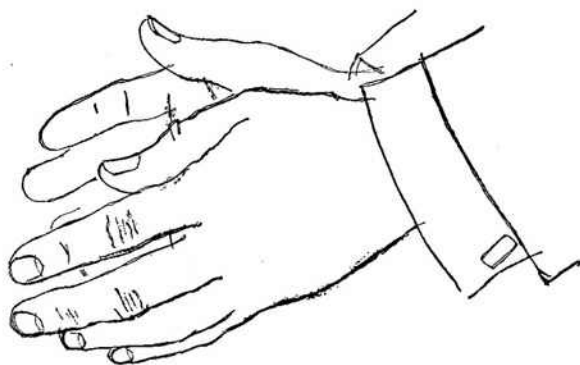
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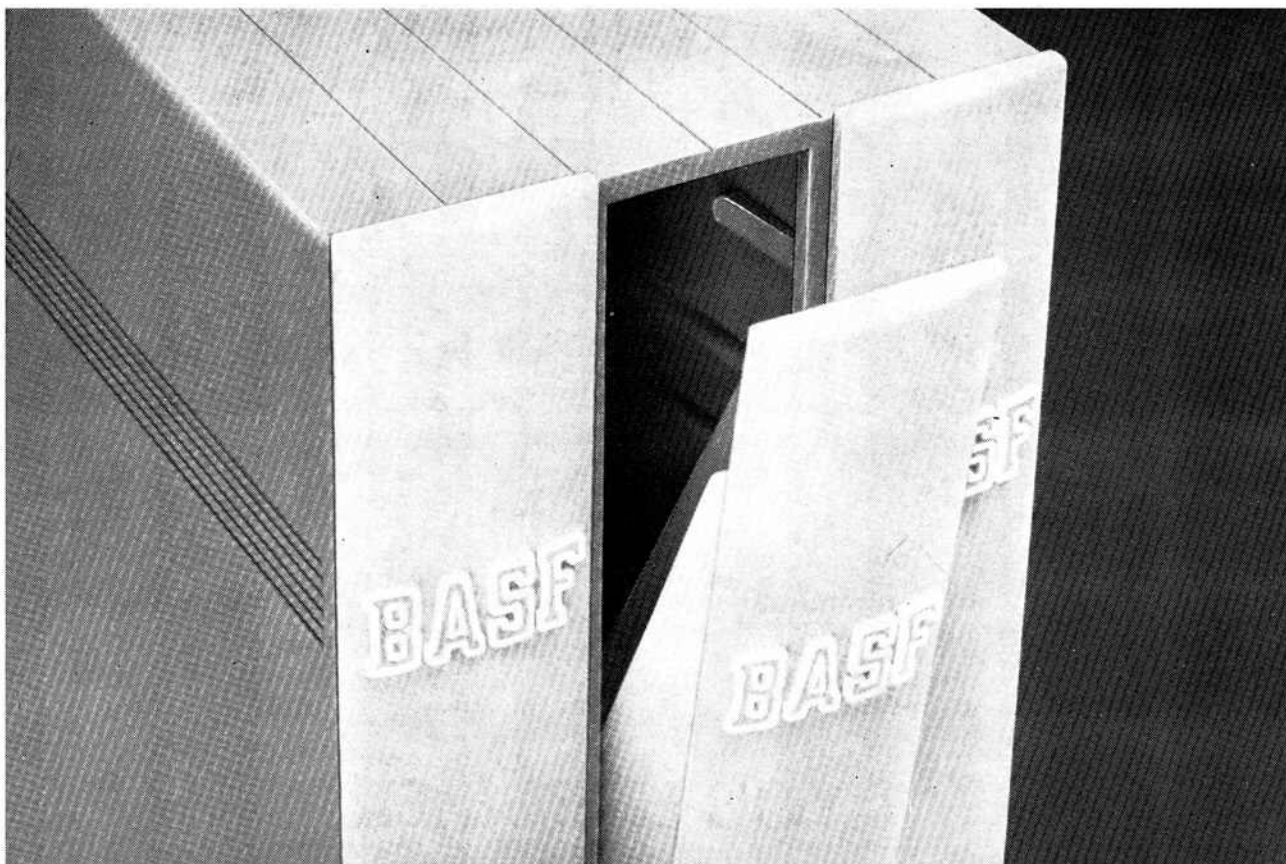
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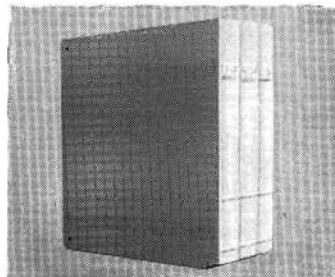
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