1959

LONDON

AUDIO FAIR

APRIL

Thurs 2 · Fri 3 · Sat 4 · Sun 5

2/-

RUSSELL HOTEL W.C.I.

750,000

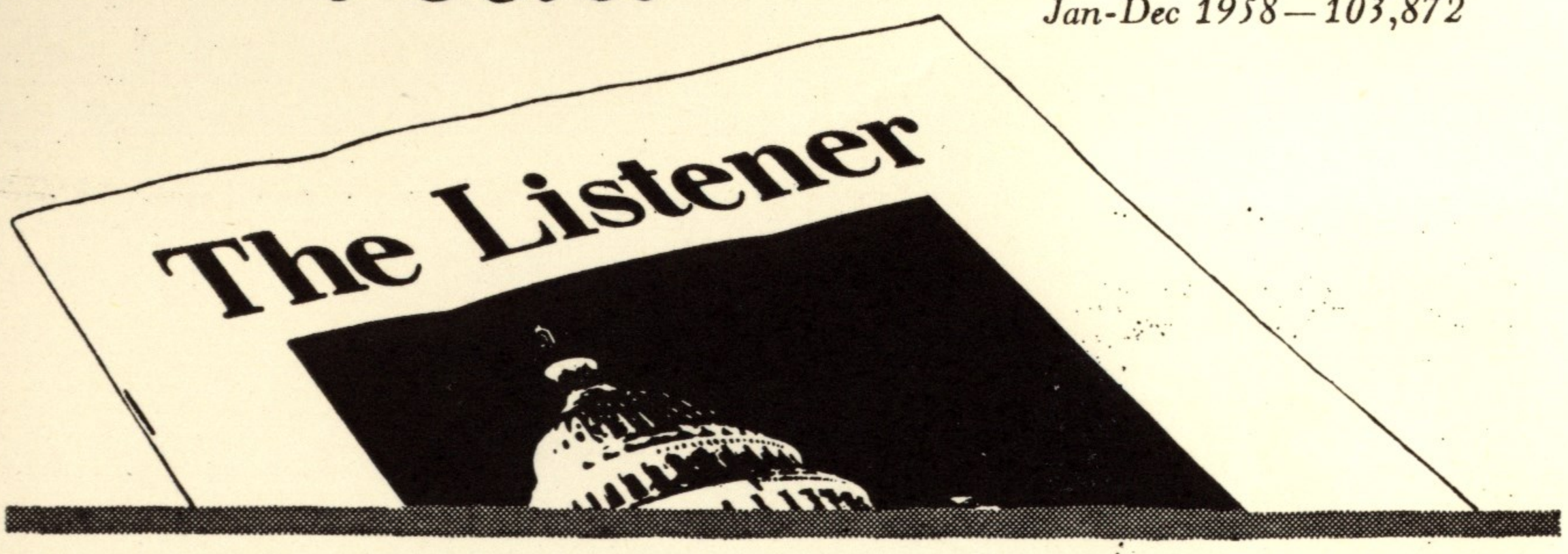
of the

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Who are these 'top 2 million'—of whom the readers of *The Listener* form so large a part?
They are those people in every part of our society who are interested in the best things in life, among them the best of broadcasting, the finest reproduction and top quality instruments. That is why Hi-Fi advertisements receive such close attention in *The Listener*. This is why Hi-Fi advertisers find *The Listener* a good buy at £144 a page—and 'pro-rata' to a sixteenth page at £9.

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THE

LONDON

AUDIO FAIR

1959

at the

HOTEL RUSSELL

LONDON, W.C.1

THURSDAY	FRIDAY	SATURDAY	SUNDAY
2nd	3rd	4th	5th

APRIL

11 a.m. to 9 p.m.

CATALOGUE 2/-

COUNCIL OF MANAGEMENT:

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Exhibition Organiser and Officer: C. Rex-Hassan

The Exhibition office for the duration of the Fair is in Room 241 on the Second Floor

The pemanent Exhibition and Organisation Office is at:

42 MANCHESTER STREET, LONDON, W.1

. . . for the guidance of visitors

This London Audio Fair 1959 is divided into two distinct Sections.

In the first Section on the ground floor in the Exhibition Halls are Booths on which Exhibitors are displaying their Products. These Booths are manned by expert personnel who are able to discuss any aspect of their equipment.

The second Section, and the one which is considered the most important is on the First, Second and Third floors of the Hotel. On these floors, the manufacturers who are exhibiting are giving live demonstrations. The way up to their demonstration rooms is by means of an Express lift that goes directly up to the third floor. This is situated straight on through to the end of the ground floor Halls. There are ample staircases for visitors to circulate around and down to visit any room on the other floors. There is a special staircase from the demonstration room floors allowing re-entry into the Main Halls.

The Audio Fair is well sign posted and visitors should not have any difficulty in finding their way about. A sign listing the names of the manufacturers on the floor is to be found on each floor at a central point near the lift. On the Corridor Walls are plans of the floor; these can be spotted quite easily because of their red frames.

There are ample cloakroom facilities in the Hotel for visitors who would like to leave their hats, coats and parcels.

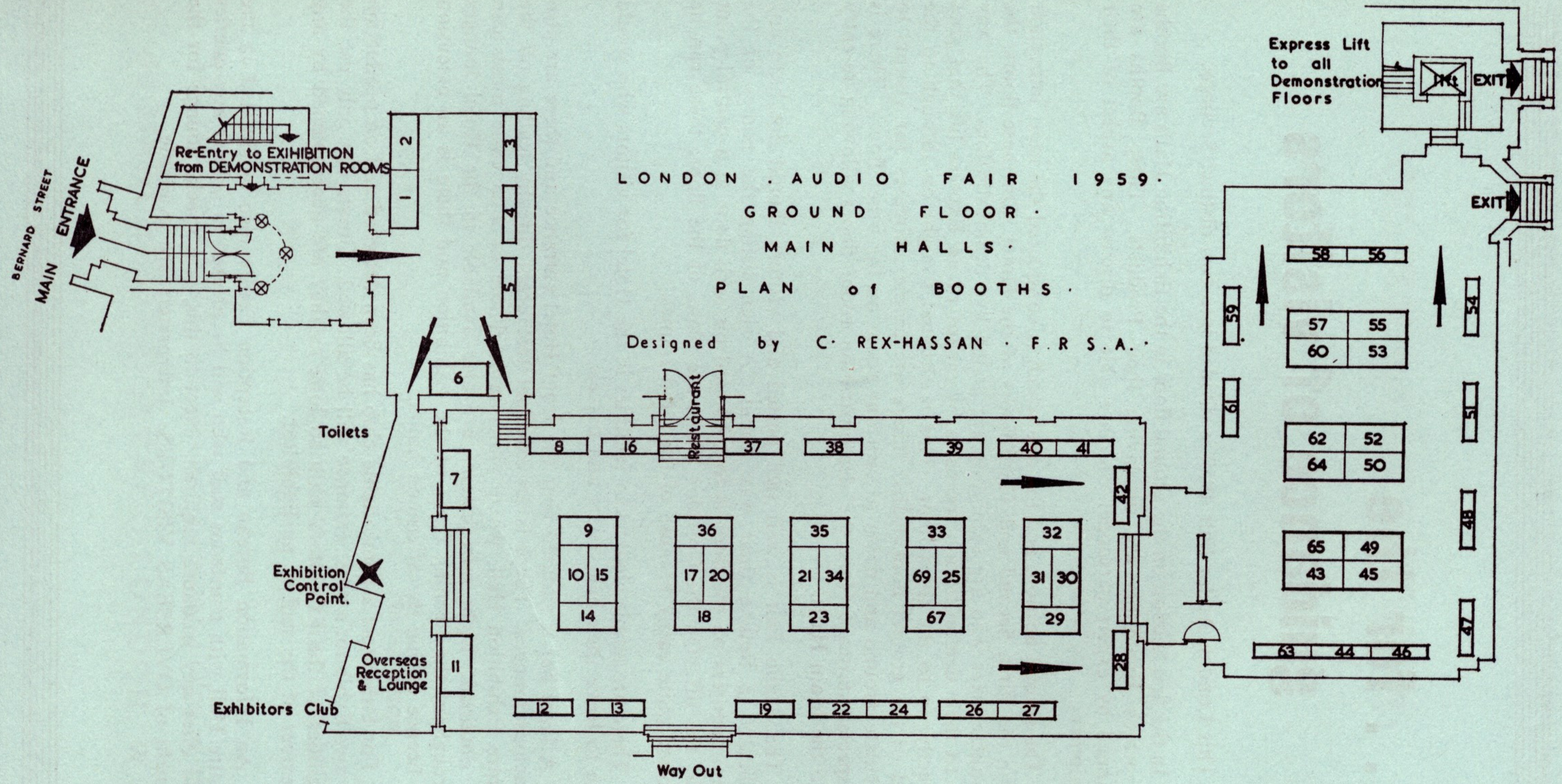
A large bar is situated near the front Hotel entrance and there are also spacious lounges. There is an excellent restaurant directly leading off the centre Exhibition Hall, where either table d'hote or a la carte meals can be obtained. Light refreshments are also available in the Hotel lounges throughout the opening times of the Exhibition and there is an extension of licence during the afternoon hours.

For Exhibitors a comfortable club has been designed and on production of any Exhibitor's pass, entrance will be allowed. Guests can only use the facilities of the Exhibitors' club so long as they are accompanied by any member of the staff of an Exhibitor.

An Information Bureau and Reception Centre also is situated in the centre Hall with courteous staff who will be pleased to answer any queries and offer any guidance required. Next to this, is a special lounge for the benefit of OVERSEAS VISITORS. Interpreters are available.

LONDON . AUDIO FAIR 1959.
GROUND FLOOR.
MAIN HALLS.
PLAN of BOOTHS.

Designed by C. REX-HASSAN . F.R.S.A.



INDEX OF EXHIBITORS

Against each trade name, is the Booth number and the Demonstration Room number.

Trade Name	*Booth No.*	*Demonstration Room No.*
Acoustical	**15**	**117**
Altobass	**39**	**355**
Ampex	**63**	**259**
Armstrong	**5**	**222**
Astronic	**41**	**120**
Audio Fidelity	**29**	**356**
Avantic	**6**	**115**
BASF	**13**	**113**
Brenell	**37**	**111**
B.B.C.	**XX**	**—**
Chapman	**56**	**234**
Collaro	**55**	**237**
Connoisseur	**12**	**317**
Cosmocord	**48**	**315**
Decca	**38**	**320**
Decca	**53**	**319**
Dulci	**27**	**204**
Dynatron	**43**	**248**
Ekco	**14**	**318**
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Sound Sales	**36**	**—**
Spectone	**49**	**215**
S.T.C.	**35**	**—**
Stereosound	**25**	**214**
Stuzzi	**65**	**112**
Tannoy	**21**	**247**
Tape Recording Hi-Fi Magazine	**2**	**—**
Telefunken	**50**	**337**
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Truvox	**16**	**342**
Veritone	**45**	**220**
Vitavox	**7**	**322**
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Committee Suite	**The Guildford Suite**

The design and decor of the London Audio Fair is by Cyril Rex-Hassan, F.R.S.A.

LONDON AUDIO FAIR 1959

PLAN of the DEMONSTRATION FLOORS

RE ENTRY to MAIN HALLS

up

down

-22 -21 -20 -19 -18 -17

-11 -12 -13 -14 -15

up down

EXPRESS LIFT UP

exit

up down

-56 -55 -54

-59

-61 -52

THE NUMBER WHICH PRECEDES
THESE ROOM NUMBERS INDICATES
THE ACTUAL FLOOR LEVEL

-33 -34

-04

LIFTS

lift lift

-02

WAY DOWN

WAY OUT

-36 -37 -42 -47 -48

NOTES

This page is left blank for the convenience of visitors who desire to make notes.

AUDIO *Fare*

THE BEGINNER'S GUIDE TO THE AUDIO FAIR

EVEN Hi-ER THAN Fi
by S.R.C. Bar

THE V.H.F. BROADCASTING SERVICE
by Hugh Greatorex

AUDIO IN RETROSPECT 1859-1959
by Peter Ford, Llb., F.R.S.A., M.R.I.

CARTOONS

PUBLISHED AS A SUPPLEMENT TO THE LONDON AUDIO FAIR CATALOGUE APRIL 1959

"AUDIO FARE"

Beginners' Guide to the Audio Fair

AUDIO. What exactly is Audio? Audio is the science and practice of sound recording and reproduction in all its forms and includes within its scope all components and apparatus designed to operate in the band of frequencies audible to the human ear. In this, the London Audio Fair 1959, the largest exhibition of specialised audio apparatus ever held in Europe are exhibits ranging from ·0005" stylii for gramophone pick-ups to professional grade recording equipment; from records to reproducers costing several hundreds of pounds.

IN this international exhibition is the pick of the finest apparatus from overseas and the products of British manufacturers whose names are synonymous with quality throughout the world. What is your requirement? Is it for a record reproducer in its most simple form as a portable or transportable instrument possibly arranged for stereo reproduction? If so, see Decca *(Booth 38/Demonstration Room 320)*, Dynatron *(43/248)*, Ecko *(14/318)* Pamphonic *(10/254)*, Philips *(33/252)*, *Pilot (59/242)*, Trix *(32/211)*. Next in the audio hierarchy is a cabinet enclosed instrument, perhaps with the loudspeakers in separate enclosures. See the above makers and E.M.I. *(34/212)*, *Pye (47/256)*, and Stereosound *(25/214)*.

THE true audiophile has the same feelings towards the 'packaged deal' as the sports car enthusiast has towards the family saloon and insists on assembling his own apparatus to meet his particular requirements and fancies. First need is a good turntable, changer or player. Britain exported over 8½ million pounds worth last year and the famous names are here — Collaro *(55/237)*, *Garrard (26/311)*, Connoisseur *(12/317)*. Don't miss Goldring *(8/359)*. Separate pick-ups and cartridges (of all types) are displayed by Cosmocord *(48/315)*, *Decca (53/319)*, Electronic Reproducers *(58/255)*, *Garrard (26/311)*, Goldring *(8/359)*, Leak *(40/218)*, Philips *(33/252)*, *Tannoy (21/247*). Electronic Reproducers *(58/255)* specialise in stylii, of particular interest to the manufacturer.

The next need is for a good preamplifier and power amplifier which may be combined on one chassis for economy of space Astronic *(41/120)*, Avantic *(6/115)*, Jason *(62/313)*, Pamphonic *(10/254)*, Pilot *(59/242)*, Pye *(47/256)*, Rogers *(66/321)*, Spectone *(49/215)*, Tannoy *(21/247)*, Trix *(32/211)* — or be supplied separately for flexibility of mounting — most of the manufacturers just mentioned make these and in addition Acoustical *(15/117)*, Altobass *(39/355)*, Armstrong *(5/222)*, Chapman *(56/234)*, Connoisseur *(12/317)*, Dulci *(27/204)*, Dynatron *(43/248)*, Grampian *(64/304)*, Leak *(40/218)*, Lowther *(51/221)*, Stereosound *(25/214)*, Sound Sales *(36)*, W.B. Stentorian *(3/302)*.

F.M. transmissions bring high quality interference free radio programmes to millions of listeners and the B.B.C. *(01)* will give advice on the coverage in your area. F.M. tuners complete with power amplifier stages can be obtained from Armstrong *(5/222)*. Separate matching F.M. tuners, are obtainable from most of the manufacturers mentioned above. For tuners of perhaps wider application, Chapman *(56/234)*, Dulci *(27/204)*, Dynatron *(43/248)*, Jason *(62/313)* and Lowther *(51/221)* should be visited.

The visitor to the Audio Fair has a wide choice of loudspeakers at his disposal both in chassis form and

complete in cabinets. Most of the amplifier manufacturers mentioned above supply loudspeakers for use with their equipment but in addition see Acoustical *(15/117)*, Altobass *(39/355)*, Fane *(60/217)*, Goodmans *(18/333)*, Grampian *(64/304)*, Lowther *(51/221)*, Rogers *(66/321)*, Rola Celestion *(2/334)*, Sound Sales *(36)*, Tannoy *(21/247)*, Vitavox *(7/322)*, Wharfedale *(31/236)*, W. B. Stentorian *(3/302)*.

THE range of tape recorders on display is wide indeed. Here are recorders ranging from the battery operated portable of Fi-Cord *(22/361)* and Stuzzi *(65/112)* to professional studio models by E.M.I. *(34/212)*. Never can so wide a choice of tape machines have been offered to the public, containing as it does the best selling British models (£1¼ million exports last year) and exhibits from Austria, Germany, Holland, Norway and the United States. Some models incorporate facilities for playing pre-recorded stereo tapes and/or for making one's own stereo recordings. For these see Ampex *(63/259)*, Brenell *(37/111)*, Ferrograph *(19/261)*, Harting/Tandberg *(24/118)*, Reflectograph *(9/122)*, Spectone *(49/215)*, Telefunken *(50/337)*, Truvox *(16/342)*. For decks to incorporate with separate amplifiers visit Brenell *(37/111)*, Collaro *(55/237)*, Dulci *(27/204)*, Ferrograph *(19/261)* Harting/Tandberg *(24/118)*, Truvox *(16/342)*.

Complete recorders are available in a number of forms and range from medium priced domestic machines to those suitable for semi-professional and industrial applications. Don't miss Ampex *(63/259)*, Brenell *(37/111)*, Elizabethan *(52/219)*, Ferrograph *(19/261)*, Grundig *(23/202)*, Harting/Tandberg *(24/118)*, M.S.S. *(17/354)*, Philips *(33/252)*, Reflectograph *(9/122)*, Saba *(68/314)*, Simon *(61/347)*, Spectone *(49/215)*, Stuzzi *(65/112)*, Telefunken *(50/337)*, Truvox *(16/342)*, Veritone *(45/200)*, Vortexion *(1/352)*, Walters *(67/312)*.

There is no point in buying a good recorder unless microphones and tape of the highest quality are employed. Microphones (apart from those supplied with recorders) are shown by Cosmocord *(48/315)*, Lustraphone *(20)*, Reslosound *(54)*, Simon *(61/347)*, S.T.C. *(35)*, Vitavox *(7/322)*—tape by B.A.S.F. *(13/113)*, E.M.I. *(34/212)*, Scotch Brand *(30/348)* and M.S.S. *(17/354)* who also show recording blanks for disc machines.

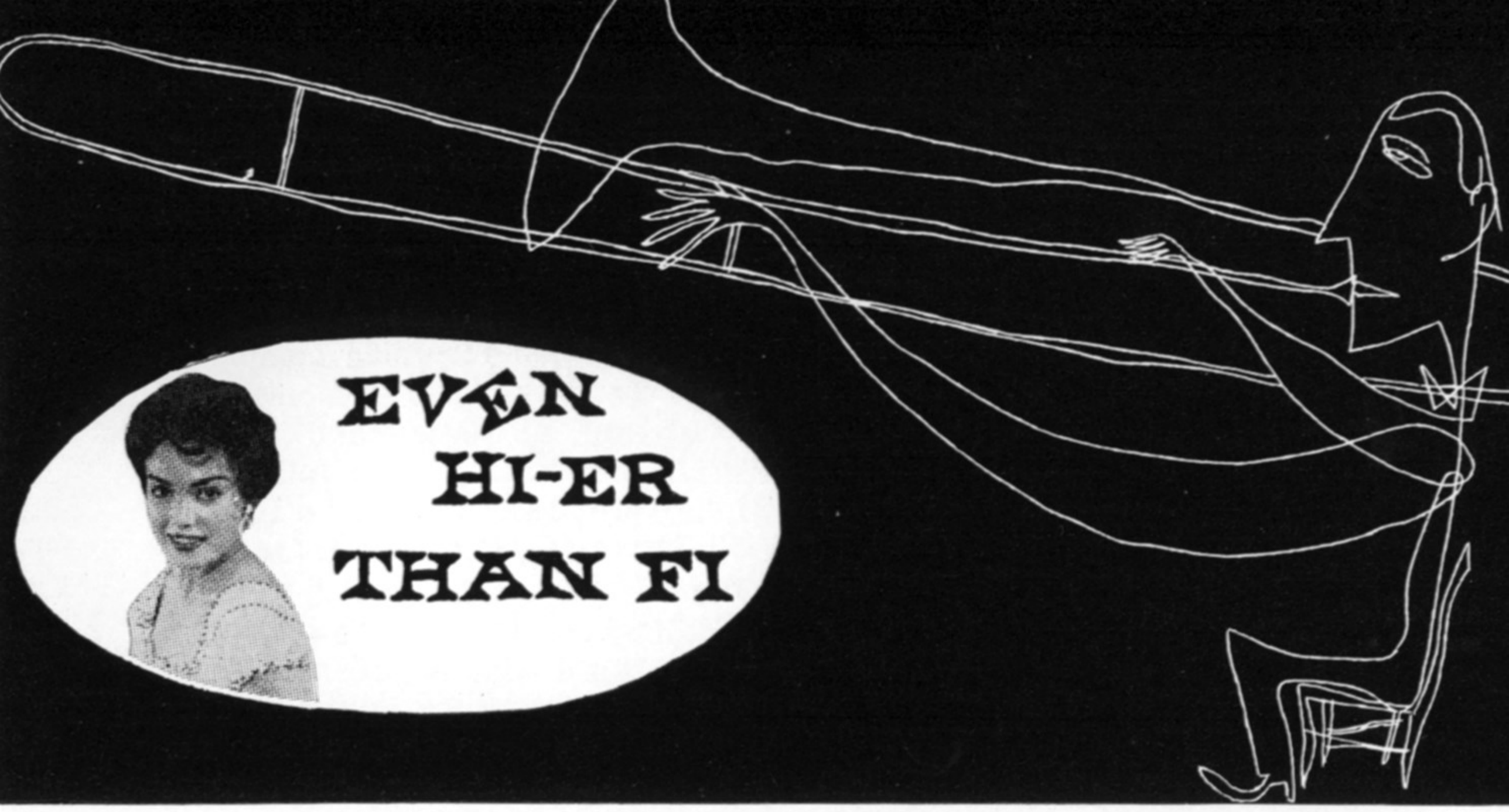
THE principal recording companies are exhibiting and demonstrating records for all tastes and by the world's finest artistes. For full details of current releases visit Audio Fidelity *(29)*, Decca *(53/319)*, E.M.I. *(34/212)*, Pye *(11/119)*.

TO assist you in obtaining maximum enjoyment from records and apparatus, the specialised journals offer informative articles and valuable advice. For the amateur, Hi-Fi News *(42)*, Tape Recording Magazine *(28)*, and Wireless World *(44)* — for the professional engineer, Electronic and Radio Engineer *(44)* — for the trade. Wireless and Electrical Trader *(46)*.

The scope of the London Audio Fair 1959 is not limited to domestic equipment and covers the fields of professional recording and sound — reinforcement installations. Many of the products already described are suitable and widely used for these purposes but the audio engineer will find apparatus of especial interest to him on the stands of Astronic *(41/120)*, Goodmans *(18/333)*, Grampian *(64/304)*, *Lustraphone (20)* Pamphonic *(10/254)* Reslosound *(54)*, S.T.C. *(35)*, Trix *(32/211)*, Vitavox *(7/322)*, Vortexion *(1/352)*.

Needless to say, nearly all audio equipment depends to a very large degree on valves for high standards of performance and trouble-free operation. Brimar *(35)* and Mullard *(57/233)* are names too well known to need introduction and here the home constructor can obtain all the advice he needs.

THIS short guide is intended to make the exhibition clearer to you and to help you find the answer to your particular problem. It cannot be fully comprehensive in so restricted a space and a number of manufacturers will only have released details of their latest products after it has gone to press. It is in your interest therefore to visit as many of the stands and demonstration rooms as possible to find out for yourself what is happening in the exciting world of sound.



Reproduced by courtesy of **"man about town"**

How would you like the Berlin Philharmonic Orchestra in the room with you? Or baritone Paul Robeson in the room with you? Or recording artiste Pauline Shepherd (inset) in the room with you? You'd like that, eh?

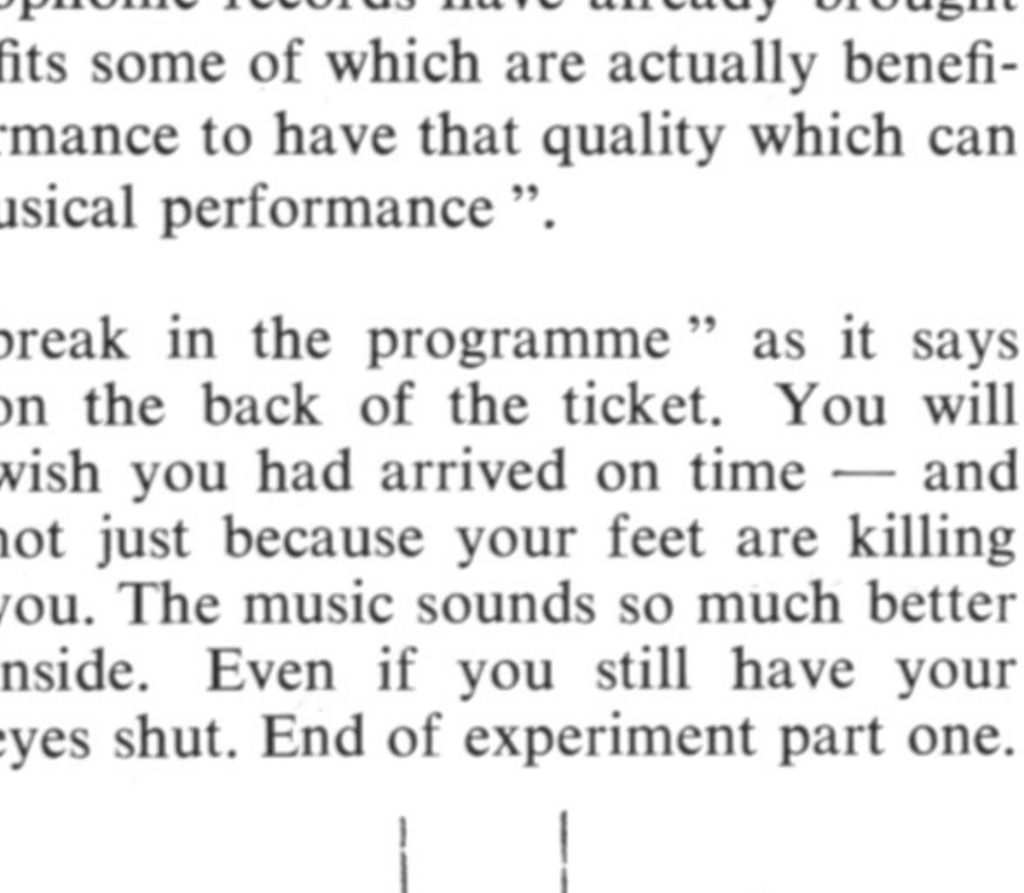
by S. C. R. Bar

YOU, too, can have a 20ft. grand piano to chase you round your living room. This is one of the many benefits stereophonic records have already brought to mankind. There are several other benefits some of which are actually beneficial, especially if you like a musical performance to have that quality which can best be expressed by the expression "a musical performance".

What is stereo? Simply a device which reproduces sound as if it were coming from a source which is spread out in space. However good your ordinary old-fashioned hi-fi is — or, more probably, however bad — if you listen to it very carefully you will notice that the music it gives you sounds as if somebody has placed between you and the orchestra a large, thick, solid wall, with one small hole in it. By stereo is meant any device which does away with this wall-and-hole; that makes the music sound as if one whole wall of your living room has been removed and that you are sitting in a box in a concert-hall.

THIS last is a pretty good analogy if you want to try it out, here is an experiment. Which comes in two parts.

Experiment, part one. Book some good seats at the Festival Hall. Arrive late and stand outside the door with your eyes shut "until a convenient break in the programme" as it says on the back of the ticket. You will wish you had arrived on time — and not just because your feet are killing you. The music sounds so much better inside. Even if you still have your eyes shut. End of experiment part one.



. . . a 20ft. grand piano chase you . . .

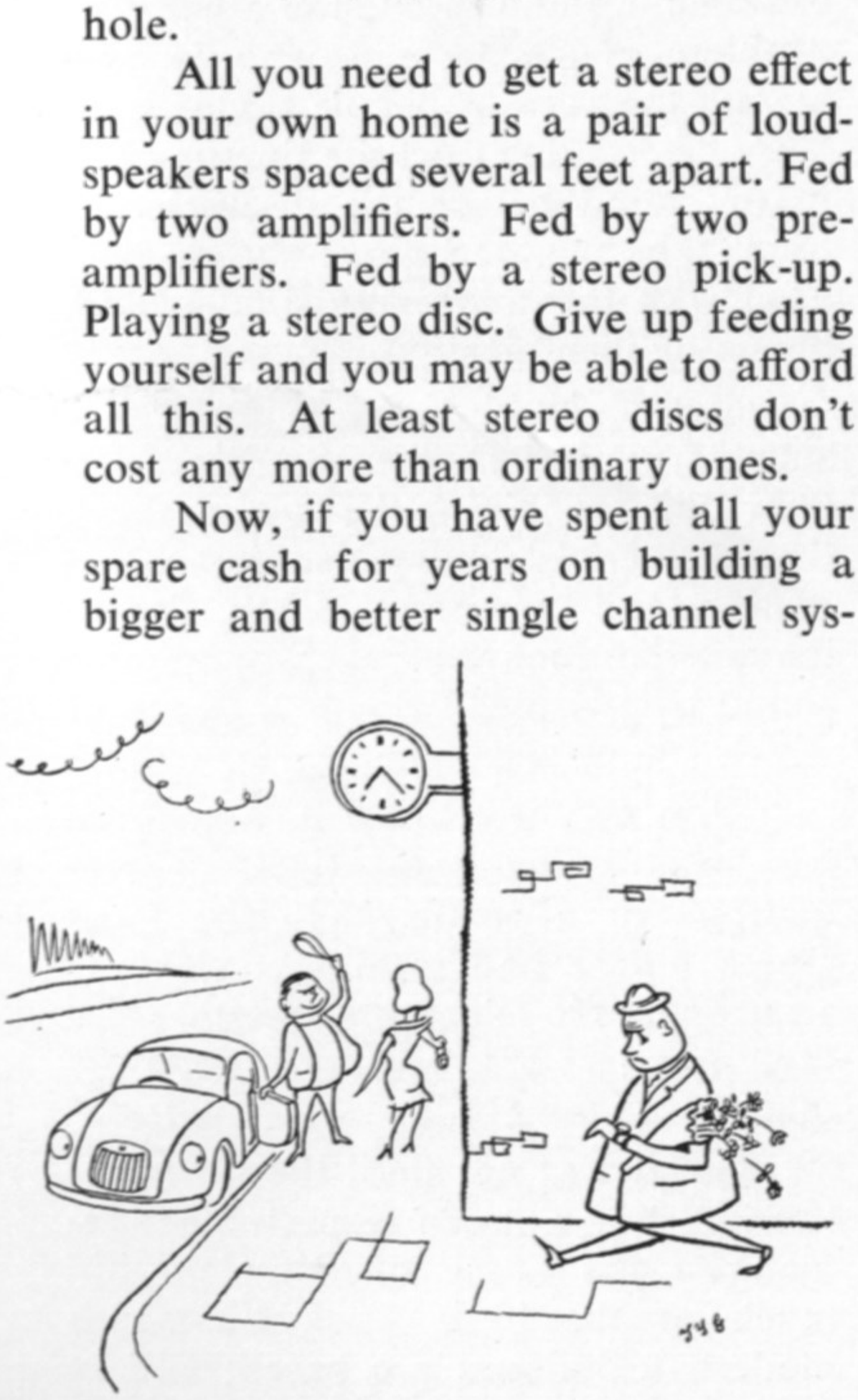
Experiment, part two, consists of listening to music on good hi-fi and then on good stereo, both under the

best possible conditions. You will find that stereo sounds remarkably like what you heard inside the concert hall when you had your eyes shut, and the old-fashioned way of doing things is even more remarkably like being stuck outside the concert hall, behind the burly back of a uniformed attendant. And about as frustrating too, when you've heard a bit of stereo.

THIS brings me to the big point about stereophonic sound. This is that stereo is not just a gimmick to add something that wasn't previously there. But that monophonic sound (sorry the word had to come) takes away something that was previously there. In fact, *monophonic reproduction of sound is a type of distortion:* distortion which takes the form of collecting together all the direct sound from the players, wherever they are sitting, adding to it the reverberation of the concert hall (which ought to be reaching you from all directions) and squirting the whole resulting stew of sound at you, splinge, through a keyhole.

All you need to get a stereo effect in your own home is a pair of loudspeakers spaced several feet apart. Fed by two amplifiers. Fed by two pre-amplifiers. Fed by a stereo pick-up. Playing a stereo disc. Give up feeding yourself and you may be able to afford all this. At least stereo discs don't cost any more than ordinary ones.

Now, if you have spent all your spare cash for years on building a bigger and better single channel system you will now need one of two things. Either a list of the extra items you will need to be spending all your spare cash on for the next few years, or half-a-dozen good reasons why you're not going to bother.



. . . wish you had arrived on time . . .

Here's the list of extra equipment you need:—

(a) A new pick-up — or at least a new cartridge and stylus. (The stylus is a different size, smaller than the old microgroove sort).

(b) A new twin channel pre-amplifier. (Trade the old one in).

(c) A second main amplifier and a second speaker system. These should be identical with the ones you already have.

This is quite an impressive list, especially if you try adding up what it will cost you in money. (Answer: about as much as you have spent already). So here are some convincing reasons for not converting just now.

(a) You are too mean.

(b) You can't afford it.

(c) You are too lazy.

(d) You are tone-deaf in one ear and

(e) completely deaf in the other, and besides

(f) your room is too dam' poky to get all that much junk in.

These reasons are convincing, yes, but socially unacceptable. You cannot tell them to your friends as they are too near the truth, so select a reason or two from among the following Few For Your Friends.

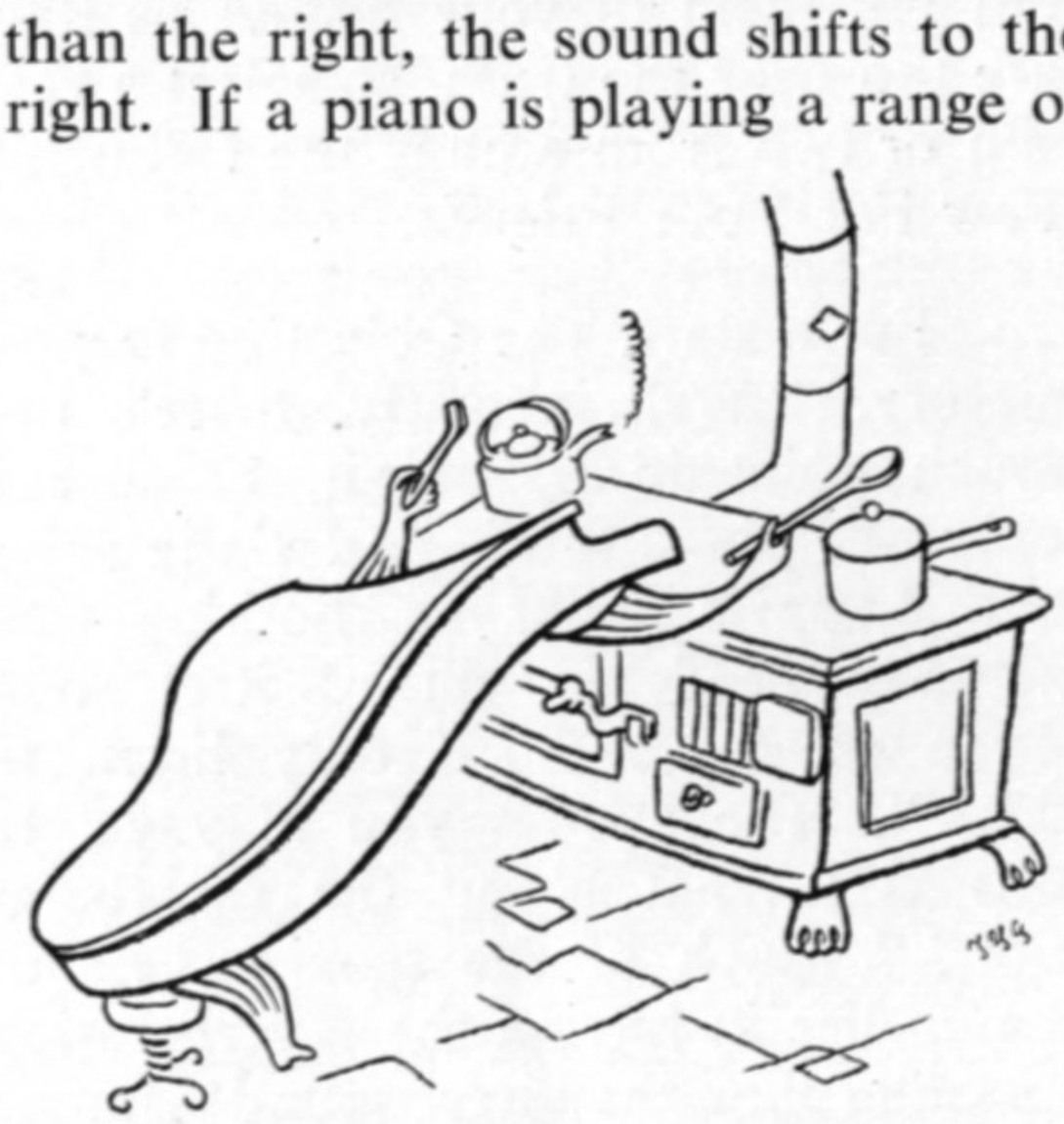
For a start. The Objection Depreciatory. "Well, actually, there's not much point in having it, because I only like piano music and violin solos and Lappish joijks — nothing that actually needs to spread itself out. Even on the radio I only listen to talks". The answer you may get to this is "What about the reverberation?" Much of the spaciousness of stereo lies in having the reverberation —rather than the direct sound—spread out.

"AUDIO FARE"

THEN Objection Musical. "For orchestral works the music is better blended in a monophonic system — many composers would actually like the sound to come from one spot. Take Wagner and Beyreuth; the orchestra pit is almost completely cut off from the audience". Personally I disagree about this. What is good for the massive effects of Wagner is not so good for most other music. You need a certain amount of spread for clarity. Say, about as much as you get in the best seats at a concert. Or on stereo. (And you still need the reverberation spread out—even more, in fact).

The Objection Artistic. "Monophonic sound is a convention. No, it's not the same as stereo; it is an artistic medium in sound in its own right". A sophisticated argument which is definitely one-up on any technical reply. Still, monophonic sound is a poor medium for any art-form. You can daub vegetable dyes on the walls of your cave, but many painters nowadays prefer to use oils and canvas.

THE Objection Technical. "The whole thing is still in its infancy. You just get used to where the contrabassoonist is supposed to be when he suddenly diminuendoes off to the right. Next time you hear him, he's gone somewhere else." Alas, 'tis true. If the two channels are not exactly the same in frequency response this is bound to happen. If you hit a note for which the left hand one is weaker than the right, the sound shifts to the right. If a piano is playing a range of notes, some of which get a better response from one channel and some from the other, the results can be most confusing. As stated above. And the discs themselves may suffer from the same fault.



. . . piano is playing a range . . .

You could add a few other odds and ends of objections, such as "It's just a toy. Trains rushing in and out of your living room. What nonsense". It is certainly a pity that many demonstrations of stereo have plugged the dramatic possibilities of movement at the expense of the more important quality of spaciousness. It may be that you think the ideal Christmas party entertainment is to be able to produce at the flick of a switch the aural sensation of the Brighton Belle travelling at sixty miles an hour from kitchen to bathroom. Me, I think it would pall.

OVERBLOWN dramatic effects are one thing; separation of the various elements of a sound source is another: here is an advantage of stereo which is by no means so obvious. In, for example, a radio discussion a constant problem is sorting out who is who among the various people taking part. Very often I don't get the line-up clear in my mind before the discussion is over. The new technique should help a lot with this and many similiar problems of identification.

Stereo, by the way is not "3-D sound". It is 1-D, the one dimension being the line joining the two speakers, though there is a subjective impression of a second dimension, depth, due to the reverberation present. Monophonic sound is O-D plus "depth". None of which sounds very glamorous.

You may not know it, but stereo has been going some time. Three-quarters of a century ago the Paris Opera House had what was virtually a stereophonic telephony system. And three-quarters of a century is certainly quite some time.

But it was not until the nineteen-twenties that a much respected gentleman by the name of Blumlein did much of the basic work on which modern techniques are based; and in 1933 he produced stereophonic disc

recordings incorporating two channels in a single groove. A successful public demonstration of stereophonic reproduction was given in America in 1934 by the Bell Telephone Laboratories who had also been doing a lot of useful work on "hill-and-dale" recording. A few years later the B.B.C. broadcast stereo from Covent Garden. In 1939 the film *Fantasia* introduced stereophonic reproduction to a wider public.

Stereo-tape has been on sale several years. And finally, with fanfares and cries of "too soon, too soon", from the record industry, we have stereo disc. This last bit all happened in rather a hurry — great deal quicker than most people thought it would, especially the people who have been carrying it around on their backs all this time.

Well, it wasn't too soon for me. We should have had L.P.'s years before we did, and the same goes for stereo.



With acknowledgements to "THE NEW YORKER"

"Oh dear! I wish I'd known it was the 'Eroica.' That's my favourite!"

"AUDIO FARE"

VHF is something the discriminating listener cannot afford to be without. It provides opportunities for better listening to broadcast programmes and enables listeners to take advantage of improvements in equipment such as amplifiers and loudspeakers which have taken place in the last few years.

THE V.H.F. SOUND

by Hugh Greatorex,

VHF sound broadcasting takes place within the band of frequencies from 87·5 to 100 Mc/s, known as Band II, which has been allocated by international agreement for sound broadcasting. It is a part of the Very High Frequency range, which includes also the televsion bands, Band I and Band III, and extends altogether from 30 Mc/s to 300 Mc/s.

The development of Band II for sound broadcasting became inevitable because of the serious interference with reception in the medium-wave band which has steadily worsened with the increase in the number and power of broadcasting stations in Europe.

EVEN as long ago as 1926, when the number of European stations was compartively few, many listeners found their reception spoiled by inter-station whistles and 'monkey-chatter'. An international conference attended by delegates from most European countries met at Geneva in that year in an attempt to allocate the available frequencies to the various countries in such a way as to minimise mutual interference. Unfortunately the wavelength plan produced at Geneva quickly became out of date as further stations came into service. Successive wavelength plans produced since then have suffered the same fate in spite of great improvements in the design of transmitters and receivers which enabled more stations to be packed into the same wavelength space, and the fact that it became possible to extend this space slightly at the expense of other, non-broadcasting, users of radio.

The most recent wavelength plan was produced at the European Broadcasting Convention at Copenhagen in 1948 and was put into force in 1950, but the number of stations has continued to grow and many of them are operated by countries which did not take part in the making of the plan and are not bound by it. The consequence is that for some millions of listeners, particularly in the coastal areas of the United Kingdom, reception of one or more BBC sound programmes has deteriorated because of interference from foreign stations, which takes the form of piercing whistles or actual interfering programmes. The BBC has built and brought into service many additional transmitting stations in an attempt to restore good listening in some of the worst affected areas, but this can only be a palliative, not a cure. Other countries, of course, have been doing the same thing.

BEFORE even the Copenhagen conference was held the BBC was experimenting with VHF sound broadcasting and investigating the problems of public service broadcasting in this Band. The success of these experiments led to the building of a high-power VHF station at Wrotham, Kent with an e.r.p. of 120 kW in 1950 so that a full-scale investigation could be made. These experiments enabled a plan to be drawn up for providing nation-wide coverage of three programmes on VHF. This envisaged the building and equipping of some 25 new transmitting stations, a stupend-

ous task but one considered essential to stop further deterioration in the broadcasting service and to allow necessary improvements to be made.

THE adoption of Frequency Modulation (FM) was an important factor which was taken into account in planning the new service and has contributed greatly to its success.

In 1954, the Postmaster General approved the construction of the first nine VHF transmitting stations and work on these began immediately. Further stations have since been approved and there are at present 19 in operation, providing a VHF service to more than 96% of the population of the United Kingdom. This is, of course, complementary to the service of the same programmes on the long-wave and medium-waves which continues as before.

MAP OVERLEAF

BROADCASTING SERVICE

ssistant Head of Engineering Information Department, BBC.

Apart from overcoming the bugbears of foreign interference, the VHF service has other important advantages. Electrical interference from domestic and industrial appliances can be virtually eliminated and the technical quality of reception greatly improved in respect of wider frequency response, reduced distortion, particularly at high modulation levels and absence of background noise.

TO obtain full benefit from the VHF service, good receiving equipment is, of course, essential. The radio-frequency section must be capable of dealing with a bandwidth greater than ± 75 kc/s and the demodulation circuits i.e. the discriminator must be carefully designed if distortion is to be avoided. Needless to say, freedom from frequency drift in the tuned circuits is essential. The audio side is well taken care of by modern amplifiers and loudspeakers when the listener wants something better than the quality obtainable from the ordinary domestic receiver.

Finally, there is that most important component the aerial. Domestic VHF receivers are usually provided with a compressed dipole or other rudimentary form of aerial inside the cabinet. This may well be adequate for satisfactory reception in favourably-situated areas but it just will not do when reception conditions are difficult. For example, in hilly country not only is the signal from the transmitting station liable to be weak in places but reflected signals from neighbouring hills may cause severe distortion. This 'multi-path' distortion as it is called tends to occur in areas where ghost images are troublesome on television in Band I, since most of the VHF stations are on the same sites as the BBC television stations. Impulsive interference from the ignition systems of motor vehicles can also be troublesome in some areas even when the engine is fitted with interference suppressors.

These and other reception troubles can almost invariably be overcome by using a suitable aerial either external to the receiver though in the same room, or in the roof space or above the roof. If desired, the aerial can be mounted on the same mast as a television aerial and can share the same feeder if a suitable cross-over unit (diplexer or triplexer) is used.

THE BBC is anxious to help listeners to obtain the full advantages of the VHF service and has produced for this purpose two leaflets, one dealing with VHF in general and the other with VHF aerials. Copies may be obtained free of charge from the Engineering Information Department, Broadcasting House, London, W.1.


APPROXIMATE
COVERAGE OF THE BBC's
VHF SERVICE
(December 1958)
Nominal limits
of satisfactory
reception (250 μV/m)
Miles
0 25 50 75 100
ORKNEY
(TEMP SVICE)
Wick
ROSEMARNIE
Elgin
MELDRUM
Aberdeen
Balmoral
Perth
Glasgow
KIRK
O'SHOTTS
Edinburgh
Berwick
Omagh
DIVIS
Belfast
Newry
Carlisle
Newcastle
PONTOP
PIKE
Middlesbrough
SANDALE
DOUGLAS
Barrow
York
Preston
Leeds
Hull
LLANDDONA
Rhyl
Manchester
HOLME MOSS
Sheffield
Lincoln
LLANGOLLEN
Crewe
Barmouth
Stafford
Aberystwyth
BLAEN-PLWYF
SUTTON
COLDFIELD
Birmingham
Peterborough
Norwich
NORWICH
Worcester
Gloucester
Swansea
WENVOE
Ipswich
Oxford
Swindon
Ilfracombe
BRISTOL
London
Reading
WROTHAM
NORTH
HESSARY
TOR
ROWRIDGE
Dover
Exeter
Dorchester
Bournemouth
Portsmouth
Brighton
Hastings
Plymouth
Penzance
MANN

An Acoustic Recording Session (*c.* **1911**)
Sir Henry Wood conducting the Queen's Hall Orchestra. *Photo: E.M.I. Records Ltd.*



AUDIO
in retrospect
A CENTENARY OF SOUND RECORDING

1859 — 1959

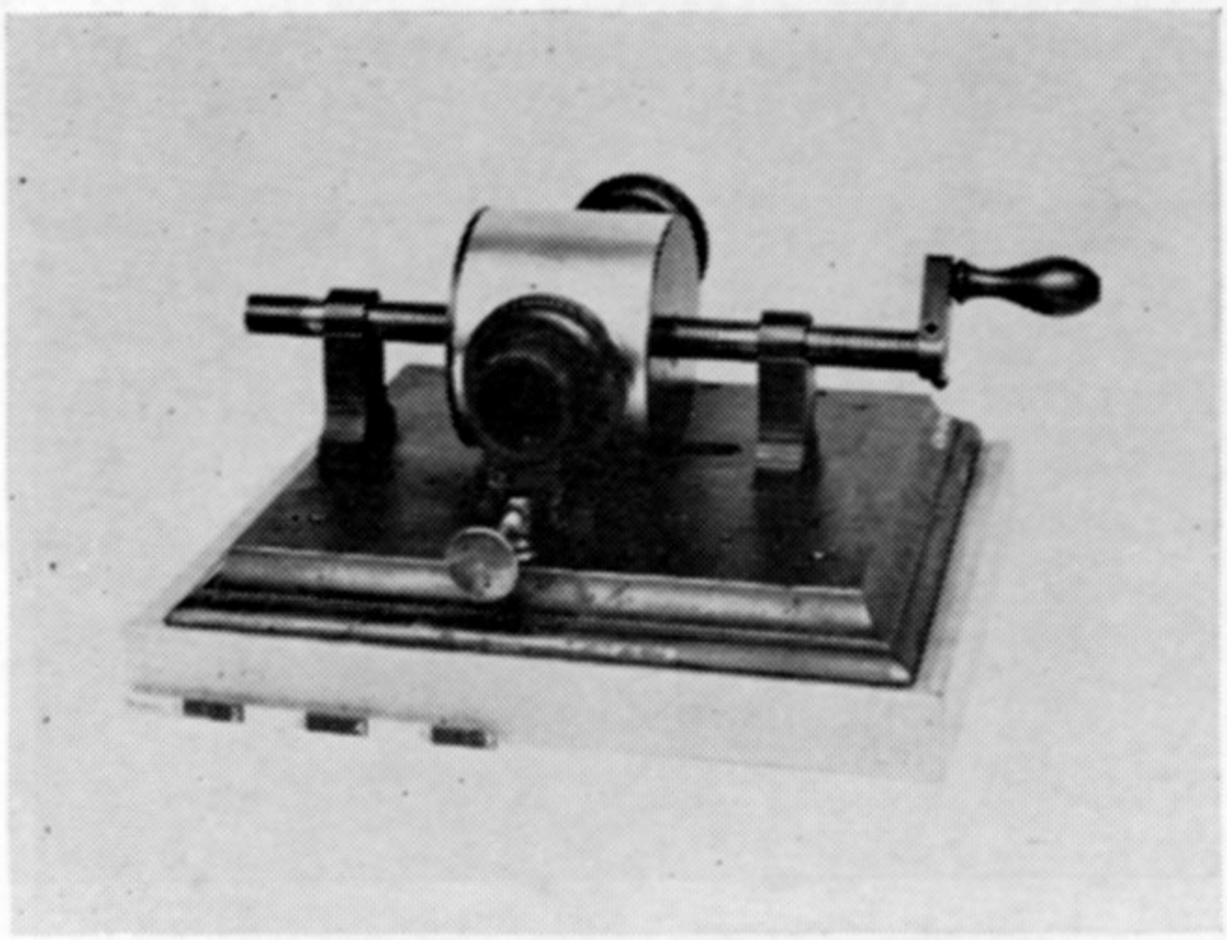
by Peter Ford, Ll.B., F.R.S.A., M.R.I.

Hon. Historian: British Sound Recording Association



A modern Recording Session
Robert Farnon and his orchestra in a London Studio. *Photo: Decca Record Co. Ltd.*

"AUDIO FARE"



△ **Edison Tinfoil Phonograph (1877)**
Vibrations of the diaphragm indented a sheet of soft tinfoil wrapped round a cylinder 4 ins. long. *Crown Copyright, Science Museum, London.*

Scott "Phonautograph" (1859)
Sounds collected by the funnel caused the diaphragm to vibrate and its movements were recorded as a wavy line by a hog's bristle resting on the rotating lamp-blacked cylinder. *Photo: Science Museum, London.*



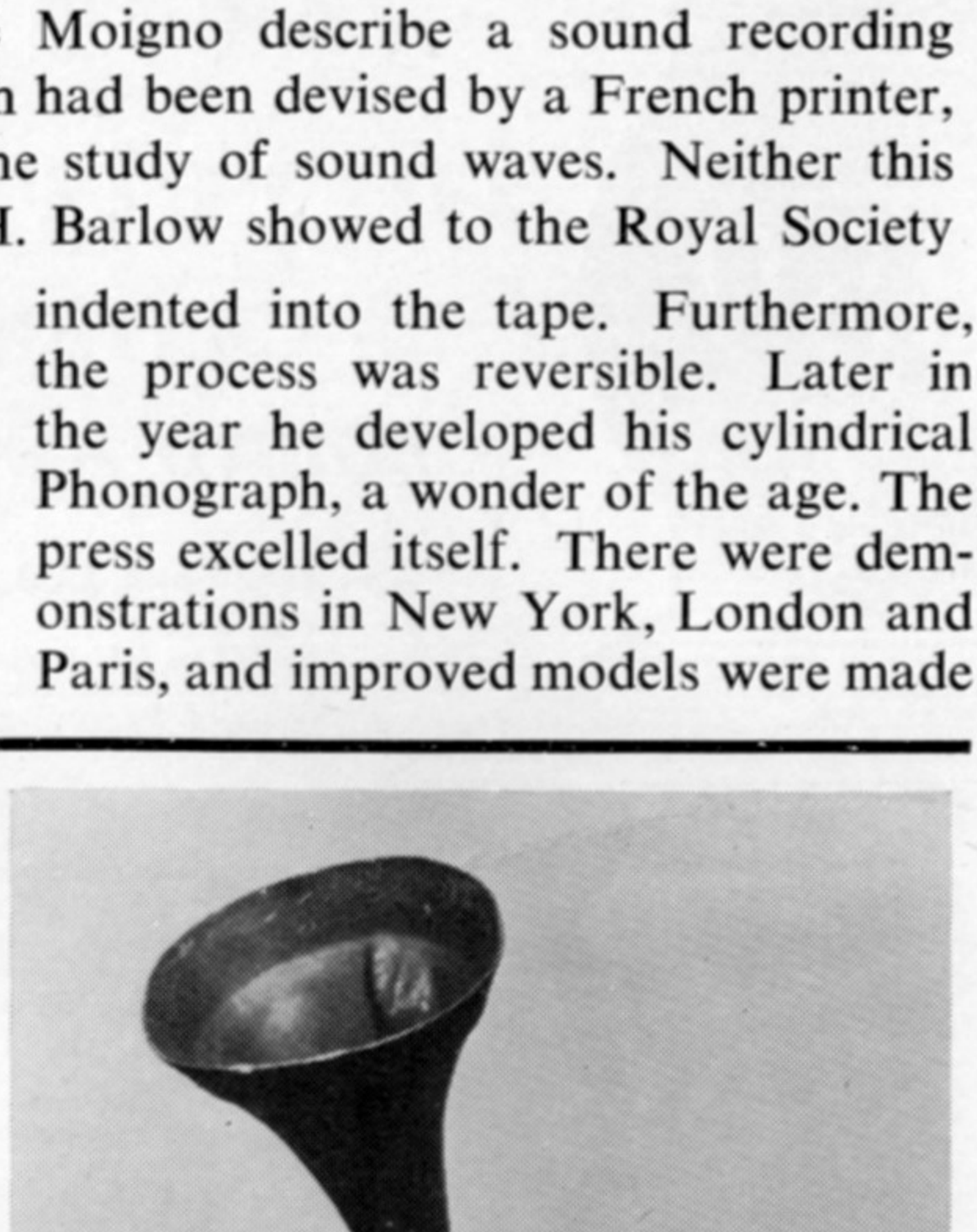
▷

A DISTINGUISHED audience at the British Association meeting at Aberdeen in September 1859 heard the Abbé Moigno describe a sound recording machine called the Phonautograph, which had been devised by a French printer, E. L. Scott de Martinville, for use in the study of sound waves. Neither this machine nor the Logograph which W. H. Barlow showed to the Royal Society

In July 1877 the American inventor T. A. Edison, working on telephone improvements, found that he could record speech mechanically on moving paraffined paper tape by attaching a steel point to the centre of a diapharagm, the vibrations of which were indented into the tape. Furthermore, the process was reversible. Later in the year he developed his cylindrical Phonograph, a wonder of the age. The press excelled itself. There were demonstrations in New York, London and Paris, and improved models were made

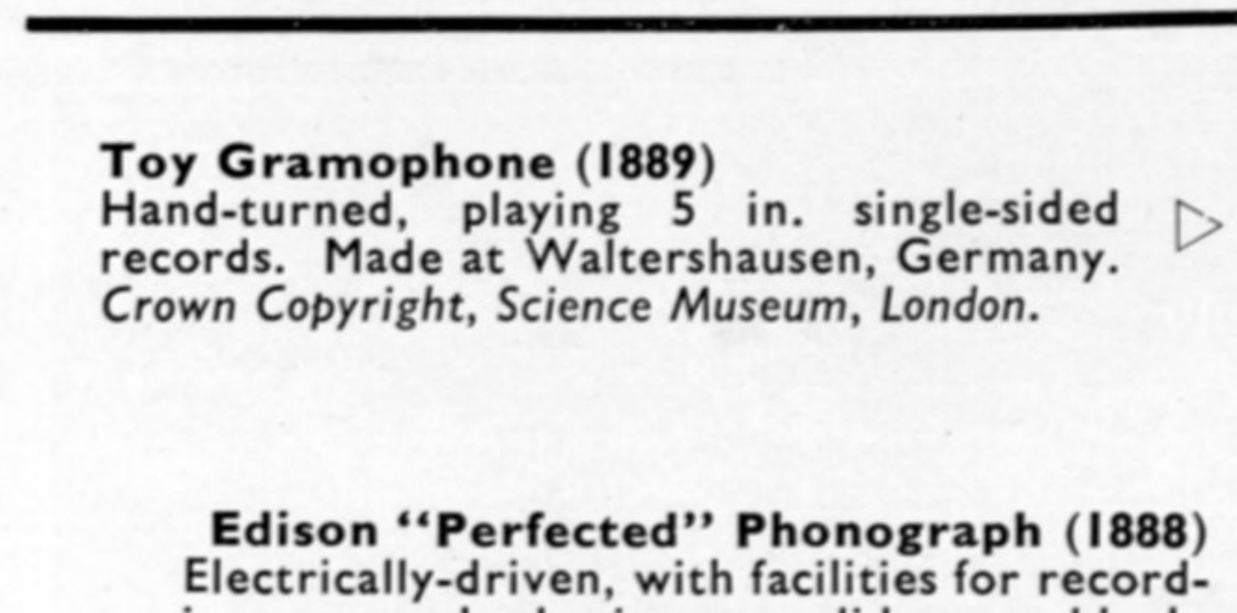
Toy Gramophone (1889)
Hand-turned, playing 5 in. single-sided records. Made at Waltershausen, Germany. *Crown Copyright, Science Museum, London.*

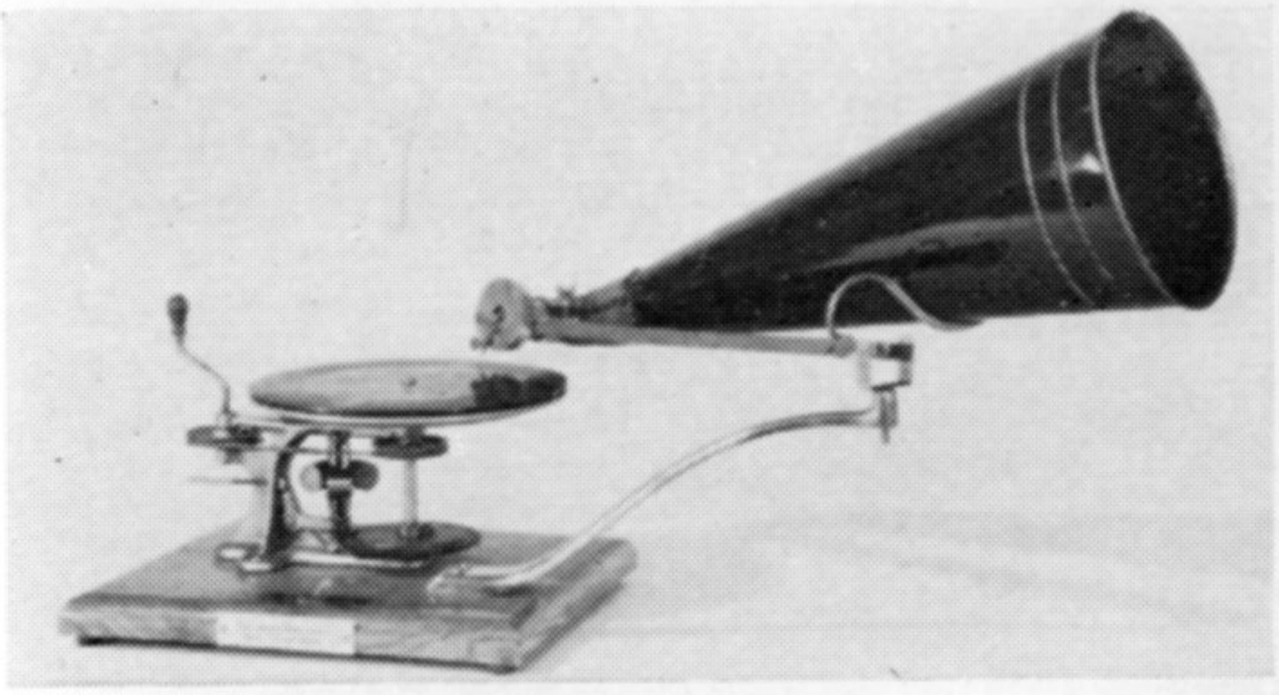
▷



Edison "Perfected" Phonograph (1888)
Electrically-driven, with facilities for recording on and shaving a solid wax blank. *Crown Copyright, Science Museum, London.*

▽





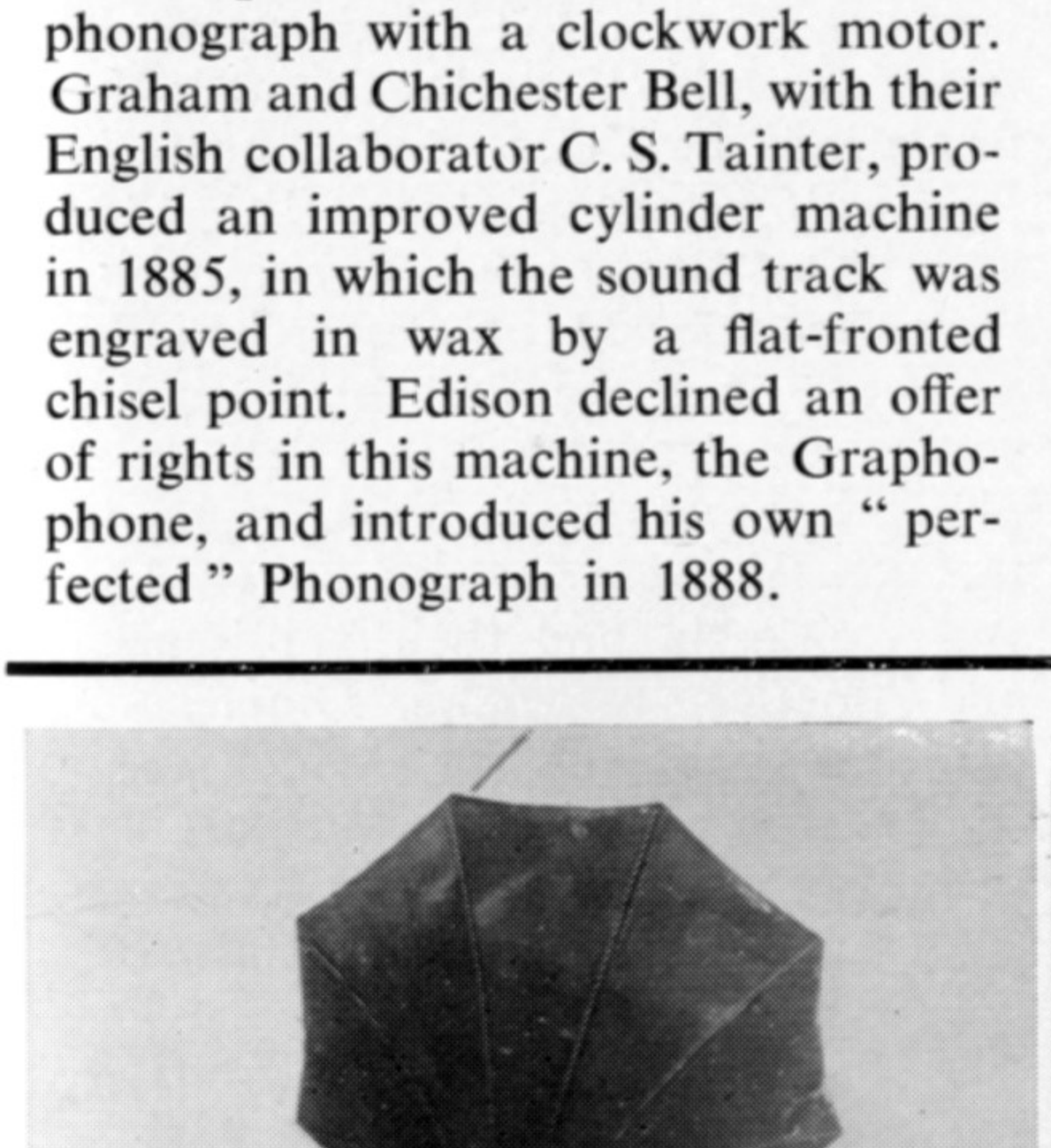
Berliner Gramophone (1897)
A friction disk and ball-governor system helped to keep the speed of the turntable fairly constant. *Lent to the Science Museum, London, by The Gramophone Co. Ltd.*



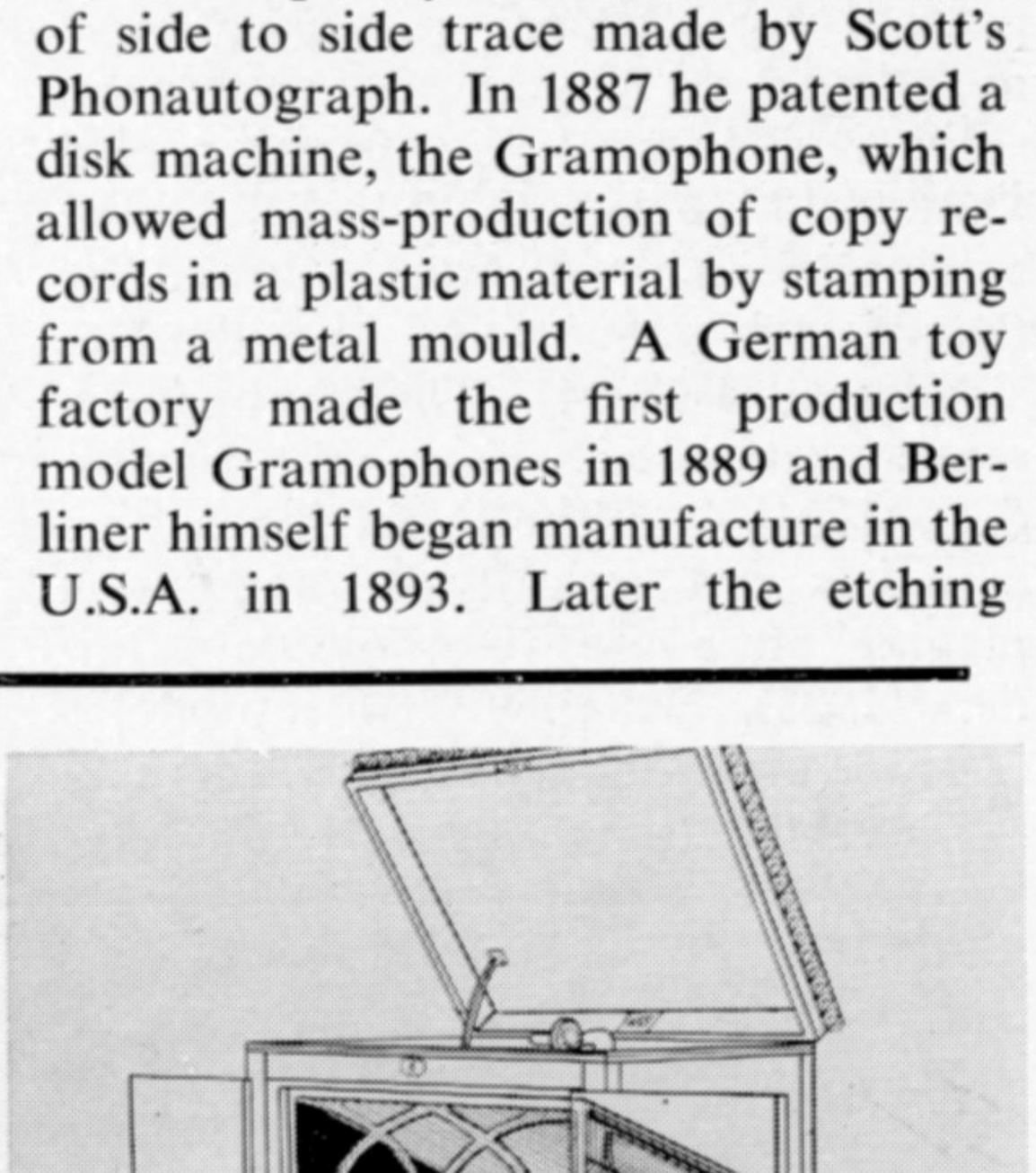
Clockwork Gramophone (1897)
Used as a feature of a well-known trade mark. *Photo: The Gramophone Co. Ltd.*

and sold, but the excitement soon died down and Edison went to work on electric lighting, though not before he had experimented with a flat disk phonograph with a clockwork motor. Graham and Chichester Bell, with their English collaborator C. S. Tainter, produced an improved cylinder machine in 1885, in which the sound track was engraved in wax by a flat-fronted chisel point. Edison declined an offer of rights in this machine, the Graphophone, and introduced his own "perfected" Phonograph in 1888.

MEANWHILE, in 1883, Emile Berliner had begun experiments in Washington to produce a sound groove of even depth by etching from the type of side to side trace made by Scott's Phonautograph. In 1887 he patented a disk machine, the Gramophone, which allowed mass-production of copy records in a plastic material by stamping from a metal mould. A German toy factory made the first production model Gramophones in 1889 and Berliner himself began manufacture in the U.S.A. in 1893. Later the etching



Edison "Amberola" (1912)
Designed to play standard and 4-minute records, especially the plastic "Blue Amberol." Fitted with a diamond stylus (lapped in England). *Crown Copyright, Science Museum, London.*



H.M.V. Re-entrant Gramophone (1927)
Designed on scientific lines from the tip of the needle to the mouth of the folded exponential horn. Horn opening: 29 ins. by 23 ins. approx. *Drawing: The Gramophone Co. Ltd.*

E.M.G. Mark XB Gramophone (*c.* 1930)
A fine example of British craftesmanship in hand-made gramophones. Horn diameter 2ft. 6ins. *Photo: E.M.G. Handmade Gramophones Ltd.*



H.M.V. Model 801 Radio-Gramophone (1938)
Fitted with a light-weight pick-up and three elliptical loudspeakers. *Photo: The Gramophone Co. Ltd.*



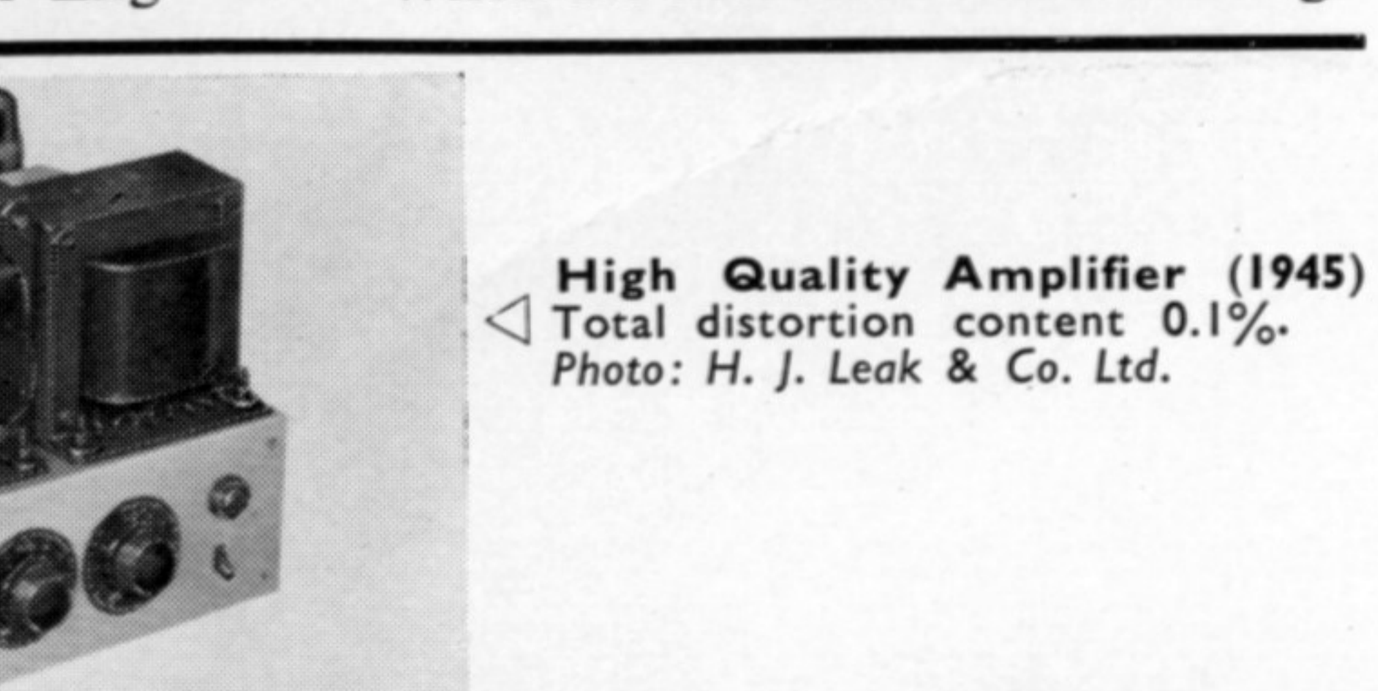
process for original recordings was abandoned in favour of cutting in solid wax. In 1901, the 10-inch record appeared alongside the 7-inch (and the original 5-inch). It was followed by the 12-inch (1903) and the double-sided record (1904). The phonograph makers retaliated with moulded cylinders (1901) — hitherto having copied cylinders mechanically — and 'long playing' fine groove 4-minute cylinders (1908). But they were too late.

THEN electronics was born. Fleming invented the diode valve in England; de Forest the triode valve in America. In 1912 de Forest made the first triode amplifier. Experiments in electrical recording began in 1919 and three British record companies thereafter carried on research independently but the first high quality system emerged from the Bell Telephone Laboratories in 1924. Rights to that system were secured by H.M.V. and Columbia and their subsidiaries and American associates. Other companies had to fend for themselves.

When the first electrical recordings

◁ **High Quality Amplifier** (1945)
Total distortion content 0.1%.
Photo: H. J. Leak & Co. Ltd.

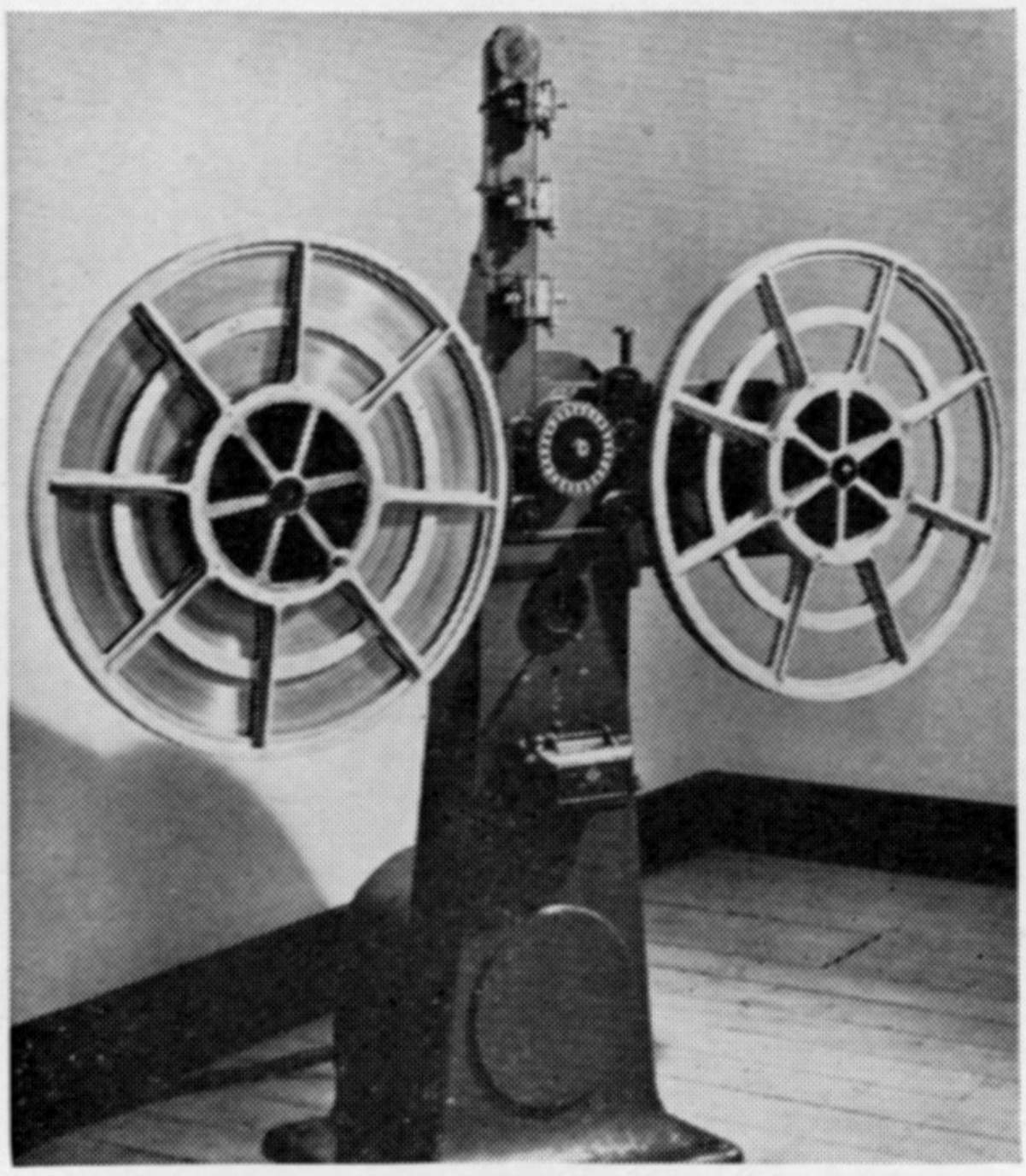
Decca "Decola" Radio-Gramophone (1946)
Fitted with a light-weight pick-up having a sapphire stylus and three 12in. loudspeakers.
Photo: The Decca Record Co. Ltd.



H.M.V. Model 3000 "Electrogram" (1947)
A 20-watt amplifier fed a triple speaker system in a separate console cabinet, with a special ribbon speaker for frequencies above 5 kc/s. *Photo: The Gramophone Co. Ltd.*



Blattner-Stille Steel Tape Recorder
This type was used by the B.B.C. from 1932. Tape width: $\frac{1}{8}$in. Playing time: 30 mins. Tape speed: 59 ins./sec. *Photo: British Broadcasting Corporation.*



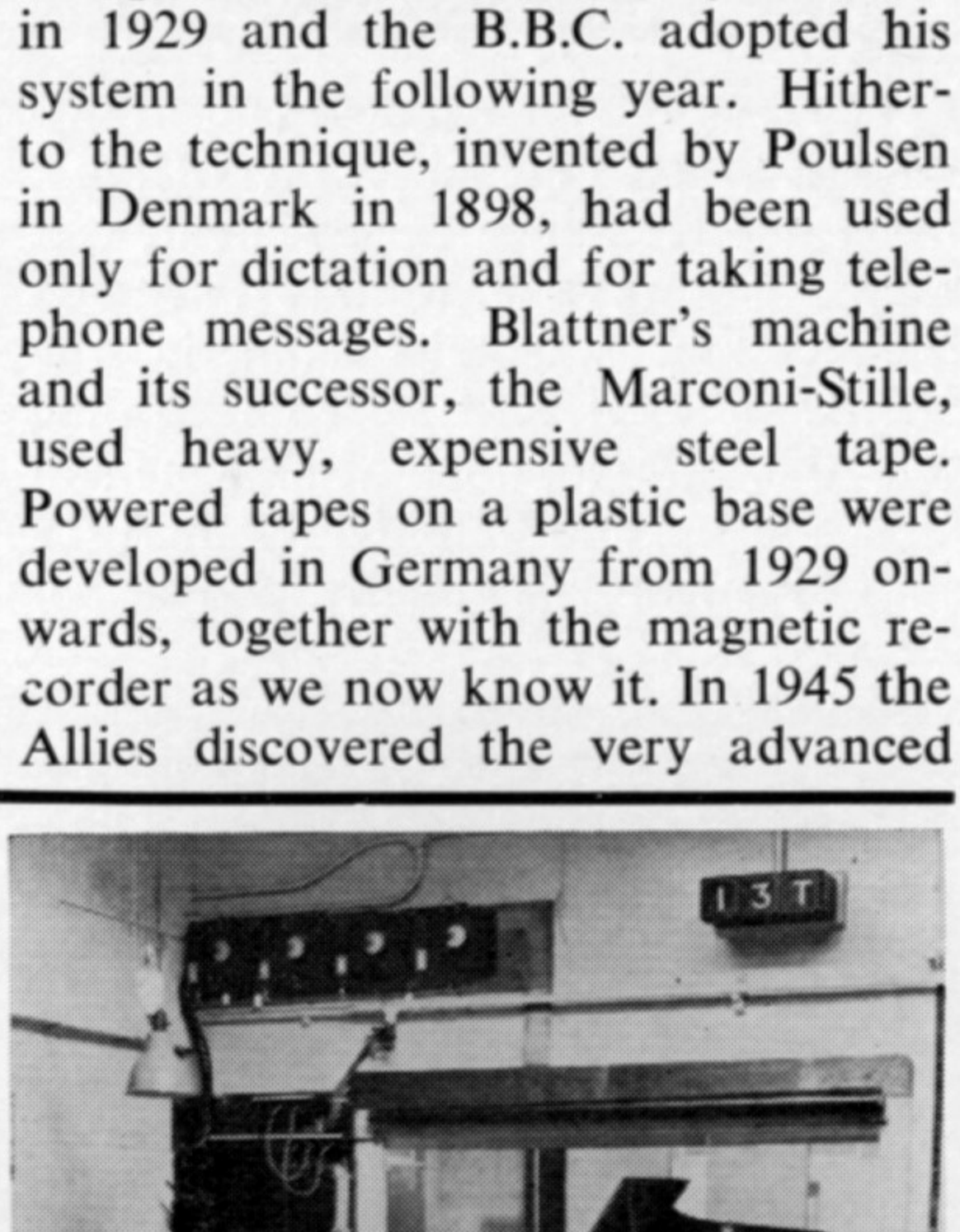
appeared on the market in mid-1925 it was immediately evident that the gramophones of the day would not handle them. Indeed few electric reproducers before about 1934 could outperform the best acoustic machines of the period.

A new trend in pick-ups emerged from Germany in 1936: a relatively lightweight design (25gm. pressure, as against 100) with a semi-permanent sapphire reproducing point. This gave hope for the extension of the frequency range and the quieter record materials

MAGNETIC recording was first applied to Broadcasting by Blattner in 1929 and the B.B.C. adopted his system in the following year. Hitherto the technique, invented by Poulsen in Denmark in 1898, had been used only for dictation and for taking telephone messages. Blattner's machine and its successor, the Marconi-Stille, used heavy, expensive steel tape. Powered tapes on a plastic base were developed in Germany from 1929 onwards, together with the magnetic recorder as we now know it. In 1945 the Allies discovered the very advanced

Recording on Magnetic Tape (*c.* 1949)
Shows the type of studio recorder introduced in Britain in 1947. *Photo: E.M.I. Studios Ltd.*

Marconi-Stille Tape Recorder
Used by the B.B.C. from 1934. An improved machine, though basically similar to the 1932 Blattner-Stille model. *Photo: British Broadcasting Corporation.*





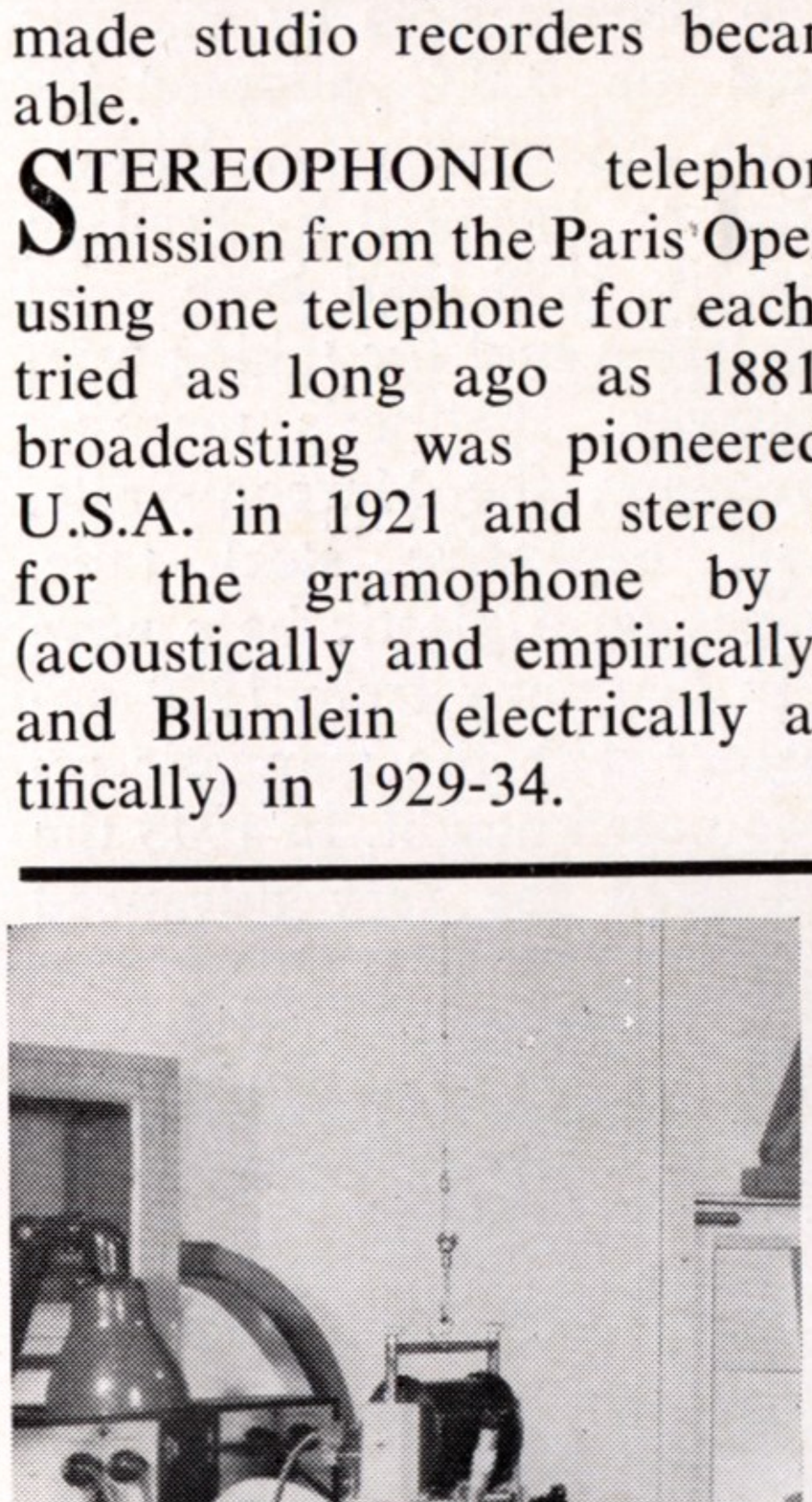
An Early Electrical Recording Session (*c.* **1926**)
▽ A single condenser microphone (right) has its associated amplifier mounted in a wooden box; hence its nickname, the "dog-box" microphone. *Photo: E.M.I. Records Ltd.*



state of this technique in Germany and it was not long (1947) before British-made studio recorders became available.

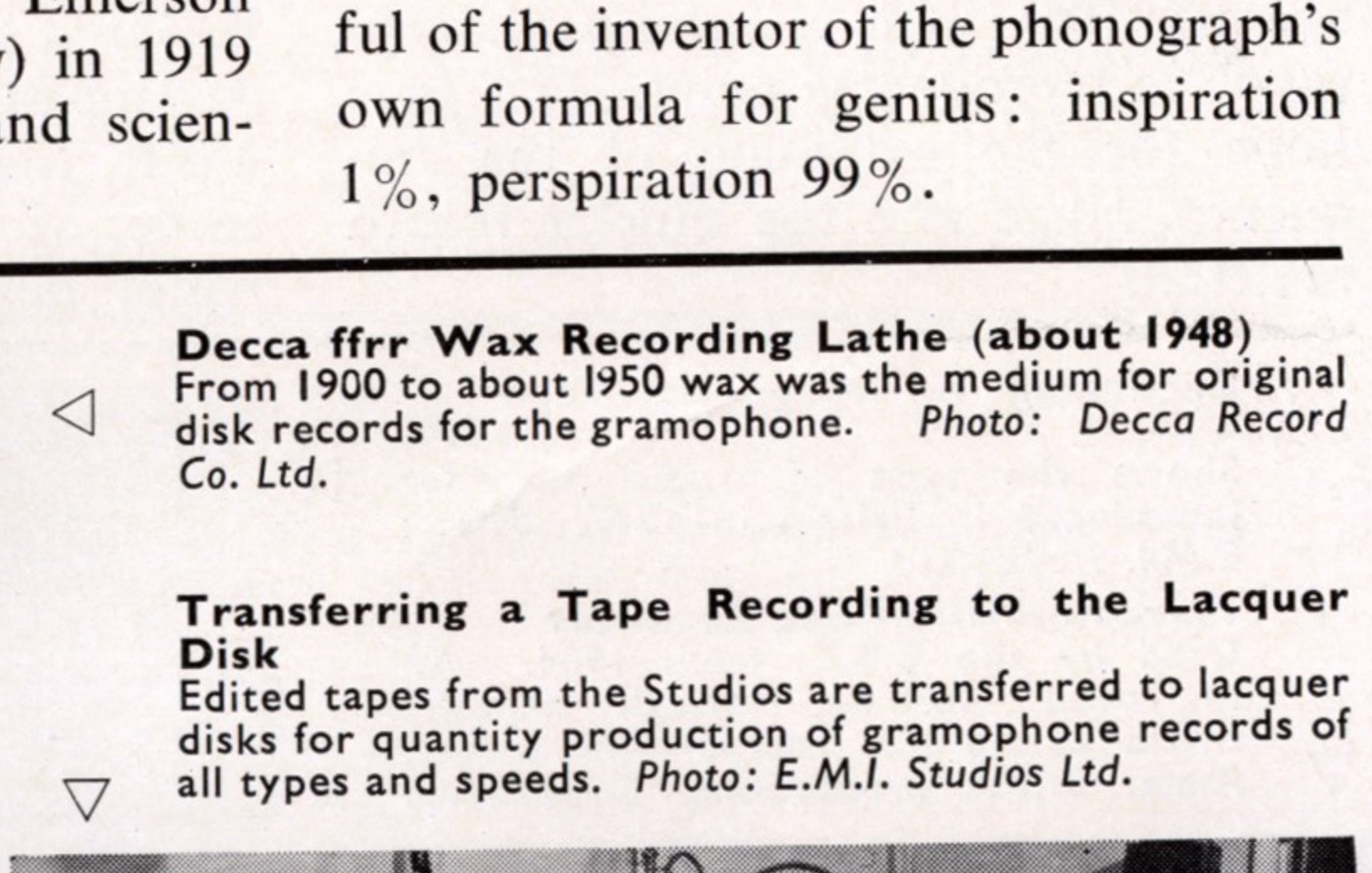
STEREOPHONIC telephone transmission from the Paris Opera House, using one telephone for each ear, was tried as long ago as 1881. Stereo broadcasting was pioneered in the U.S.A. in 1921 and stereo recording for the gramophone by Emerson (acoustically and empirically) in 1919 and Blumlein (electrically and scientifically) in 1929-34.

The century of sound recording which has passed has witnessed the most remarkable advances in communication between men of different continents and eras was since the invention of movable printing type. As you study and savour the latest achievements in the quest for quality, spare a thought for the pioneers, mindful of the inventor of the phonograph's own formula for genius: inspiration 1%, perspiration 99%.



Decca ffrr Wax Recording Lathe (about 1948)
◁ From 1900 to about 1950 wax was the medium for original disk records for the gramophone. *Photo: Decca Record Co. Ltd.*

Transferring a Tape Recording to the Lacquer Disk
Edited tapes from the Studios are transferred to lacquer disks for quantity production of gramophone records of
▽ all types and speeds. *Photo: E.M.I. Studios Ltd.*



Index of Exhibitors

On the following pages is a complete list of all the firms showing and demonstrating at the London Audio Fair, 1959.

They are placed in this Guide alphabetically — by their Trade Name — beneath is their full title and address — and below that the type of product manufactured. Then comes an article of the Exhibitor's apparatus and equipment containing fullest details both technical and explanatory. If a manufacturer has more than one Trade Name, this is shown at the end of this article.

Also overleaf, will be found a plan of the Exhibition Halls with the number of each booth clearly indicated. It also shows how to use the express lift to the demonstration floors and where the re-entry point from these floors to the Exhibition Halls is situated. The second plan shows the situation of the Demonstration Rooms on each floor, and where the staircases are to be found . . . both up and down. It also shows the re-entry staircase down to the EXHIBITION HALLS.

Against each Trade Name is the Booth number and the Demonstration Room number.

ACOUSTICAL

Acoustical Manufacturing Co. Ltd.
Huntingdon, Hunts.

Electrostatic Loudspeakers
Amplifiers, Radio Tuners

BOOTH 15

DEMONSTRATION ROOM 117

Whereas at the last London Audio Fair we had to apologise for the long delay in delivery of QUAD electrostatic loudspeakers we are now pleased to announce that the expansion of production forecast then has enabled us not only to meet the home market demand without difficulty but also to commence export in considerable numbers through our appointed agents overseas. It is interesting to note that four years after the first public demonstration of this loudspeaker it is still at the time of writing, the only full range electrostatic model in production in the world.

The QUAD 22 control unit recently added to this range of equipment, both preserves all the main features of the well established QUAD II control unit and also makes comprehensive provision for stereo reproduction from all programme sources. Since it is the same size as the QUAD II control unit and uses the same method of mounting, converting an existing QUAD II installation for stereo presents no great difficulty. The QUAD II power amplifier will continue unchanged, so the new control unit will be used with either one QUAD II power amplifier for monaural, or two QUAD II power amplifiers for stereo operation. This, of course, is another important factor in converting existing installations.

Selection of monaural or stereo, radio, tape, gramophone or microphone, and various record equalisation characteristics, is made by six interlocking push buttons and the volme, on/off, balance, bass, treble, filter frequency and filter slope controls are all readily accessible on the front panel: no pre-set controls are hidden elsewhere. The versatile pickup matching system of plug-in units so well proved in the QUAD II has been extended in the new unit to cover both monaural and stereo pickups, and provision has also been made to accommodate possible future stereo radio broadcasts.

Designed for fringe area operation the QUAD F.M. tuner is suitable for all areas except those subject to deep fading where the transmissions cannot be considered usable. The standard model covers broadcast frequencies used throughout the world but care should be taken when ordering for overseas to ensure that the correct de-emphasis time constant is specified.

Non standard versions of the QUAD II power amplifiers are available to special order for professional, industrial and scientific application. The unconditional stability of this model allows any number of units to be connected in parallel without interaction, and this feature is also of great value when varying or non standard loads have to be considered.

All these items are exhibited and fully descriptive literature is available at our stand. The equipment may be heard in our demonstration room and also in certain other rooms such as, for example, Wharfedale Wireless Works Ltd., Collaro Ltd., Goodmans Industries Ltd., Goldring Manufacturing Co. Ltd., and Rank Cintel Ltd., in conjunction with those companies' own products.

ALTOBASS

Altobass Limited
Percy Road
Aylestone Park, Leicester

High Quality Sound Reproducing Equipment, Loudspeakers and Amplifiers

BOOTH 39
DEMONSTRATION
ROOM 355

Altobass are exhibiting and demonstrating a complete range of amplifier and loudspeaker systems, for both monaural and stereophonic sound reproduction.

ALTOBASS HIGH FIDELITY STEREOPHONIC AMPLIFIER SYSTEM

This system combines the Altobass Stereo 70 Preamplifier and Control Unit, with the Altobass Twin-Twelve Stereo Power Amplifier.

The STEREO 70 is provided with input sockets in each channel for low-level magnetic pickups, radio, direct tape head, microphone and an auxiliary input which may be used for self-equalized crystal pickups. The pickup input is equalized to the R.I.A.A. characteristic, whilst the Volume, Bass and Treble controls are dual concentric units, enabling the frequency response and volume level of each channel to be adjusted independently.

The TWIN TWELVE Stereo Power Amplifier consists of two independent three stage ultra-linear push-pull amplifiers, each developing 12 watts maximum output.

Switched AC outlets are provided for ancillary equipment and supplies are available for feeder chassis and preamplifiers. Alternative output impedances are provided.

ALTOBASS SEVENTY AMPLIFIER

This is a truly high fidelity instrument designed for use with a wide range of equipment. The preamplifier is a separate two stage unit, permitting the use of any known pickup as well as direct tape head feed.

In addition to frequency and volume controls, switched high and low pass filters are provided. The separate power amplifier using photo printed circuits has a rated output of 10 watts with an ultra-linear output stage.

ALTOBASS HIGH FIDELITY 510 AMPLIFIER

This unit combines a separate preamplifier, which increases the overall sensitivity and flexibility, with an ultra-linear output stage. The Altobass 510 enables a new realism and fidelity to be achieved in all aspects of sound reproduction. The use of printed circuits as a basis for the design of both units ensures a negligible inherent noise level and give greater reliability and consistency.

ALTOBASS TWIN II STEREOPHONIC AMPLIFIER

The Altobass Twin II Stereo Amplifier System was designed to satisfy the demand for good quality stereophonic reproduction at a reasonable price.

It consists of two inter-connected units, the control unit and the main amplifier. The control unit will accept inputs from monaural and stereo crystal pickups of the self-equalized variety and a monaural radio feeder chassis. Dual concentric potentiometers are employed for the volume and tone controls.

AMPEX

Ampex Corporation
Rank Cintel Ltd.
Worsley Bridge Road
London, S.E.26

Professional Tape Recorders

BOOTH 63

DEMONSTRATION ROOM 259

Rank Cintel Ltd. who have been modifying to British T.V. standards and distributing the well known Ampex Videotape recorder are now pleased to present Ampex Audio Equipment.

Three examples from the complete range will be shown including the 351-2 Two Channel Recorder, the 601-2 Two Channel Portable Recorder and the 620 Amplifier/Speaker: brief specifications of which are given below.

On stand 63 can be seen a display of equipment where the tape transport mechanism and head assembly can be examined and in room 259 continuous demonstrations of both monophonic and stereophonic tape recordings will be given in conjunction with Quad Amplifiers and Electrostatic Speakers. Tickets for these demonstrations will not be required and you are cordially invited to attend at any time.

BRIEF SPECIFICATIONS:

351 Two Channel Recorder. $7\frac{1}{2}$ and 15 or $3\frac{3}{4}$ and $7\frac{1}{2}$ i.p.s. ±2dB 30 to 15000 c/s at 15 i.p.s. Signal/noise ratio at 15 i.p.s. 70dB full track, 65dB half track and two channel stereo. Crosstalk rejection 50dB. Flutter and wow less than 0·15% r.m.s. Separate record and playback heads and amplifiers. 105μV input for full record level, output +8dB from 600Ω or 2V in high impedance.

601-2 Two-Channel Portable Recorder. Weight 42lbs. $7\frac{1}{2}$ i.p.s. ±2dB 40 to 10000 c/s ±4dB 30 to 15000 c/s. Separate erase, record and playback heads. Signal/noise ratio and cross talk rejection better than 50dB. Flutter and wow less than 0·17%. Separate record, playback, microphone and line amplifiers all 0·1% maximum distortion. Metered input levels.

Trade Name: AMPEX/CINTEL

ARMSTRONG

Armstrong Wireless & Television Co. Ltd.
Warlters Road, Holloway
London, N.7

BOOTH 5
DEMONSTRATION
ROOM 222

Products — High Fidelity Amplifiers
Radio Tuners and Complete Radio
Chassis both Stereo and Monaural.
Bandspread and R.F. Shortwave
Receivers and Tuners

PRODUCTS IN THE COMPREHENSIVE ARMSTRONG RANGE INCLUDE:

STEREO-TWELVE Chassis Price £27. 15s. 0d. plus £11. 2s. 0d. purchase tax. The most complete unit yet produced for Stereo, giving 6 watts high fidelity push-pull output on each channel, 12 watts total. Full VHF, medium and long wavebands with adjustable ferrite aerial on AM and automatic frequency control on FM. Stereo and monaural inputs for records, tape and radio, and tape outputs for stereo and monaural tape recording. Comprehensive matching for all types of crystal pick-ups both stereo and monaural and speaker matching on both outputs of 3, 7½ and 15 ohms.

STEREO 44 Chassis. Price £21. 0s. 0d. plus £8. 8s. 0d. purchase tax. Designed as the basis of a complete monaural and stereophonic reproducing system. An AM/FM nine valve chassis giving 4 watts output on each channel, 8 watts total, it covers full VHF and Medium Wavebands. Stereo and monaural inputs for all crystal pick-ups and facilities for stereo and monaural tape record and playback. The ideal basis for a monaural radiogram, or for a complete stereo system now or later, yet only 12″ × 8″ × 7″ high.

JUBILEE Chassis. Price £21. 15s. 0d. plus £8. 14s. 0d. purchase tax. An AM/FM 9 valve chassis with push-pull output stage providing 6 watts. Full VHF, Medium and Long Wavebands with automatic frequency control on FM and ferrite aerial on AM. Tape record and playback facilities and alternative inputs for all types of crystal pick-ups.

A.10 MK. II AMPLIFIER and CONTROL UNIT. Price £32, complete. A high fidelity amplifier with separate pre-amplifier established in the top flight of monaural Amplifiers. The amplifier is rated at 10 watts with a peak output of 20 watts. Sensitivity is from 4 millivolts for full output and there is a 4-position pick-up matching selector. Comprehensive equalizing and filter controls.

PCU.27 STEREO PRE-AMPLIFIER. Price £26. 10s. 0d. This model will be shown for the first time at the 1959 London Audio Fair. It is designed for use with two A.10 type power amplifiers. Other details are not available at the time of going to press.

ST.3 AM/FM Tuner. Price £20. 5s. 0d. plus £8. 2s. 0d. purchase tax. A self-powered high fidelity AM/FM tuner covering the full VHF band (87-108 m/cs) and Medium and Long Wavebands. Automatic frequency control on VHF and adjustable ferrite aerial on AM bands. Excellent in combination with the Armstrong A.10 MK. II Amplifier but the cathode follower stage and variable feedback output control enable this tuner to be used with virtually any amplifier available.

FM.61 VHF Tuner. A high fidelity VHF Tuner designed to match the A.10 MK. II Amplifier in style and performance. Permeability tuning combined with temperature compensated capacitors in the oscillator circuit ensure freedom from drift. Covers the full FM band and incorporates switched automatic frequency control and cathode follower output.

Trade Name: ARMSTRONG

ASTRONIC

Associated Electronic Engineers Ltd.

Dalston Gardens, Stanmore
Middlesex

BOOTH 41

DEMONSTRATION ROOM 120

Amplifiers

A complete range of High-Fidelity amplifiers and associated equipment for both home and professional use is being exhibited and demonstrated.

Amongst the equipment for home use are three pre-amplifier control units Types A1332, A1432, A1434, any of which can be used in conjunction with either of two main amplifiers Types A1333, A1440 and a combined stereo equipment Type A1444.

A1332 STANDARD pre-amplifier control unit, has input facilities for radio, microphone, records, tape, together with treble, bass and volume controls. A pre-set attenuator is fitted to allow any type of P.U. to be used satisfactorily.

A1432 CECILIAN, pre-amplifier control unit has inputs for radio, microphone, tape, and crystal and magnetic types of pick-up. It will load up direct from a tape head and has built in compensation. Controls include wide range treble and bass, four position low pass filter with continuously variable slope control, loudness and volume controls, switchable presence and rumble filters, and pre-set pick-up attenuator. This is a superlative unit second to none in performance and appearance.

A1434 STEREO pre-amplifier control unit, has STEREO inputs for tape, disc and radio and two channel inputs for monaural tape, disc, radio, microphone and auxiliary. In the tape position this unit accepts the input from any good tape head direct, and is fully compensated to the CCIR curve. Two P.U. sockets allow for the use of either crystal or magnetic pick-ups. Controls include, treble, bass, volume, presence, rumble filter and pre-set balance control. A feature of this control unit is that the treble, bass and volume controls are concentric knobs which allows each channel to be separately adjusted to suit individual taste and requirement, which is particularly useful when playing monaurally and provides a pseudo stereo affect to be obtained from monaural inputs.

A1333 10 watt amplifier provides power for any of the control units mentioned above and also adequate power for any radio tuner.

A1440 ATLAS 20 watt amplifier also has power supply for any control unit and radio tuner. Using EL34's in the ultra linear condition for the output stage with 30db of negative feedback.

A1444 COMBINED STEREO UNIT has been produced to enable high-fidelity reproduction of stereo recordings to be obtained with the minimum of equipment and expense all that is required being a gramophone unit with crystal cartridge and two loudspeakers. The input switch selects radio, tape, 78, or L.P. records, and the controls are treble, bass, volume with on-off, and pre-set channel balance. The unit is supplied for panel mounting into any cabinet or can be supplied complete with ventilated cover attractively finished, for shelf or table use.

Among the Public Address Equipments on view are:—

A1267 40 watt amplifier mains or battery operated with 2 microphone and gramophone inputs.
A1424 15 watt amplifier mains or battery operated.
A1442 60 watt amplifier.
A1446 6 channel mixer unit.

Other equipments available include R.C. oscillators, vibrator supplies, 1000 watt amplifiers etc.

AUDIO FIDELITY

Audio Fidelity (England) Ltd.
44, Crawford Street
London, W.1

High Fidelity Monophonic
and Stereophonic Gramophone Records

BOOTH 29
DEMONSTRATION
ROOM 356

In November, 1957, Audio Fidelity released in the United States the world's first Commercial Stereophonic Record. By producing and issuing these records they set a standard of recording which, today, still remains unequalled. In order to achieve this object Sidney Frey, President of Audio Fidelity, aimed at perfection in all fields of the operation, from the recording, mastering, jacket design, to the finished albums. This was achieved by using the finest recording equipment available, allied to new microphone techniques which produced the necessary quality in brilliance, clarity and definition to give the finest Signal/Noise ratio.

PRESSING: Every record is pressed on pure vinyl, specificially designed to withstand wear of the high frequency groove etchings as well as to guarantee the longest possible life to the recording.

TECHNICAL DATA: MONOPHONIC—These recordings are made on Ampex 300 tape recorder using Altec, Electrovoice R.C.A. and Telefunken microphones. The masters are cut by an automatic Scully record lathe with Grampion Feedback Cutter Heads, which, in turn, are driven by 200 watt amplifiers specially designed for this purpose.

STEREOPHONIC—Recorded on to an Ampex 350-2 tape recorder with electronic circuitry, and using Altec, Electrovoice, R.C.A. and Telefunken microphones. The masters are cut with an automatic Scully record lathe mounting a Westrex 45-45 cutter. This cutter has special feedback electronic circuitry driven by special 200 watt amplifiers.

Precision mastering is carried out so as to achieve maximum stylus velocity consistent with minimum distortion. This results in complete channel separation and realises the greatest possible signal to noise ratio. Although the total frequency range of 16 c.p.s. to 25,000 c.p.s. (on these records) may not be within the range of ordinary hearing, nevertheless, inspection of the grooves with a microscope will show the etchings of the upper dynamic frequencies. Audio Fidelity have found that if these frequencies are omitted from the recordings a certain warmth of tone, which is felt and sensed rather than heard, is lost. Because of this, as well as to achieve perfection in "Studies in High Fidelity Sound" the engineers have gone to these extreme electronic lengths. It is recommended that playback equipment of extreme wide range and fidelity is used in order to get the fullest enjoyment from these recordings, as a guide the following table should be adhered to so far as possible:—Low Frequency limit 16 cps; High Frequency limit 25,000 cps; Crossover 500 cps; Rolloff 13·75 db at 10 kc.

SLEEVES

Records are sleeved in thick polythene to ensure protection and to complete the product, Audio Fidelity procure the highest standard printed artwork, which is laminated onto strong album covers. Information on playback characteristics as well as literature concerning individual recording are included in all stereophonic albums.

AVANTIC

Beam-Echo Limited
13, South Molton Street
London, W.1

High Fidelity Reproducing Equipment

BOOTH 6

DEMONSTRATION ROOM 113

The undoubted success of the past year has been the SPA11 Stereophonic Amplifier. This is a combined power and pre-amplifier with twin 7·5 watt push-pull output stages and a full range of controls. It is of extremely attractive design and built to the highest standards of quality and workmanship; yet it sells for the remarkably low price of 28 gns. Two ancillary units are available for use with this amplifier: the STEP21 Stereophonic Tape Pre-amplifier and the STEP11 Stereophonic Pick-up Pre-amplifier for operating from low output pick-ups.

Two Loudspeaker Enclosures are designed to accompany the SPA11 Amplifier. They are the SL7 single-unit Enclosure and the SL71 twin-unit Enclosure. Both are designed to take up the minimum amount of space and are of a price which compares favourably with that of the amplifier.

The SPA21 Stereophonic Amplifier is also a combined power and pre-amplifier but has a higher output (12 watts on each channel), greater sensitivity and more controls than the SPA11. It will operate directly from a tape head or moving coil pick-up. The SL12-21 two-unit Loudspeaker Enclosure is designed specifically for this amplifier.

We are continuing to manufacture the famous DL7-35 single-channel Power Amplifier for the connoisseur. The SP21 Stereophonic Pre-amplifier is designed as a fitting partner for this fine amplifier. A pair of DL7-35 Amplifiers with a SP21 Pre-amplifier will give 54 watts peak power output of the highest quality on each channel and the STEP21 Stereophonic Tape Pre-amplifier will add the final touch of excellence for tape users. This is the best available and is unlikely to be superseded.

The PL6-21 is also a single-channel amplifier but of more modest price (28 gns.). It is a combined Power and Pre-amplifier with many features only found on larger and more expensive amplifiers. It has a peak power output of 30 watts and will operate directly from a tape head or moving coil pick-up.

The BM611 is a self-powered Radio Tuner unit that is in every way a suitable companion to an Avantic Amplifier. It gives continuous coverage of both the v.h.f. and medium wavebands with automatic frequency control on v.h.f. and variable selectivity on m.w. A Foster-Seeley discriminator is used on f.m. for low distortion.

The Junior 'Glyndebourne' console cabinet is designed to accommodate the SPA11, SPA21 or PL6-21 Amplifiers. Space is provided for a record player or tape deck as well as a high-sensitivity v.h.f./f.m. radio tuner specially designed for easy fitting. It is solidly built and finished in contrasting walnut and mahogany veneers. Of neat and elegant appearance it will blend perfectly with the modern home.

BASF

Badische Anilin-& Soda-Fabrik AG
Ludwigshafen am Rhein
Germany

Magnetic Recording Tape

BOOTH 13
DEMONSTRATION
ROOM 113

Magnetic Recording Tape was made in commercial quantities for the very first time at the factory of Badische Anilin- & Soda-Fabrik A. G., Ludwigshafen/Rhine over 25 years ago. Since then the name BASF has been synonymous with magnetic recording tape of unsurpassed quality. Continued BASF developments and improvements have led to the acceptance of the entire LGS range by amateurs and professionals throughout the world.

The outstanding durability of LGS Tape springs from the use of LUVITHERM[R], an unplasticised PVC sheeting, as base material. It does not buckle, is supple and non-inflammable; it is exceptionally strong and remains unaffected by humidity or variations in temperature. Additionally, the high quality magnetic iron oxide layer, firmly bonded to the base material, ensures high-fidelity reproduction of all frequencies.

There are four types of LGS Tape (the number indicates thickness in thousandths of a mm.):—

STANDARD TAPE, LGS 52, has the highest tensile strength and is recommended for all normal recording purposes.

LONG PLAYING TAPE, LGS 35, holds about 50% more tape than a spool of LGS 52 of the same size.

DOUBLE PLAYING TAPE, LGS 26, recently introduced by BASF, was specially developed to provide small and medium sized spools with a greater length of tape. Playing time is about twice as long as a similarly sized spool of Standard LGS 52. It is, thus ideal for long, uninterrupted recordings.

EDITING SOUND TAPE, LGS 55, a standard tape mounted on a yellow carrier on which one can write. The advantage of being able to write on the tape itself, with pen or pencil, eliminates many difficulties in synchronising sound and film when converting "movies" into "talkies." Among its many uses, Editing Sound Tape is ideal for recording running commentaries to accompany documentary films or lantern slides, and wherever parts of a recording have to be located quickly and exactly.

LGS Tape can be stored indefinitely: the handy swivel boxes in which it is supplied are ideal for tape libraries.

(R = Registered Trade Mark)

U.K. Distributors: F. A. HUGHES & CO. LTD., 4, Stanhope Gate, W.1.

Trade Name: BASF

BRENELL

Brennell Engineering Co. Ltd.
1a, Doughty Street
London, W.C.1

BOOTH 37
DEMONSTRATION ROOM 111

Tape Recorders, Recorder Decks

To see and hear Brenell tape recording equipment in action is ample proof of precision engineering at its best. Brenell have complete control over the production of all essential parts — they do not just assemble. Every part is made to exacting specifications and is backed by skilful design and craftsmanship. Increasing export orders for Brenell equipment including large deliveries to the U.S.A. show these products are held in the highest esteem throughout the world.

Among the latest developments to be exhibited will be the Mk.5 Tape Deck, the outcome of almost 10 years' research and manufacturing experience. Although regarded as the deck of the future it is one of the most versatile decks on the market today. Its features include four operating speeds, four heads can be fitted and $8\frac{1}{4}$ in. spools accommodated. For ease of operation only two switches (interlocked for safety) are employed. These control Record, Playback, Wind and Rewind and have extended shafts for fitting extra wafers to make the deck quickly adaptable for use with a variety of Hi Fi equipment. Speed stability is ensured by a large statically and dynamically balanced flywheel. Three BTH shaded four pole motors; Brakes are mechanically operated; Safety device to prevent accidental erasure; Instant stop without spillage; fast rewind in either direction in 45 secs. and azimuth adjustment are among its well proved features.

To facilitate editing, a simple pause mechanism is provided. Design for use with this deck is the Brenell Mk.5 Record/Playback Amplifier. Frequency compensation to CCIR standards at $3\frac{3}{4}$, $7\frac{1}{2}$ and 15 i.p.s. As a straight amplifier it can be used independently to amplify radio, microphone and pick-up signals. For stereo recording two amplifiers can be used in conjunction with a 4 headed Brenell deck. A mounting rack can be supplied to take the deck and two Mk.5 amplifiers which may be used as pre-amplifiers into existing Hi Fi equipment (special low voltage output available), or complete amplifier into 15 ohm speakers.

The famous 3 star portable is also being demonstrated. Features include three recording speeds, push button control, mechanical interlock, pause key, switched frequency correction, digital rev. counter, printed circuit amplifier, C.R. level indicator and head phone monitoring facilities. Approved by the Council of Industrial Design. For use with the above equipment a small mixer unit primarily for high impedance sound sources is available. It is interesting to note that all Brenell models may be converted to stereophonic use.

B.B.C.

The British Broadcasting Corporation
Broadcasting House
London, W.1
V.H.F. Sound Broadcasting Service

BOOTH DEMONSTRATION ROOM XX

The BBC exhibit will publicise the continuing development of VHF sound broadcasting and will give details of the present series of experimental stereophonic transmissions.

VHF SOUND BROADCASTING

At the present time there are 18 transmitting stations in operation and these provide transmissions of the Home Service, Light Programme and Third Programme, together with Network Three, to no less than 96 per cent. of the population of the United Kingdom. Further stations are planned so as to bring the benefits of VHF sound broadcasting to an even greater number of listeners.

The introduction of VHF sound broadcasting has given greatly improved reception conditions to the many listeners who have provided themselves with VHF receivers or tuner units, the transmissions being virtually free from the foreign interference to which the medium- and long-wave services have become subject to an ever increasing extent. In addition, the VHF transmissions are relatively free from the effects of many of the forms of electrical interference which are so troublesome in the long- and medium-wave bands. Of particular interest to visitors to the Audio Fair will be the fact that the quality of reproduction of programmes transmitted by VHF is superior to the reproduction which is generally possible from medium- and long-wave receivers, because of the need to design the latter to minimise the effects of interference.

Nevertheless, great care must be exercised in the choice of receiver and in the installation of an appropriate aerial if the full benefits of this new system of sound broadcasting are to be fully realised.

BBC EXPERIMENTAL STEREOPHONIC TRANSMISSIONS

Commencing in October of 1958 the BBC has been making fortnightly experimental stereophonic transmissions on Saturday mornings using two separate transmission channels. Continuing efforts are being made to find suitable means of providing a compatible system of stereophonic transmission which will enable stereophonic broadcasts to be made using only single transmitters, but present indications are that it must of necessity be some considerable time before such a system can be brought into even experimental operation.

CHAPMAN

C. T. Chapman (Reproducers) Ltd.
Chapel Lane
High Wycombe
Bucks

Amplifiers, Control Units and Tuners

BOOTH 56

DEMONSTRATION ROOM 234

The company produces a complete range of domestic high fidelity equipment. Amplifiers, both single channel and stereophonic, tuners either AM, FM or AM/FM are offered to the listener who wants and expects to get, the very best quality in sound reproduction. A new stereophonic amplifier with separate control unit, and a new AM/FM tuner are included in the display, which contains:

TUNERS:

FM 80 Switched FM tuner.
FM 91 Long range FM tuner, for shelf or cabinet mounting.
FM 85 AM/FM tuner.
FM 95 AM/FM tuner, for shelf or cabinet mounting.
S5E/FM De-luxe AM/FM tuner.
S6 AM tuner.
S6BS AM Bandspread tuner.

AMPLIFIERS:

'Tranquillo' 105 Amplifier for shelf or cabinet mounting.
205 amplifier and control unit rated at 20 watts.
305 Stereo amplifier for shelf or cabinet mounting.
The 305 stereo amplifier which is being continually demonstrated in Room 234 has the following specifiications.

The Control Unit. Inputs Stereo or monaural, tape direct from heads 4·5 m/V. Tape from pre-amp. 100 m/V, radio 100 m/V, pick-up 4·5 m/V. Controls — Selector for tape, radio, gram and aux. Function switch for Stereo, Stereo reverse, channel A, channel B, Volume, Balance, Bass, Treble, Filter. The Power Amplifier. Double 8 watt with push-pull, ultra-linear EL 84 output valves feeding a grain orientated Partridge transformer in each channel. Spare power for tuner. Complete with ventilated cover. Alternatively, the Stereo control unit can be used with two 205 power amplifiers to give 20/30 watts per channel.

The FM 91 and the FM 95 tuners, the Tranquillo 105 and the Stereo 305 amplifiers are all of a similar attractive presentation, and are ideal for installing as matching pairs. Either tuner can go with either amplifier, the spare power for the tuner being obtained in each case, from the amplifier. Each unit is supplied complete with a graceful cabinet and legs ready for shelf mounting, but can easily be fitted into wooden cabinet with other equipment if desired.

All radio tuners can be supplied either self-powered or unpowered, for 200-250 volts or 110 volts and in the case of FM receivers, with frequency coverage up to 108 Mc/s. All units are fully propicalised, and are suitable for use in any part of the world.

COLLARO

Collaro Limited
Ripple Works, By-Pass Road
Barking, Essex

Transcription Unit, Tape
Transcriptor, Record Changer
Gramophone Unit

BOOTH 55
DEMONSTRATION
ROOM 237

COLLARO LIMITED are, once again, exhibiting a range of High-Fidelity Gramophone and Tape equipment.

The Mark IV Tape Transcriptor is a two-directional, twin track model employing two separate pairs of magnetic heads; by this means a tape may be recorded or played and instantly reversed to record or play in the opposite direction without re-winding or removing the tape. It is a three-speed machine — $3\frac{3}{4}$, $7\frac{1}{2}$ and 15 i.p.s.

The spool carrier and fly-wheel brakes are inter-connected with an On/Off Micro-switch and these, in turn, are operated by the Stop pad; this system reduces the load on the motors when changing direction.

A pause control is incorporated by means of which the user may stop the passage of tape past the magnetic heads for as long as the control is operated, whilst still leaving all other facilities in their pre-selected positions. This feature is especially useful for precluding speech interspersed between broadcast musical numbers.

Tape position location is made easy by the inclusion of a cyclometer-type, three digit counter. Another feature is the record safety slide which makes it impossible to erase pre-recorded tapes by accidental depression of the record button.

Also on show will be the 4.TR.200 Transcription Unit. This Unit is mounted on a heavy steel plate $12\frac{1}{2}''$ square, the motor being fixed to a sub-plate which, in turn, is held to the Unit Plate by means of three horizontally transposed springs. No pickup is supplied with this Unit.

Another version of this Unit is the 4.T.200, which has a Unit Plate $15\frac{1}{4}'' \times 12\frac{1}{2}''$ and a special pickup arm capable of playing 16″ records, fitted through a clearance hole in the Unit Plate on to a separate wooden mounting board. Both of these four speed units are fitted with precision turned, heavy, non-magnetic, turntables and are virtually free from "rumble", "wow" and "flutter".

An entirely new four speed gramophone unit being shown is the **RP.594**, mounted on a steel plate $12'' \times 13\frac{1}{2}''$ with the turntable running in a well; it has a dynamically balanced, transcription quality Motor, resiliently mounted on three soft rubber grommets. The heavy steel turntable runs on a hardened ground and lapped spindle and the entire thrust is taken by a hardened steel ball.

Normally fitted with the latest counter/balanced type of pickup arm which will house any of the range of "Studio" Cartridges, including the type "C" Ceramic Stereophonic and most other types. Owing to the almost frictionless pickup base and ultra lightweight Automatic Stop mechanism, the pickup will track perfectly with a stylus pressure of 5-7 grammes.

In demonstration room No. 237, visitors will hear stereophonic records played on a "Conquest" record changer with the counter/balanced Pickup Arm and the Stereophonic Ceramic type "C" Cartridge which has an output of 50 m.v. per channel at 1 c.m./sec.

Monophonic demonstrations, both of the Mark IV Tape Transcriptor and the 4T.200 Transcription Unit, using a "Studio" TX.88 extended range cartridge, will also be given.

CONNOISSEUR

A. R. Sugden & Co. (Engineers) Ltd.
Brighouse, Yorks

Transcription Turntables
Pick-ups and Arms
Disc Recorders and Amplifiers

BOOTH 12

DEMONSTRATION ROOM 317

CONNOISSEUR STEREOPHONIC PICKUP 45/45. Ceramic type with diamond stylus. Developing approximately 20m.V. from normal stereophonic discs. 20db separation channel to channel. Frequency range 20-16,000 cycles ± 2dbs. The driving unit is extremely small and is mounted under our normal head cover and standard plug fittings. A new arm has been designed which will also accept both Mark I and Mark II heads. This arm is also fitted with a precision lifting device. The pickup arm dimensions are such that this will immediately replace the Mark II arm.

THE CONNOISSEUR STEREOPHONIC AMPLIFIER AND PREAMPLIFIER forms a compact and versatile unit for the reproduction of high fidelity monaural and stereophonic sound from disc, radio and compensated tape. The physical dimensions of the two units are actually smaller than those of comparable single channel equipment. Utilising ultra linear push/pull output each channel will deliver 6 watts nominal 7·5 watts peak on stereo, and 12 watts nominal and 15 watts peak on single channel working. The preamplifier incorporates sufficient sensitivity for any pickup generally available; accurately matched ganged tone controls; dual concentric volume control; compensated inputs for both stereo and monaural pickups — 78 and LP — and channel selection switch for parallel or stereo working.

THE CONNOISSEUR VARIABLE 3 SPEED GRAMOPHONE MOTOR TYPE B with large stroboscopic disc fitted beneath the turntable being viewed through reflecting mirror with internal light source. Heavy lathe-turned turntable of non-ferrous material. All spindles hardened, ground and lapped. Adjustable bearings fitted to all points of graphite impregnated nylon. Synchronous motor. Low noise level and hum induction. Speed change arranged mechanically and gives 4% variation on all speeds, the synchronous motor running at constant speed at all settings. No braking action is employed to obtain speed change.

CONNOISSEUR SUPER LIGHTWEIGHT PICKUP MARK II. This model employs a permanent diamond or sapphire armature system in which the total mass has been reduced to the order of 5 milligrams. The top resonance on 33·1/3 rpm vinolite discs is in the region of 20/21K.

HQ20 PREAMPLIFIER control unit is a low noise, low distortion tone control preamplifier using selective negative feedback to give proper compensation for most types of disc recordings.

HQ20 POWER AMPLIFIER employs four stages of amplification, the output stage employing a pair of EL34's high slope pentodes.

COSMOCORD

Cosmocord Limited
Eleanor Cross Road
Waltham Cross, Herts

Gramophone Pick-ups, Styli
Microphones, Changer Dust Bugs

BOOTH 48
DEMONSTRATION
ROOM 315

Cosmocord Limited are demonstrating ACOStereo — the ACOStereo 71 is a single-sided cartridge playing stereo and mono L.P.'s. The ACOStereo 73 has a turnover stylus and will play all types of records.

This firm have consistently endeavoured to tackle the problems of record and stylus wear. Outstanding advances in this field include the introduction of the ACOS Changer Dust Bug developed in conjunction with Mr. Cecil Watts, intended for use with the majority of autochangers.

DECCA

The Decca Record Company Ltd.
Decca House, Albert Embankment
London, S.E.11

BOOTH 53
DEMONSTRATION ROOM 319

Decca ffss Stereophonic Pick-up

At the Northern Audio Fair we demonstrated with no inconsiderable success the Decca ffss pick-up on the eve of its general availability to hi-fi enthusiasts. Now that supplies are coming through we are pleased to have this new opportunity of further demonstrations. Not that many Decca ffss pick-ups are likely to be seen hanging around in shops. Available with no undue waiting they are, but production is certainly not in excess of demand . . . hi-fi enthusiasts know a good thing when they hear it. In *Hi-fi News*, for instance, we have read: ' . . . we can assert without equivocation that the Decca pick-up is the best engineered and designed stereophonic cartridge we have had the opportunity of examining to date.'; ' The frequency response is better than any stereo cartridge we have yet tested, the lateral frequency response in particular is considerably better than the majority of hi-fi monaural cartridges '; ' It is in the highest grade, both for professional and domestic requirements, both as a stereo and as a lateral cartridge. We unhesitatingly recommend it for use in the above categories and we compliment Decca on a really fine piece of engineering design . . .'.

Record News and Stereo Disc said ' It is highly recommended without reservation or qualification of any kind '. And recently a most interesting letter has been received from Mr. Redington, an expert of over thirty years experience and managing director of Bernard Smith (Radio) Ltd. of Barnstaple, one of the largest hi-fi dealers in southern England. Copies of this are to be had in room 319. It deals with many aspects of reproduction from disc with the Decca pick-up and includes such statements as ' The pick-up passes all the normal frequency response tests with flying colours. . . . More important, however, than any laboratory test is the listening test. Reproduction from the new stereo discs is a revelation . . . . not only is the high frequency response there, but it is maintained . . . when high frequency transients are normally lost . . . Reproduction from mono discs is equally striking . . . .'.

The output of this remarkable transducer is 1·4 mV/cm/sec. r.m.s. per channel, which means that one can expect at least 20 mV peak output per channel from a stereo disc; impedance is 5000 ohms at 400 c/s; the radius of the diamond stylus is 0·0005/75 inch; the tip mass less than 1 milligram; the stylus compliance $3{\cdot}5 \times 10^{-6}$ cm/dyne; and the frequency response within ± 1 db of RIAA recording characteristic. The pick-up is designed to track at 3·5 grams, is sold complete with arm, and retails at £22 including tax.

But as Mr. Redington has said, the listening test is by far the most important. Cold print cannot convey the sound which results from the use of the Decca ffss pick-up. We therefore look forward to welcoming enthusiasts to room 319 where we shall be more than happy to let the proof of the pick-up rest in the hearing. The demonstrations will, of course, provide opportunities for judging also the quality of Decca full frequency stereophonic sound on records. There are now some 250 stereo LPs and EPs on the various labels in the Decca group and information about these, together with copies of the latest issue of *Records magazine*, may be had from our booth (No. 53) on the ground floor.

Trade Name: DECCA

DECCA

Decca Radio and Television
1/3 Brixton Road
London, S.W.9

Decca Stereogram SRG400

BOOTH 38
DEMONSTRATION
ROOM 320

This year's London Audio Fair will provide the occasion for the first public demonstration of a new addition to the range of Decca domestic record reproducing equipment.

For the music lover who wants first class record reproduction but for one reason or another does not wish to venture into the realm of 'hi-fi' as the purists understand the term there is a suitable model among the Decca Stereograms. All Decca Stereograms play all types of disc record (mono discs actually sound better than ever on these instruments), so that they are perfectly straightforward radiogramophones or record reproducers . . . but very good and up-to-date ones.

The new Stereogram which we hope that you will come and hear in room 320 is called the SRG400. This offers all the magnificence of stereo (*and* reproduction of mono records of all speeds *and* FM and AM radio) in a finely wrought setting of traditional dignity. The main cabinet contains the Garrard four-speed auto-changer (which may be operated manually) with pick-up heads for stereo and mono discs fitted with diamond styli for microgroove and a sapphire for 78s; the twin push-pull amplifiers which give 6 watts output per channel and have tertiary winding for negative feedback; all the controls for gramophone and radio; and a triple-speaker system with crossover incorporating one 10-inch speaker, one 8-inch by 6-inch elliptical and one 4-inch tweeter. In a matching cabinet a duplicate speaker system is housed. This is the Stereogram for the many people who have fine traditional interiors with which they felt that one of the three more contemporary Decca Stereograms would not harmonise.

One of these three other models, the SG188, contains substantially the same equipment as this new instrument, apart from the speaker units, but has no radio. This reproducer will be displayed on stand No. 38 on the ground floor. Full details of it, and of the remaining two Decca Stereograms, are given in the literature which may be obtained from the Decca records booth (No. 53) where general queries may be dealt with and current copies of *Records Magazine* are on sale.

Trade Name: DECCA,

DULCI

The Dulci Company Limited
97/99 Villiers Road
London N.W.2

High Fidelity Audio Equipment

BOOTH 27

DEMONSTRATION ROOM 204

The DULCI range of High Fidelity Audio Equipment is well balanced and comprehensive for both Stereo and Monaural needs.

HIGH FIDELITY STEREO EQUIPMENT:

MODEL 'STEREO EIGHT' PREAMPLIFIER is a high gain precision instrument incorporating every facility for high quality Monaural and Stereophonic reproduction. An 8-valve printed circuit is employed. The Unit is suitable for all types of pickups, tuners, tapes and microphones. It is compensated for fast and slow tape speeds; has independent wide range tone controls, steep-cut filter, function selector for stereo and a variety of other facilities and outstanding channel separation. Price £23. 2s. 0d.

MODEL 'STEREO TWO' PREAMPLIFIER. A high grade Monaural and Stereo instrument for use with crystal pickups, tuners and compensated tape. This Unit uses a printed circuit construction with two twin-triodes and full control facilities. Price £9. 9s. 0d.

STEREO POWER AMPLIFIERS — MODEL DPA10/2 is a matched pair of 10-15 watts (each) Ultra Linear Power Amplifiers. Suitable for professional or domestic use with either of the above Preamplifiers where the best possible reproduction is demanded. Adjustable speaker matching.
Price: £25. 4s. 0d. (12 Gns. each).

STEREO POWER AMPLIFIER — MODEL SP.44 is a twin channel unit on one chassis providing 8-watts (4 watt per channel). Ideal for the home and for use with either Stereo Preamplifiers. Output adjustable for 3 and 15 ohm speakers. Price: £12. 12s. 0d.

PRECISION-BUILT HIFI EQUIPMENT (MONO):

MODEL POWER AMPLIFIER DPA10 AND PREAMPLIFIER. This is a 10-15 watt Ultra Linear Power Amplifier with a separate Preamplifier which embodies all controls.

These are attractively styled and provide all facilities for High Fidelity reproduction for domestic or professional use.

Price: DPA10 Amplifier only: £12. 12s. 0d. with Preamplifier: £19. 19s. 0d.

POWER AMPLIFIER MODEL GA4. A 4-watt 4-valve Power Amplifier complete with a separate Preamplifier. Ideal domestic equipment with ample power for the average home. Price £9. 9s. 0d.

TUNERS:

SELF-POWERED AM/FM TUNER — MODEL H4T/2. For first class reception on B.B.C. High Fidelity transmissions on the VHF/FM Band and the normal Long, Medium and Short Wave Broadcasts. Magic Eye tuning, audio stage with negative feedback and dual output facilities for high and low sensitivity amplifiers. An outlet for an adaptor is fitted in anticipation of Duplex (Stereo) FM transmissions. Price: £24. 19s. 0d. (inc. P/Tax).

MODEL FMT/2 VHF TUNER. This is a new-comer to the Dulci range with many refinements and improvements most important of which is automatic frequency control and outstanding sensitivity.
Price: £20. 17s. 0d. (inc. P/Tax).

Illustrated literature dealing with all these products is available from the Manufacturers.

DYNATRON

Dynatron Radio Limited
St. Peter's Road
Furze Platt, Maidenhead
Berks.

BOOTH 43

DEMONSTRATION ROOM 248

Stereo and Monaural Pre-Amplifiers and Amplifiers, VHF Tuners, AM/FM Tuners, Loudspeaker Consoles, High Fidelity Record Reproducers and Radiogramophones

No visitor to this Fair can afford to miss a visit to the Dynatron stand and demonstration room. Displayed and demonstrated are stereophonic and monaural Amplifiers, Pre-Amplifiers, VHF Tuner Units, AM/FM Tuners, Loudspeaker Consoles and cabinets for housing equipment. Described below are just some of the latest equipments being exhibited.

STEREO PRE-AMPLIFIER TC6CS

This unit comprises identical twin pre-amplifiers with a comprehensive control system for stereo and single channel application. Inputs, may be from either a magnetic or crystal pick-up, from a radio tuner or from a tape deck, all inputs being duplicated for stereophonic reproduction. The TC16CS has been designed for use with Dynatron Amplifiers Type LF15CS and LF16CS for use in stereophonic sound reproduction systems.

PRE-AMPLIFIER TYPE TC15CS

The Dynatron TC15CS is a high performance pre-amplifier with comprehensive control facilities, basically similar to a single channel of the TC16CS stereo model. It is suitable for driving the Dynatron LF16CS Power Amplifier (for 10W. output) or the LF20 Amplifier (for 20W. output).

POWER AMPLIFIER TYPE LF15CS

High quality amplifier, Dynatron LF15CS provides 10W. undistorted output. Output facilities for 15 and 3·75 ohm loudspeakers and mains output socket for gramophone and tape deck motors or to supply a second channel amplifier in a stereophonic system.

STEREO AMPLIFIER TYPE LF16CS

This is companion unit to the LF15CS, designed for use as the second channel amplifier in stereophonic systems and is identical to the LF15CS except for auxiliary power outputs.

CONTROLLER MIXER UNIT TYPE TC20CS

Dynatron Pre-Amplifier TC20CS is designed primarily to drive its companion unit, the LF20CS Audio Amplifier. Basically the unit is a low noise high gain pre-amplifier with mixing circuits for four channels and a most comprehensive control system. Various inputs are provided for all types of pick-up, radio tuner units, tape recorders and microphones.

AMPLIFIER TYPE LF20CS

Providing 20W. of audio output power, this amplifier is engineered to a very high standard. The chassis contains a power supply for the Pre-Amplifier and radio feeder completely separate from the main power pack to ensure amplifier stability.

DYNATRON THREE-WAY CONSOLE

The Dynatron SC1 three-way console is designed to store most types of electronic sound reproduction equipment including Twin Amplifier, Pre-Amplifiers, Transcription Motors and Tape Recorders.

EKCO

E. K. Cole Limited
Ekco Works, Southend-on-Sea
Essex

BOOTH 14

DEMONSTRATION ROOM 318

Stereophonic and Monaural Record Playing Equipment

The Ekco range of equipment for playing monaural and stereophonic records includes the 'Nine Octave' record reproducer Model RP341 and a new portable record player Model RP343. For playing stereophonic records, each of these instruments is used with a matching stereo unit, while Model RP343 can alternatively be used in conjunction with a suitable Ekco A.C. mains radio receiver to provide stereophonic sound from records.

The 'Nine Octave' record reproducer provides reproduction of outstanding fidelity, embracing a musical range of nine octaves (30 c/s. to 16 Kc/s.). This exceptionally wide response is due in large measure to the Ekco 'Tuned Fidelity' speaker system, which incorporates a special, individually tuned acoustic chamber housing the main speaker unit and separate matched treble speakers. Peak output is 8 watts, ensuring an adequate power reserve for any home.

The separate stereo unit (Model SU341) for use with this model contains a matched amplifier and triple speaker system. All that is necessary to reproduce stereophonic discs is to plug-in the stereo pick-up and a single cable, the 'Nine Octave' reproducer incorporating the necessary twin-channel input circuit with ganged controls. The reproducer and stereo unit are attractively finished in medium walnut veneers, with woven plastics speaker grilles. Tapered legs are fitted with gold-colour metal ferrules.

A new portable record player, Model RP343, provides stereo facilities by the addition of either an Ekco A.C. mains radio receiver or a special matching stereo unit, Model SU343. A novel feature is the inclusion of a push-button muting device, permitting the temporary silencing of the reproduction if required, without disturbing the volume settings. Push-button selection of stereophonic or monaural operation is provided and a single lever movement changes the pick-up stylus from stereo and L.P. to 78 r.p.m. records. Independent bass and treble controls are included in both the player and stereo unit, both of which provide a 7-watt push-pull output and are housed in lightweight carrying cases in a choice of attractive colours.

Trade Name: EKCO

ELECTRONIC REPRODUCERS

Electronic Reproducers (Components) Ltd.
(formerly E-V Limited)

BOOTH 58

Camp Bird House, 39 Dover Street,
London, W.1

DEMONSTRATION ROOM 255

Gramophone Pick-up Cartridges
(Crystal and Ceramic)
Stylii (Sapphire and Diamond)

Electronic Reproducers (Components) Limited specialize in the design and manufacture of gramophone pick-up cartridges and included in the range is the well-known " Power Point " plug-in minature ceramic cartridge which is in extensive use by leading Radio Manufacturers throughout the world.

The 1959 Audio Fair Exhibition sees the introduction of our latest ceramic stereo pick-up cartridge which has been designed for fitment to virtually any type of record playing equipment.

Also included in our range of products are sapphire and diamond stylii which are used by many of the world's leading cartridge Manufacturers.

Full information is available at our Stand which you are cordially invited to visit.

Trade Name: ELECTRONIC REPRODUCERS

E.M.I.

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

Emitape, Emifilm
E.M.I. Professional Tape Recorders
Capitol Stereo Reproducers

BOOTH 34

DEMONSTRATION ROOM 212

The name of E.M.I. is traditionally associated with the science of sound recording and reproduction. This year's exhibit again reflects its progress in these fields.

STEREOPHONIC DISC REPRODUCERS

On display in Demonstration Room 212 is CAPITOL Model RS101 — Hi Fi Stereophonic Reproducer — made by E.M.I. This model is made up of three units. Two are loudspeakers each containing a matched group of speakers. The third unit is a control cabinet in which a 4-speed record player is housed together with amplifiers and controls. Whilst nothing has been sacrificed technically all three units have been kept to a minimum size. The loudspeaker units are triangular in section to permit corner mounting without unnecessary waste of space. However, if preferred, they can be hung either vertically or horizontally or stood on a set of legs.

CAPITAL RS101, besides providing the reality of 'stereo' is also a high fidelity reproducer of monaural microgroove records. The twin speakers and the low distortion amplifiers switched in parallel provide a range of tonal depth to satisfy the most fastidious listener.

EMITAPE AND EMIFILM

The varied and increasing range of Emitape and Emifilm is displayed in detail together with its associated accessories. E.M.I. are justly proud of the fact that their Tape Factory, the largest and most modern in Europe, is constantly increasing its output both in quantity and variety.

PROFESSIONAL RECORDING EQUIPMENT

E.M.I. Professional Recording Equipment has been adopted by leading Recording Companies and Broadcasting Organisations throughout the world. A number of these instruments are on display and are representative of the wide range designed to meet the varying needs of professional, scientific and industrial recording requirements.

Trade Names: EMITAPE, EMIFILM, CAPITOL, E.M.I.

E.M.I. RECORDS

E.M.I. Records Limited
8-11 Great Castle Street
London, W.1
Gramophone Records

BOOTH 69
DEMONSTRATION ROOM 213

E.M.I. RECORDS LTD., are using their Stand as an Enquiry Bureau where visitors to the Exhibition can obtain whatever information they require in respect of all records manufactured or handled by the Company: this embraces almost the whole record field.

The Stand features displays of the latest His Master's Voice, Columbia, Capitol and Mercury Stereo Discs, together with all appropriate literature and full details of His Master's Voice, Columbia, Capitol, Parlophone, M.G.M., Mercury and EmArcy Monaural recordings.

If there is any information or service you require in connection with gramophone records call at the E.M.I. RECORD ENQUIRY BUREAU.

DEMONSTRATION ROOM 213

In this room you can hear at your ease the latest E.M.I. Stereo Recordings reproduced at their best on the latest E.M.I. equipment. Demonstrations will be given continuously throughout the day and tickets for these can be obtained from the E.M.I. Record Enquiry Bureau. In view of the great demand we have experienced in the past for accommodation at these demonstrations, we would urge visitors to apply for tickets as far in advance as possible for the demonstration they wish to attend.

ELIZABETHAN

E.A.P. (Tape Recorder) Ltd.
Bridge Close
Oldchurch Road
Romford, Essex

Tape Recorders, F.M. Tuners

BOOTH 52
DEMONSTRATION ROOM 219

E.A.P. were one of the pioneers in the manufacture of tape recorders in this country. Continual research and development have kept them to the fore and this year sees the introduction of important new items of the greatest interest in the tape recording and electro-acoustical field.

The Elizabethan range of tape recorders includes:

ESCORT

Since its introduction, the Escort has quickly established itself as the outstanding popular recorder of the day. It has an amazing range of facilities, including 3 speeds, 6½ hours playing time, mixing, superimposition, monitoring and first-rate sound reproduction. Its attractive appearance has recently been enhanced by a re-styling of the cabinet in smart contemporary duo-tone fabrics.

45 gns. including microphone, tape and accessories.

ESSEX

A superb semi-professional model, the Essex is at the very top of its class. Catering for every conceivable recording requirement, it has 3 speeds, 3 matched loudspeakers to give the very finest hi-fi reproduction, dual track operation, mixing, and monitoring while recording.

65 gns. including tape and accessories.

Optional microphones:
E.A.P. Ribbon microphone — 7½ gns.
Crystal microphone — 5 gns.

MAYFAIR

An elegant console version of the Essex, the Mayfair has a craftsman-built cabinet of contemporary design, made from bubinga and sycamore woods. With detachable legs, it can be used either free-standing or as a table model. The Elizabethan FM Tuner can easily be fitted to form a complete hi-fi radio/tape installation.

72 gns. including tape and accessories.
Microphones as for the Essex.

ACCESSORIES

There is a full range of Elizabethan accessories for all tape recording requirements. These include the Elizabethan self-powered FM Tuner, which converts Elizabethan recorders into complete tape/radio installations, 16 gns.; the E.A.P. Ribbon microphone, 7½ gns.; Crystal microphones, 5 gns.; headphones, telephone adaptors, connecting leads, etc.

FANE

Fane Acoustics Limited
Batley, Yorkshire

BOOTH 60
DEMONSTRATION
ROOM 217

High Fidelity Loudspeakers and Loudspeaker Systems

BASS UNITS

THE FANE 12″ HEAVY DUTY LOUDSPEAKER. This unit is rated at 20 watts continuous. It has a 2″ voice coil of 15 ohms impedance in a gap of 12,000 gauss and 160,000 total magnetic lines. The cone is fitted with a foam-plastic surround and has a main resonance of 30-35 c.p.s. This unit is available in two models:—

Model 121 with a copper wound voice coil and a range of 25-5,000 c.p.s. at £9. 0. 0.

Model 121 A with an aluminium wound voice coil giving an improved transient response and a range of 25-10,000 c.p.s. at £9. 9. 0.

HIGH FREQUENCY UNIT

THE FANE H.F. LOUDSPEAKER UNIT. This is a new development and is being shown for the first time at the London Audio Fair. It has a ¾″ voice coil of 15 ohms impedance in a gap of 17,000 gauss. It is rated at 15 watts instantaneous peak and will handle the high note portion of 15 watts of music. The frequency range is 1,500-18,000 c.p.s. and a cross-over frequency of 2,000 c.p.s. or a series condenser of 2 microfarads is recommended.

The FANE H.F. Unit will be fitted in future to all FANE multi-speaker reproducers where its freedom from resonances and colourations gives a realism never before achieved. The price of this unit is £3. 15. 0.

MULTI LOUDSPEAKER SYSTEMS

THE QUARTET. This is a 4-speaker combination, with cross-over network, mounted in an extremely attractive cabinet of modest size. It has a power handling of 20 watts and a frequency range of 25-18,000 c.p.s. The loudspeaker units consist of a FANE 12″ H.D. bass unit, an 8″ mid-frequency unit and two FANE H.F. units arranged to give uniform horizontal dispersion. The QUARTET is excellent for stereophonic working and the price is £35. 0. 0.

THE TRIO. This is a 3-speaker combination with cross-over network mounted in an attractive cabinet of modest size. It has a power handling of 15 watts and a frequency range of 40-18,000 c.p.s. The loudspeaker units consist of a 12″ bass unit, an 8″ mid-frequency unit and a FANE H.F. unit. The TRIO was designed particularly for stereophonic working for which it is ideal. The price is £17. 10. 0.

FERROGRAPH

British Ferrograph Recorder Co. Ltd.
131, Sloane Street, London, S.W.1
Simonside Works, South Shields

BOOTH 19
DEMONSTRATION ROOM 261

Magnetic Tape Recorders and Accessories Therefor

The range of Ferrograph recorders well known in the industrial educational and entertainment fields comprise a number of models, each based on the standard Wearite tape deck but modified in accordance with the particular facilities required of it in use.

The company has this year introduced, as from January 1st, a rationalised series for the domestic market, under the heading Series 4 and the basic instrument in this range is Model 4A/N.

The head arrangement of this model is such as to admit of the addition of a further head in a space provided so that any extra facility can be added to those already given by the basic instrument. For example, Model 4A/N, having the speeds of $3\frac{3}{4}$" and $7\frac{1}{2}$" per second, offer the user high fidelity recording and reproduction on single channel with two tracks per tape. To this can be added, by the user himself, an extra head for monitoring, stereo playback of pre-recorded material, stereo recording, lower track working, dual stereo to the new American standard or, in fact, whatever else is required at any particular time by the user.

It will be seen that the purchaser of a Series 4A Ferrograph can, at any time in the future, modify his instrument to meet the needs of any new system or innovation that may be introduced into the tape recording art.

The industrial instruments of the company are designated Series 4C and YD and comprise both single and dual channel instruments, the former being of a staggered head type in order to achieve an acceptable standard of cross talk for industrial purposes.

The industrial models can be supplied in their portable form or for rack mounting and offer a number of facilities peculiar to those engaged in industrial measurement and research.

FI-CORD

Fi-Cord (Distributors) Ltd.
40a Dover Street
London, W.1

Tape Recorder and Battery Charger

BOOTH 22

DEMONSTRATION ROOM 361

AN ADVANCED HI-FI PORTABLE TAPE RECORDER

The FI-CORD opens a new era for audio enthusiasts. It is the only tape recorder on the market which combines real portability (weight $4\frac{1}{2}$ lbs.; dimensions $9\frac{5}{8}'' \times 5'' \times 2\frac{5}{8}''$), extremely good frequency response, full playback volume and up-to-the minute fully transistorised circuitry. Used in conjunction with the sensitive dynamic microphone — which incorporates an on-off switch for the recorder — the FI-CORD enables you to make sound recordings under the most difficult conditions, e.g., in darkness, in a crowd where the machine may be subject to minor jolts, and in many other circumstances where quality recording is normally impossible.

STANDARD TAPES, STANDARD SPEEDS

An important feature of the FI-CORD is its use of standard magnetic tapes operating at standard speeds—$7\frac{1}{2}$ and $1\frac{7}{8}$ i.p.s. In addition, the specially designed constant speed motor really lives up to its designer's intentions under all conditions. Thus tapes recorded on FI-CORD can, if desired, be played back or re-recorded with complete success on any standard hi-fi tape deck.

EXCELLENT FREQUENCY RESPONSE

The FI-CORD has a frequency response from 50 to 12,000 c.p.s. with a maximum attenuation of ± 3db.

RE-CHARGEABLE BATTERIES

The FI-CORD is unique in that it is supplied with four lead acid cells which operate the recorder — at the hi-fi recording speed of $7\frac{1}{2}$ i.p.s., for $1\frac{1}{2}$-2 hours. These batteries, which can be changed in seconds, are then recharged in the special battery charger supplied with the FI-CORD. This charger operates from all AC mains and cuts out automatically when the cells are fully charged. This feature obviously reduces running costs considerably when the recorder is in continual use, and also ensures constant availability.

NO EXTRAS TO BUY

The price of the FI-CORD — 59 guineas retail — is a truly inclusive price. It includes the recorder, integral monitoring speaker, dynamic microphone, spools and tape, 4 batteries and automatic battery charger. For most purposes this is all you need, although for hi-fi musical recordings a special microphone supplied as an extra, may be advisable. Full technical details of the FI-CORD may be obtained from the FI-CORD stand, together with full particulars of its many uses — for cinematography, for musical recording, for business purposes, for scientific use, etc. Comprehensive demonstrations will take place in the special demonstration room.

LIVE DEMONSTRATIONS

There will be special film showings throughout the day, details of which can be obtained from Stand 22. The film has a wide variety of sequences with sound recorded and played back on a FI-CORD.

Trade Name: FI-CORD

GARRARD

The Garrard Engineering and Manufacturing Co. Ltd.
Newcastle Street
Swindon, Wilts.

Record Reproducing Equipment

BOOTH 26
DEMONSTRATION
ROOM 311

Garrard manufacture a wide range of equipment as follows:—

AUTOMATIC RECORD CHANGERS

MODEL RC.88/4 high quality record changer.

MODEL RC.98/4 similar to the RC.88/4 but has the addition of a variable speed control.

MODELS RC.120/4 MARK II and RC.121/4 MARK II are compact and inexpensive units, the RC.121/4 Mark II having a plug-in head. All these Record Changers have four speeds and are fitted with manual control.

TRANSCRIPTION MOTOR

THE MODEL 301 TRANSCRIPTION MOTOR is supreme in its class and has achieved a high reputation for quality and reliability from connoisseurs of High Fidelity reproduction. Wow, Flutter and Rumble has been reduced to the minimum. As supplied to the British Broadcasting Corporation. A turntable stroboscopically engraved on its rim is available at extra cost. 50 or 60 cycle models available.

TRANSCRIPTION PICKUP ARM

THE MODEL TPA.12 is a precision-made Transcription Pickup Arm having all the latest refinements for the critical expert who requires the best. Its styling is ultra modern and it has many unique mechanical features. The plug-in Pickup Head moulding accommodates practically all available types of pickup cartridges.

PICKUPS

THE GARRARD MODEL GMC.5 MOVING COIL PICKUP, in conjunction with its special transformer TP.1 gives the highest possible standard of reproduction from gramophone records.

CRYSTAL PICKUPS having an excellent frequency response and output. Ceramic Pickups are also available.

All the latest development in STREOPHONIC PICKUPS.

SINGLE RECORD PLAYERS

THE MODEL 4HF is a high quality Record Player which is fitted with the TPA.12 Transcription Pickup Arm.

THE MODEL TA Mark II. This is similar in design to the 4SPA Unit, but it is mounted on a substantial rectangular unit plate.

GRAMOPHONE ACCESSORIES

THE GARRARD STYLUS PRESSURE GAUGE, MODEL SPG.2 is an indispensable accessory for the high fidelity enthusiast and in addition to its primary function of measuring stylus pressure it also has a spirit level in its base for checking the level of the turntable. Range 0-15 grammes. A complete range of replacement styli is available for all Garrard pickups.

GOLDRING

Goldring Manufacturing Co.
(Great Britain) Ltd.
486/488 High Road, Leytonstone
London, E.11
Tel: LEYtonstone 8343-4-5

Pick-ups, Cartridges, Saphire and Diamond Styli, Record Cleaning Pads, Transcription Units

BOOTH 8
DEMONSTRATION ROOM 359

The London Audio Fair heralds the introduction of the new Goldring No. 700 Stereophone Cartridge. This is a four pole balanced armature magnetic cartridge, fitted with a ·0005" radius diamond stylus. Its low cross talk and wide frequency range render it capable of superb stereophonic reproduction.

Amongst other new products being shown are the GL60 and GL58 Transcription Units. The GL60 with its heavy (8 lb.) turntable and specially designed thrust bearing creates a new standard in high fidelity reproduction. The GL58, incorporating many of the same exclusive features of the GL60, such as the infinitely variable speed adjustment, and unique Groove Location Device, is a unit of the most exacting domestic standards.

These units are fitted with a new arm which incorporates a slide-in head and a very simple stylus pressure adjustment. This arm, the G.60, wired to accommodate stereophonic cartridges, moves on newly designed ball-races, and has, as a completely new feature, adjustable height. It is also available separately.

Also being demonstrated is the famous No. 600 monaural cartridge, which, with its very wide frequency response up to 21 kc/s. and the low dynamic mass of its diamond stylus, has won acclaim as being a cartridge of the very highest quality.

The range of Goldring Replacement Styli has been increased to include the latest stereophonic types with both sapphire and diamond points. More different diamond styli are available than ever before, the range having again been increased to cover most current cartridges.

The Anti-static Cleaning Pad with the built in Stylus Brush, and the Goldring Stylus Pressure Balance, can also be seen.

GOODMANS

Goodmans Industries Limited
Axiom Works, Lancelot Road
Wembley, Middlesex
High Fidelity Loudspeakers
Loudspeaker Systems,and
Associated Components

BOOTH 18

DEMONSTRATION ROOM 333

FULL RANGE HIGH FIDELITY LOUDSPEAKER SYSTEMS (Stereophonic or Monophonic):

MODEL I.B.3. New 25 watt 3-way system in enclosure measuring only 24″ wide and 12¼″ deep, 14¼″ high, 12″ bass; pressure driven horn loaded mid-range and high frequency units, with separate controls. Coverage 30-16,000 c/s.

AXIOM 15/4. A 15 watt quadruple radiator system whose performance is exceptionally smooth and free from distortion. Freq. Cov. 30-16,000 c/s. 12″ bass, horn loaded mid-range two horn loaded high frequency units. Attractive enclosure 36½″ wide, 19″ high, 13¾″ deep, on 7″ legs.

HIGH FIDELITY LOUDSPEAKER UNITS:

AXIOM 300. 12″ twin cone 15 watt unit, 30-16,000 c/s of very advanced design. Smooth low distortion coverage.

AXIOM 400. Similar to above, but even larger magnet assembly, 20 watts.

AXIETTE. Full range single diaphragm 8″ unit. 6 watts, 40 c/s — 15,000 c/s very smooth coverage. Most suitable for domestic stereophonic or monophonic installations.

AUDIOM (BASS) SERIES. A complete range of robust bass units, 12″ (Audiom 60 and 70) 15″ (Audiom 80) and 18″ (Audiom 90). 15, 20, 25, 50 watts respectively.

MIDAX 650. Compact horn loaded pressure driven mid-range unit for multiple system; 650 c/s — 8,000 c/s.

TREBAX. Pressure driven horn loaded H.F. unit. Smooth coverage from 2,500 c/s — 16,000 c/s.

STEREOPHONIC BOWL UNIT MODEL S.23 AND FILTER

A very compact omnidirectional system intended to be added to an existing monophonic loudspeaker system to avoid the use of a second large loudspeaker system for stereophonic working.

AXIETTE KIT ENCLOSURES. Well constructed 8″ corner reflex enclosure in kit form. Suitable for Axiette 8″.

ACOUSTIC RESISTANCE UNITS. Enable correct loading to be applied with modest enclosure volume A.R.U. 172, 180, 280, 480.

GOODMANS 1959 HIGH FIDELITY LOUDSPEAKER MANUAL contains full information on Goodmans High Fidelity products. Free on request.

DEMONSTRATIONS will be given throughout each day of the Audio Fair in demonstration room No. 333.

GRAMPIAN

Grampian Reproducers Limited
Hanworth Trading Estate
Feltham, Middlesex

Loudspeakers, Microphones and Sound Amplifying Equipment

BOOTH 64
DEMONSTRATION ROOM 304

HOME HIGH FIDELITY

It is useless designing High Fidelity equipment which is suitable for a large hall, and then installing it in a living room of about an eighth the size. Far better to start with the average room and design accordingly. That is where the thought on the new Grampian started and you will be able to hear it in just that type of room. The outfit consists of three pieces each constructed with that unmistakable stamp of craftsmanship to please the eye as well as the ear.

The twin loudspeakers are newly developed units specially matched to the '590' series amplifier which provides for stereo or mon-aural reproduction. The '590' produces 10 watts power output and can also be purchased as a mon-aural unit for later conversion to stereo.

The '590' amplifier and control unit is also available separately for building into your own cabinet or for shelf mounting.

The Ten-Fifteen amplifier will be on view for those requiring mon-aural only. A few of the features are 15 watts power output, separate power take-offs for pre-amp and F.M. tuner units, a choice of two control units one with a built in pre-amplifier, compensated volume controls and pick-up equaliser-selection switch.

THE "VALENCIA" GUITAR AMPLIFIER

Demonstrations will be taking place during the day of this fine outfit which provides for the young enthusiast, a professional standard of reproduction. Producing seven watts output, the controls are conveniently placed and provide adequate bass and treble response at a flick of the finger.

For those concerned with general sound installations there is a range of P.A. equipment, Amplifiers and Receiver Amplifiers, Microphones and loud-speakers of various type suitable for all types of installations, mobile or fixed.

Trade Name: GRAMPIAN

GRUNDIG

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

BOOTH 23
DEMONSTRATION ROOM 202

The range of GRUNDIG Tape Recorders is a very full one and makes provision for the majority of needs or applications. The machines on show are the TK 20, and its chassis version the TM 20. They are single speed ($3\frac{3}{4}$"/sec.) instruments. As twin-speed machines the TK 25 ($1\frac{7}{8}$" and $3\frac{3}{4}$"/sec.) and the TK 30 ($3\frac{3}{4}$" and $7\frac{1}{2}$"/sec.) are displayed. The TK 35, the most versatile recorder of the current range, is a 3-speed instrument ($1\frac{7}{8}$", $3\frac{3}{4}$" and $7\frac{1}{2}$"/sec.) and displays a most impressive specification.

THE GRUNDIG RANGE OF RECORDERS

	Speed(s)	Spool Size	Weight	Frequency Response*	Price
TK 20	$3\frac{3}{4}$"	$5\frac{3}{4}$"	21 lbs.	60-10000c/s −4 +5db	52 Gns.
TM 20	$3\frac{3}{4}$"	$5\frac{3}{4}$"	12 lbs.	60-10000c/s −4 +5db	44 Gns.
TK 25	$1\frac{7}{8}$" $3\frac{3}{4}$"	$5\frac{3}{4}$"	23 lbs.	60-15000c/s ±3db	62 Gns.
TK 30	$3\frac{3}{4}$" $7\frac{1}{2}$"	7"	30 lbs.	50-15000c/s ±3db	72 Gns.
TK 35	$1\frac{7}{8}$" $3\frac{3}{4}$" $7\frac{1}{2}$"	7"	34 lbs.	50-18000c/s ±3db	82 Gns.

* These figures refer to the highest speed of the particular Recorder. All Grundig Recorders are supplied with Spare Spool, one real of Grundig Polyester L.P. Tape and a Spare Lead type SL 33. The TK 20 and TM 20 are also supplied with a Grundig Condenser Microphone type GCM 3.

Members of the GRUNDIG staff will be available, both at Booth No. 23 and in the Demonstration Room No. 202 to answer all queries whether of a general or technical nature.

Trade Name: GRUNDIG, TK20, TM20, TK25, TK30, TK35

HARTING/TANDBERG

Harting-Tandberg-Group
Hudson House
63, Goldhawk Road
London, W.12

Tape Recorders, Loudspeakers

BOOTH 24
DEMONSTRATION ROOM 118

The WILHELM HARTING Group will be showing a completely new range of high fidelity tape recorder equipment.

HARTING HM5M MONOPHONIC TAPE RECORDER with extended frequency range from 30-20,000 cps. PRICE complete 82 gns.

HARTING HM5S STEREOPHONIC TAPE RECORDER with identical characteristics to the above. This has lower track output on stereo at pre-amp level for feeding external amplifier, radio or radiogram which is used as audio output stage for the lower channel. PRICE 95 gns.

HARTING HM5SD STEREOPHONIC TAPE DECK. This is the first time a professional stereophonic tape recorder deck with facilites both for monophonic and stereophonic recording and playback has been made available as a complete mechanical assembly. This deck may be used with any high fidelity sound equipment, and included is suggested circuitry etc.

FREQUENCY RESPONSE
30 c/s to 20 kc/s within ± 2db at 7½".
30 c/s to 16 kc/s within ± 2db at 3¾".

PLAYING TIME

Standard tape:	1 hour at 7½ i.p.s.	2 hours at 3¾ i.p.s.
L. P. Tapes:	1½ hours at 7½ i.p.s.	3 hours at 3¾ i.p.s.
Double Play Tape:	2 hours at 7½ i.p.s.	4 hours at 3¾ i.p.s.

WOW AND FLUTTER
Total of wow and flutter better than 0·1 of 1%.
Total of wow better than 0·06 of 1%.

REEL SIZE — 7 in. PRICE 42 gns.

TAPE MASTER MIXER UNIT — enables three different inputs to be balanced at any pre-determined level, separately or jointly, and to be fed to any tape recorder or amplifier which only has facilities for single level inputs PRICE 2 gns.

THE TANDBERG QUADRUPLE 4-TRACK MODEL 5 — the only available 4-track stereo recorder with facilities for recording and playback both monophonic and stereophonic. Three speeds — 7½, 3¾ and 1⅞ i.p.s. Frequency response 30-18,000 cps. Double the playing and recording time of any other machine. Facilities for 4 tracks of monaural recording or 2 tracks of stereo recording. Supplied complete with built-in stereo amplifiers. Facilities for playback of stereo discs. The world's most versatile machine. PRICE 124 gns.

STEREO ADD-ON RECORDING UNIT — enables any stereo model Tandberg to be converted for stereo recording, and with modifications can be used for converting any recorder fitted with stereo recording and playback heads so that full ½-track recording facilities are available. PRICE £17.

MODEL EMG9/2 PORTABLE TAPE RECORDER — latest product of the HARTING group. Lightweight, portable, high fidelity, single speed of 3¾ i.p.s. recorder with recording and playback facilities giving response of 30 to 16,000 c.p.s. Uses 5¾" reels with a maximum playing time of 3 hours. PRICE 47½ gns.

HI-FI NEWS

Hi-Fi News
The Tape Recorder
Record News
Hi-Fi Year Book
99 Mortimer Street, W.1

Publications

BOOTH 42
DEMONSTRATION ROOM

HI-FI NEWS shares a birthday with the London Audio Fair, for it appeared (dated June 1956) in its first edition shortly after the first "Fair", held at London's Washington Hotel. As it nears the close of its 3rd Volume, HI-FI NEWS has passed the 20,000 mark in its readership. For the potential reader, this fact is a far better recommendation that anything its publishers can think up to say in its favour! Readers are advised to make a special note of its brief and correct title — HI-FI NEWS, because it has long since been affectionately dubbed "HI-FI MAG:" and, again, just "HI-FI" by the bookselling trade; and since these catalogue notes were compiled last year, another magazine has added the tag "HI-FI" to its title. Be sure . . . of the first, and the best. HI-FI NEWS, price 2/- monthly. Subscription rate 27/6 per annum, or 30/- with annual index, from the address above.

RECORD NEWS, sister journal to HI-FI NEWS, and from the same editorial office, enters its 7th volume with this Audio Fair Number. It is, we believe, the world's finest record review paper in the field of the "classical repertoire". It reviews this branch of music only, and does it thoroughly. Price, 1/6 monthly. Subscription 21/- per annum, or 24/- with annual index, from the address above.

THE TAPE RECORDER, likewise produced by the same editorial office as the above two magazines, was a long-deferred project, planned at the same time as HI-FI NEWS in 1956. It appeared on the market in its first edition dated February 1959, achieving an immediate and almost overwhelming popularity. Two editions of the first number (totalling nearly 14,000 copies) sold out within a week: over 17,600 copies of the second (March) number sold out in the same time. THE TAPE RECORDER caters alike for the beginner and the established enthusiast in this big and growing form of home entertainment, with its hi-fi connections. At 1/6d monthly, THE TAPE RECORDER represents the finest possible value, in terms of high quality editorial content, illustrations, reviews etc. The annual subscription rate is 21/- for 12 numbers, or 24/- including annual index, from the address above.

HI-FI YEAR BOOK (1959 edition) makes its fourth annual appearance this year in an enlarged edition with special emphasis on Tape and Tape Recorders. HI-FI YEAR BOOK is the recognised reference book for the whole audio trade, and deals thoroughly with every aspect of sound recording and reproduction, from disc, tape and radio. Its directory sections contain brief specs, prices, and useful data of all the leading manufacturer's equipment, together with addresses, telephone numbers, etc. The book is illustrated with scores of photographs and diagrams. Price 10/6 from all booksellers and hi-fi dealers, or 11/6 postage paid, from the address above. Again, owing to the addition of the tag "Hi-Fi" to another recently produced annual, we urge purchasers to note the correct, brief title "HI-FI YEAR BOOK", thus avoiding disappointment and confusion.

JASON

Jason Motor & Electronic Co.
3/4 Great Chapel Street
London, W.1
Amplifiers and VHF Tuners

BOOTH 62
DEMONSTRATION ROOM 313

The well established range of matching shelf mounting tuners and amplifiers will be shown at the Audio Fair together with many kits. A new 6 watt per channel stereophonic amplifier kit will be shown featuring push-pull output and 5 mv pickup sensitivity. Brackets for cabinet mounting the matching range will be available.

10W AMPLIFIER J2-10 PRICE £37. 10. 0. The output is 10 watts per channel with unconditional stability. The magnetic pick-up sensitivity is sufficient for all types of stereo pick-up such as Decca, Goldring and Tannoy. The signal/noise ratio has been improved to 55 db on this input and better than 60 db on all other inputs. Front panel controls include a 12 db per octave filter, channel switch and stereo balance control. A speaker phase switch at rear, facilitates initial setting up.

T.V. SOUND AND FM TUNER JTV PRICE £19. 4. 0. plus £7. 9. 10. tax. Introduced a few months ago, this self-powered tuner has proved very popular and early in 1959 was still the only T.V. sound unit available. Without such a unit, tape recording of T.V. sound is hazardous due to the 'live' chassis usually found in modern T.V. sets. The potentially good quality of T.V. sound justifies the use of this tuner with a high fidelity amplifying system. The JTV Kit matches the JSA 2 kit and costs £12. 19. 0. less four valves.

FM TUNERS — FMS 2 SWITCHED — FMT 3 TUNEABLE PRICE £17. 5. 0. plus £6. 14. 6. tax. Twin limiters combat the effects of car interference and aeroplane flutter, which may be experienced in poor signal areas. Automatic frequency control used in both models, may be varied on the FMT 3 to prevent a stronger signal overiding a weaker one. The FMT 3 is suitable for export and covers 88-108 mc/s. Both models are self-powered. A multiplex adaptor for stereo will be available if it is ever required. The FMT 3 is available in kit form in a simple shelf mounting case price £8. 5. 0. less the seven valves required.

PREFECT SWITCHED TUNER FMS 1 PRICE £11. 5. 0. plus £4. 7. 9. tax. This popular model represents the minimum requirement for a high fidelity tuner. A limiter feeds a Foster-Seeley discriminator and automatic frequency control is fitted. The unit is not self-powered.

3 WATT AMPLIFIER KIT JSA 2. 3 watts per channel are available from this simple kit which gives good results from such crystal stereo pick-ups as the Ronette and Acos. The case matches the FMT 3 kit and JTV kit and costs £13. 19. 0. including all the valves. This amplifier is available built as one of the matching series for £23. 15. 0.

STEREO PREAMPLIFIER AND OUTPUT STAGE KITS. The J 3-3 preamplifier has sufficient sensitivity for any magnetic pick-up or tape head and costs £16. 15. 0. complete with valves and case. The 'Hi-Fi News' design of preamplifier appears as the J4-4 and costs £16. 10. 0. with case but less the eight EF86 valves required. The output chassis contains two complete 10 watt amplifiers and costs £17. 8. 0. complete with all the valves required.

Other models include the original FM tuner kit of which many thousands have been built, test instruments and an 8 transistor portable set with ½ watt output.

LEAK

H. J. Leak & Co. Ltd.
Brunel Road
Westway Factory Estate
London, W.3

Amplifiers, Pickups, FM Tuners

BOOTH 40

DEMONSTRATION ROOM 218

The chief interest for the visitor this year will undoubtedly be centred on the new "Point-One Stereo" Pre-Amplifier and the "Stereo 20" and "Stereo 50" Amplifiers.

These are the products which met with enthusiastic consumer acceptance at the New York and Montreal Audio Fairs resulting in orders valued at nearly $500,000.

The "Point-One Stereo" Pre-Amplifier forms a complete stereo amplifying system when connected to a Leak Power Amplifier type "Stereo 20" or "Stereo 50". The amplifying system is split into two sections for convenience and the unit is decorative, compact, light, easy to install and handle. It contains all controls and enables the heavier and bulkier power amplifier to be placed out of sight in any convenient location.

The "Point-One Stereo" Pre-Amplifier reproduces stereophonically and monaurally from records, tape, radio and microphone, using any pick-up, any tape-head, any tuner and any microphone available in the World.

The "POINT ONE PLUS" and "VARI-SLOPE III" pre-amplifiers are styled by the world-famous designers, Richard-Lonsdale Hands Associates and designed by Harold J. Leak to give optimum results from any pick-up, any radio tuner and any tape recorder/reproducer available in the world, when used with the Leak "Point-One" power amplifiers TL/12 PLUS, or TL/25 PLUS or TL/50 PLUS.

For use by the music-lover at home the power output of the TL/12 PLUS, 12 watts, is ample: in electrical performance, reliability and craftsmanship it is an advance of the earlier TL/12 and similarly acceptable to the professional communications engineer.

DYNAMIC PICKUP

The result of 5 years continuous development of our first moving coil design.

F.M. TUNER

A Trough-line inductor & AFC eleminate drift. Very high sensitivity for fringe area listening. Quieting control plus high fidelity discriminator. Cathode — follower output. Self powered to operate with any amplifier.

A new Stereo Adaptor is also exhibited and is designed for use with two Leak single channel Pre-Amplifiers and Power Amplifiers in a stereo system.

LOWTHER

Lowther Manufacturing Company
Lowther House, St. Mark's Road
Bromley, Kent
Electronic and Electro-Acoustic Engineers

BOOTH 51
DEMONSTRATION ROOM 221

Lowther productions as will be seen on the Stand and heard in the demonstration room have all advanced since the last Audio Fair.

OUR MASTER CONTROL UNIT Mk.III now incorporates a transistorised front end; enabling high gain, low noise from low impedance source, in addition to all the other M.C.U. features.

M.C.S. Stereo Control Unit is a new addition to the range; as in the M.C.U. Mk.III this unit has a transistor input stage: the low pass filter is switched and not continuously variable as in the M.C.U's.

POWER AMPLIFIERS both the LL.10 and the LL.26 are now fixed bias class 'A' output stage which has added further to their fabulous performance.

FM TUNERS the Mk.III self-powered and Mk.IV still offer 'Studio performance.

LOWTHER DRIVE UNITS still reign supreme in their class when correctly matched to folded or straight horns and offer the highest standard of reproduction either for Sound re-inforcement, monitoring or studio use.

ENCLOSURES. The Acousta folded horn enclosure is second to none, together with the P.M.6 drive unit, this combination is ideal for Stereo reproduction.

THE AUDIOVECTOR enclosure is dual horn assembly, free standing and designed to take either the P.M.6 the P.M.2s and/or the P.M.4 drive units.

THE T.P.1 reproducer has long since established its reputation throughout the world as the most advanced dual corner horn design, the efficiency of performance remains unequalled.

Sundry supporting equipment also on view.

LUSTRAPHONE

Lustraphone Limited
St. George's Works
Regents Park Road
London, N.W.1

Microphones

BOOTH 20

DEMONSTRATION ROOM

LUSTRAPHONE, the foremost name in Microphones, is showing the first British made Stereo-Microphone, which not only fulfils the purpose of Stereo-Recording, but also permits single channel recording, thus allowing Recording Studios, Tape Recorder users, Public Address users, including Orchestras, Dance Bands and Theatres to acquire a very high quality Ribbon Velocity Microphone at an attractive economical cost.

The culmination of research, design and skilful Microphone engineering permits LUSTRAPHONE to again be in the forefront in offering a further valuable addition to the range of Microphones they are world famous for. British in design, British in material and British in workmanship allows them to offer the same service and the same manufacturing guarantee that characterises all their products.

Parallel with the introduction of Stereo-Recording, LUSTRAPHONE have also designed and are manufacturing special brackets enabling those who wish to use the two Microphone technique to arrange correct placement of Microphones in accordance with situation, orchestral and singing positioning.

LUSTRAPHONE, in their already famous Transistor Class Instruments have introduced Model TPA/557 15 watt output 12 volt fully Transistorised Audio Amplifier. A completely new design, the outside case measurements are only $3\frac{5}{16}'' \times 4\frac{11}{16}'' \times 4\frac{3}{8}''$, is thus available for mobile as well as for stationary service. It can be installed in the glove pocket under the dashboard of a car or vehicle, connected to the car battery and used with either an indoor type of Loudspeaker or an outdoor re-entrant horn Loudspeaker.

A further new introduction is Model PPA/570 Transistor Portable Public Address System designed exclusively for open air requirements, using a new type of re-entrant horn Loudspeaker especially made for LUSTRAPHONE, the equipment is contained in a strong lightweight Housing, and is complete with 10 watt Transistor Amplifier, 12 volt rechargeable dry accumulator and a dynamic Line Impedance (Moving Coil) Microphone which permits the use of long Microphones leads. Total weight $19\frac{1}{2}$ lbs.

In the current range of LUSTRAPHONE Microphones, further improvements in sensitivity and response have been given to the Ribbon Velocity Microphones, which have been so universally praised by technical writers. Over 300 LUSTRAPHONE Pencil Ribbon Microphones were adopted for installation in the new Unesco building in Paris.

Various new accessories such as Microphone Plug and Socket Releases, enabling Microphones to be withdrawn from the Stands and used as Roving Microphones without any interference with cable connections, are introduced.

And, finally, with all LUSTRAPHONE equipment, Microphones, Stands and Accessories, the same standard interchangeable British terminal threads are used so that no inconvenience is caused to a user who wishes to change or acquire new LUSTRAPHONE equipment.

Trade Name: LUSTRAPHONE

M.S.S.

M.S.S. Recording Company Limited

21, Bloomsbury Street
London, W.C.1

Sound Recording Equipment

BOOTH 17

DEMONSTRATION ROOM 354

MASTERTAPE. Chosen by the foremost tape recorder manufacturers for issue with their machines. This is indicative of the outstanding results possible from the use of this material. It is also used exclusively by the United States Air Force for use on their B.C.C. Mars Recorders. The three great features:—

1. The smooth surface which reduces head wear
2. The extremely high top response.
3. The very low background noise,

are still pre-eminent in this material. It is manufactured in Standard grade on P.V.C. and Long Play on British Polyester Film, manufactured by I.C.I. Ltd. under their trade name 'Melinex'. The British Polyester Film is a remarkable material and has proved itself superior to any other base material. It has the wonderful attribute of clinging to the recording head, thereby ensuring maximum response on play back. This feature alone has recommended the material to many machine manufacturers, who are constantly seeking to serve their customers. Each grade is available in six reel sizes from 3″ to 8¼″. Ask for a price list which also gives details of a full range of accessories.

DOUBLE PLAY. Introduced at this Fair and available in three sizes:— 3″ 300 ft., 5″ 1,200 ft. and 7″ 2,400 ft. Once again we have chosen Melinex as the base.

TAPE STORAGE BOOKS. The problem of storing those valuable recordings has been solved by the tastefully designed unit which looks most attractive either on a bookshelf or on the special rack which is also available.

BLANK RECORDING DISKS. M.S.S. being pioneers of blank recording disks in this country have maintained their quality. This is confirmed by the fact that Record Companies, Studios, B.B.C., G.P.O., as well as Organisations overseas are using these disks in increasing numbers. The introduction of a 7″ size has proved very popular.

Both magnetic recording tape and blank recording disks are being demonstrated and our technicians will be only too pleased to assist with any enquiries.

TAPE RECORDER CMR/DE. There is no doubt that this is the finest home tape recorder available today. The complete home entertainment with professional quality.

RECORDING HEADS. For the first time the best quality heads on the British market are available in bulk quantities. All the accumulated experiences and knowledge from the pioneer organisation in sound recording have gone into their design and manufacture. Small in size, efficient in operation and modest in cost.

Trade Name: MASTER SOUND SYSTEMS

MULLARD

Mullard Limited
Mullard House
Torrington Place
London, W.C.1

Valves, Tubes, Semiconductors and Components for Radio, Television and Audio Applications

BOOTH 57

DEMONSTRATION ROOM 233

In addition to a comprehensive display of valves and semi-conductors for audio applications, the Mullard stand will contain separate exhibits of valves and circuits for stereophonic reproduction.

A comprehensive selection of literature will be freely available, including technical data on the Company's products and details of the new Mullard publication " Circuits for Audio Amplifiers ", copies of which are obtainable from radio dealers throughout the country.

Trade Name: MULLARD

PAMPHONIC

Pamphonic Reproducers Limited
17, Stratton Street
London, W.1

Sound Reproducing Equipment

BOOTH 10

DEMONSTRATION ROOM 254

As Specialists in Sound Reproducing Equipment for over 30 years, Pamphonic were the first company to instal a sound system in the Theatre Royal Drury Lane in the 1930's, and are responsible for the very successful sound reinforcement system using Pamphonic Line Source Loudspeakers now installed at Drury Lane for the run of the " My Fair Lady " Show. This system is also used extensively in B.B.C. Studios and in many large buildings including St. Paul's Cathedral, London.

Pamphonic were, naturally, in the forefront when High Fidelity reproduction was introduced in the domestic field, and were the first company to make Stereophonic Sound commercially available to the Public.

STEREOPHONIC HIGH FIDELITY AMPLIFIER MODEL 3001 — A new integrated audio amplifier, the pre-amplifier section being specially arranged for operation from both crystal and magnetic stereophonic pick-up cartridges and also from stereophonic tape input. Two push-pull outputs at $7\frac{1}{2}$ watts each are incorporated. (Monaural output at 15 watts is available by switching).

STEREOPHONIC HIGH FIDELITY AMPLIFIER MODEL 3004 — Similar in design and performance to the Model 3001, but with 10 watts output on each stereo channel (20 watts monaural).

STEREOPHONIC HIGH FIDELITY LOUDSPEAKERS MODEL S.1 — Specially designed for use in pairs with the above stereo amplifiers incorporating high flux density 10″ × 6″ elliptical concentric loudspeakers suitable for the average sized room.

HIGH FIDELITY MONAURAL AMPLIFIER 25 WATT MODEL 2001 — Supplied with separate pre-amplifier control unit Model 2001a, or an alternative de luxe Model 1002B push-button pre-amplifier. Accepted by the Council of Industrial Design for inclusion in their " Design Index ". (10 watt integrated Model 1004 also available).

RADIO TUNERS — AM/FM Model 645 (Medium waveband 1850-565 metres) and F.M. only Model 640.

" OTUS " STEREOPHONIC RECORD PLAYER — A newly developed player in a handsome cabinet for table mounting, containing auto-changer and duplicate amplifiers with changeover switching for high quality reproduction of both stereophonic and monaural records, and with socket for radio input. Two separate loudspeakers in matching wood cabinets for wall or table mounting incorporating high flux density 10″ × 6″ elliptical cone units. (See also " Sprite " portable stereo record player).

HIGH QUALITY PUBLIC ADDRESS AMPLIFIERS — A newly developed " brick " system offering an extremely flexible input combination of microphone, gramophone, radio and tape sources, and providing multi-microphone mixing through transistorised plug-in pre-amplifier units; amplifiers are designed for 110-250 volt A.C. mains, in chassis form for standard 19″ panel rack-mounting or are supplied complete in metal cabinets as transportable units:—

90 Watt Model 603W — 50 Watt Model 602W.

PORTABLE PUBLIC ADDRESS EQUIPMENT 600 PPA — A complete portable unit capable of operation from either A.C. mains or car batteries.

Trade Names: PAMPHONIC, AB-FI, PARAMPHONIC

PHILIPS

Philips Electrical Limited
Century House
Shaftesbury Avenue
London, W.C.2
Telephone: GERRARD 7777
Record Reproducing Equipment
Sound Recording Apparatus

BOOTH 33
DEMONSTRATION
ROOM

MODEL NG5400/S. Transcription Pickup Arm and Stereo Pickup Head, designed for reproduction of stereophonic and monaural long-playing records. This precision-engineered arm, well-known for its association with the magnetodynamic pickup head, is finished in satin chrome. It is equipped with a micrometer playing weight adjustment and the pedestal and rest are also adjustable in height so that the pickup may be used with any separate turntable. Close attention has been paid to minimising resonance and friction. The crystal stereo pickup head has a diamond stylus and a frequency response of 30-12,000 c/s. The recommended load resistance for each channel is ½ Megohm and the output is approximately ½ volt for each channel. Suggested playing weight: 4—7 gms. Price: 15½ gns. (tax paid).

MODEL NG5051. 'Disc Jockey Junior' portable table gramophone. This lightweight instrument, of small dimensions and attractive styling, is designed to play records of all standard speeds and sizes. It is provided with a 5-inch high-efficiency loudspeaker and there are separate volume and tone controls. A powerful silent motor drives the large turntable and the pickup head is the new Philips high-fidelity type AG3016. 45 r.p.m. records can be played with the lid closed. The wooden case is covered in two-tone washable leathercloth available in grey/red and blue/grey. Price: 15½ gns. (tax paid).

MODEL AG2009. High-fidelity record player. This is a 4-speed player unit which includes such features as eddy current disc brake, giving plus/minus 2% speed adjustment; lowering and lifting device for the pickup arm; adjustable playing weight (2—10 gms.); stop and automatic release of idler wheel; pickup arm wired and is suitable for stereo connection; individually-balanced turntable. The instrument is supplied complete with Philips AG3019 high-fidelity dual-stylus pickup head and sells at 10 gns. (tax paid). Stereo heads are available as an optional extra.

MODEL AG8108/G. Three-speed (7½, 3¾ and 1⅞ ins. per sec.) portable magnetic tape recorder. For operation on 110-127/200-250 volt A.C. Incorporates push-button controls, tone control, built-in revolution counter indicator and high-impedance output for high-fidelity amplifiers. Supplied complete with microphone (moving coil type) and reel of tape. The case is covered in two-tone washable plastic material. Price: 62 gns. (tax free).

MODEL EL3527. Single speed (3¾ ins. per sec.) portable magnetic tape recorder. Incorporates printed wiring. Weighs 21 lbs. and is supplied complete with reel of tape and crystal microphone. It has mixing facilities, instant stop/start tape control and an electronic indicator for visual checking of recording levels. Sound may be monitored by means of built-in speaker. The case is covered in two-tone washable plastic material. Price: 39 gns. (tax free).

Further items to be shown include a range of high-fidelity loudspeakers, pickup heads and tape recording accessories.

Trade Name: PHILIPS

PILOT

Pilot Radio Limited
High Fidelity Division
Park Royal Road
London,N.W.10
Sound Reproducing Equipment
Radio and Television Receivers

BOOTH 59
DEMONSTRATION
ROOM 242

During the last twelve months, the range of high fidelity equipment has been increased with the introduction of model SHF 15, a combined Stereophonic Amplifier and Control unit which is proving most popular due to its compactness and high specification. Model SHF 15 joins model HFA 11 in being accepted by the Council of Industrial Design for inclusion in " Design Review " and was also demonstrated during the recent high fidelity exhibition at the Design Centre.

HFA 11 COMBINED AMPLIFIER AND CONTROL UNIT 24 Gns.

This unit provides 10 watts of undistorted power with an extremely low distortion and noise level. Controls include rumble and scratch filters and a loudness compensating control. The smart cabinet is ideal for table top location or panel installation.

SPECIFICATION (for full output): Hum level — 80 db. Power Output 10 watts. Sensitivity: Magnetic p.u. — 3/5mV; Crystal p.u., radio, tape, aux. — 120 mV. Harmonic Distortion — less than 0·1% at 1 Kc/s. Negative Feedback — 21 db. Speaker impedances — 3, 8 and 15 ohms. Power Consumption — 70 watts, 110, 200/250 volts A.C. Frequency response — 20 to 20,000 c.p.s. ± 1 db Valves: 3, ECC83, 2, EL84, 1, EZ81.

HFA 12 POWER AMPLIFIER AND HFC 12 CONTROL UNIT 28 Gns.

This two-piece system is rated at 12 watts and incorporates all the features of the HFA 11 with the addition of a unique Muting Switch and stepped filter.

SPECIFICATION: Similar to HFA.11 except for 12 watts output, additional input socket.
Valves: (HFA 12) 1, EF 86; 1, ECC 82; 2, EL84; 1, 5Z4.
(HFC 12) 2, EF 86; 1, ECC 82.

SHF 15 COMBINED STEREOPHONIC AMPLIFIER AND CONTROL UNIT 32 Gns.

Although only recently introduced, this stereo amplifier is fast gaining a fine reputation. The same size as model HFA 11, this amplifier provides 7·5 watts output each stereo channel, and has a high sensitivity, allowing all magnetic and crystal pick-ups to be used.

SPECIFICATION: (for full output): Hum level — 60 db. Power Output — 7·5 watts each stereo channel, 15 watts monaural; sensitivity: Magnetic — 3/5 mV; Crystal — 16/20 mV., Radio, Tape, aux. — 100 mV. Neg. f.b. — 20 db. Speaker impedances 3, 8 and 15 ohms. Power Consumption — 80 watts, 110, 200/250 volts A.C. Frequency response — 20 to 20,000 c.p.s ± 1 db. Valves 2, EF 86, 2, ECC 83, 4, ECL 82, 1, EZ 81.

PYE

Pye Limited
Radio Works
Cambridge

High Fidelity Sound Reproducing Equipment

BOOTH 47
DEMONSTRATION
ROOM 256

AMPLIFIERS:

"MOZART" STEREO AMPLIFIER MODEL HFS20

This is the new Stereophonic version of the well known "Mozart" Amplifier and is available in either cased or Chassis form, with detachable pre-amplifier. Output is 10 watts per channel and the amplifier will work from all types of pick-ups. It has a wide frequency range and full facilities for Stereophonic or Monophonic use. Its presentation is matched to the Pye FM tuner HFT108.

"MOZART" 10 WATT AMPLIFIER MODEL HF10

This 10 watt amplifier is of printed circuit design and measures only $10\frac{1}{2}$" × $3\frac{3}{8}$" × 5" including the pre-amplifier. Frequency response is 2-5,000 cycles and the unit is available in cased or chassis form. Size and presentation exactly matches the HFT108 FM tuner.

The PROVOST (HF25) amplifier and the PROCTOR (HF25/A) pre-amplifier, provide a distortion free response of 2-160,000 c.p.s. and an output of 25 watts. Full record equalisation base and treble controls with four positions, HF filter, and complete input and output facilities are available. Pre-amplifier is available in cabinet form and matches the HFT111W AM/FM tuner.

25 WATT CORNER SPEAKER MODEL HF25/A

A three corner speaker system will be shown in a specially braced cabinet, housed in a 15" brace unit and elliptical mid-range units with a 4" tweeter unit, providing smooth frequency response at all volume levels. There is a complete absence of resonance. Frequency range is 12-20,000 c.p.s.

12 WATT CONTEMPORARY SPEAKER MODEL HF12SMT

A 12 watt speaker with a contemporary cabinet designed to provide High Fidelity response at reasonable cost. The 12" speaker and 4" tweeter ensure High Fidelity reproduction for all frequencies from 30-17,000 c.p.s.

10 WATT "MOZART" COMPANION SPEAKER MODEL HF10BS

A beautifully compact bookcase speaker, ideal for Hi-Fi installations where space is a consideration. One 8" high Flux speaker and a 4" tweeter are mounted in an acoustical chamber. Frequency range is 45-17,000 c.p.s.

"MOZART" FM RADIO TUNER:

The Pye Mozart FM tuner has been specially developed to match the fine-line outstanding performance of the HF10 Amplifier. The unit has a push button on/off control and a built in power pack. High sensitivity reception is provided at up to distances of 30 miles, using an indoor aerial, or 80 miles on an outdoor aerial. Automatic frequency control gives easy tuning and ensures that the station is correctly tuned. This tuner has sufficient output to drive any amplifier and is available in either cased or chassis form.

FM/AM RADIO TUNER:

The Pye model HFT111 is an FM/AM tuner incorporating an 8 valve chassis for perfect fringe area reception, drift-free permeability tuning and a rays discriminator circuit for minimum distortion. It has its own power pack and magic eye tuning. Available in cabinet form (model HFT111W) or in chassis form with either a horizontal or vertical tuning scale.

PYE RECORDS

Pye Records Limited
10a, Chandos Street
London, W.1

Gramophone Records

BOOTH 11

DEMONSTRATION ROOM 119

Pye Records Limited manufacture Pye, Pye-Nixa, and Pye-International Records in the United Kingdom.

The gramophone record is the starting point in almost every high-fidelity system and the quality of the recorded performance has to be maintained at a high level in order to provide a signal source which will enable the play-back equipment to give the most satisfactory results.

In our Demonstration Room audio enthusiasts will be able to hear the latest examples of the high quality recording techniques developed by the Company. They will, for example, be able to discuss details of our stereophonic recordings with members of the Technical Staff who are actually engaged on the highly complex operation of recording and manufacturing gramophone records in this new and exciting sound medium.

Pye, who were the first to make available stereo sound on disc to the record buying public, welcome this unique opportunity to offer visitors a glimpse of the technical aspects of professional record manufacture in present day circumstances.

Record lovers will be interested to hear recordings of such renowned classical artists as: Sir John Barbirolli, Sir Adrian Boult, Richard Farrell, Iso Elinson, Karl Haas, Gwen Catley, Norman Foster, Bela Siki, Stanford Robinson, Mindru Katz, Evelyn Rothwell, and Alan Schiller among many others: and of many leading Artists in the Popular and Jazz fields of music, including Chris Barber, Petula Clark, Lonnie Donegan, Joe Henderson, Edmund Hockridge, Gary Miller, Ottilie Patterson, Lita Roza, Marion Ryan etc.

Trade Names: PYE, PYE-INTERNATIONAL

REFLECTOGRAPH

Multimusic Ltd. (Reflectograph Division)
Maylands Avenue
Hemel Hempstead, Herts

Professional Tape Recorders
For Home and Industry

BOOTH 9
DEMONSTRATION
ROOM 122

The Reflectograph Model 570 Stereoacorder, U.K. price 149 guineas, incorporates the unique Reflectograph variable speed tape deck, four amplifiers and two Goodmans monitor speakers.

The transportable case, finished in Luxan hide and Pigskin colours, overall height 11¼″, width 14⅝″, length with handles 29″, and a weight of 65 lbs. The lid is readily divided into two sections, each of which contains a Goodmans monitor speaker, ten feet of lead and a jack plug. Conveniently situated under the tape deck at each front side of the case, are a Reflectograph record and playback 3 watt amplifier, each channel being equipped with a peak level meter and separate record and playback gain controls. Input sockets are provided for microphones and radio or pick-up. Two sockets are provided for the connection of the monitor speakers or external speakers. The output may be taken at high level to be fed into an external amplifier. The Reflectograph tape deck, incorporates novel features used in the Reflectograph Model 500, including variable speed between 8 and 3½ i.p.s. with a neon lit stroboscope indicating that precise speeds of 7½ and 3¾ i.p.s. Clock type tape position indicator and Bib tape splicer. Push button controls with a safety latch, operate the record and playback circuits. Lever controls actuate the tape mechanism. Instant start and stop of the tape drive. Fast forward and back rewind are controlled by one lever, with an intermediate position enabling the tape to be inched either way with sound available, if required. Straight slot loading of the tape. Three heads include a full track erase and (stacked in line) separate record and playback heads. 8¼″ reel capacity.

Instant comparison can be obtained whilst recording between input signal and the signal recorded on each channel of the tape. A switch is also provided to switch off the erase circuits. The highly flexible design of the Reflectograph Model 570 enables the user to make recordings either stereophonically, monophonically on two tracks or to undertake two-channel recordings. The Model 570 may be used as a straight stereo amplifier for the reproduction of stereophonic records. Accessories include two screened jack plugs, a spare reel and an E.M.I. stereosonic demonstration tape, including a balancing signal and specially selected items from the H.M.V. and Columbia stereosonic tapes.

Also exhibited at the Audio Fair will be a Reflectograph Model 500, which has the same technical specification as the Model 570, but is a single channel recorder, priced 94 guineas.

Reflectograph Tape Recorders are covered by the comprehensive E.M.I. Home Maintenance Limited, contract and maintenance scheme, whereby service is given, free of charge, for the first year; maintenance contracts being available for a small annual fee thereafter.

RESLOSOUND

Reslosound Limited
Spring Gardens, London Road
Romford, Essex
Microphones, Stands and Accessories

BOOTH 54
DEMONSTRATION
ROOM

Microphones, stands and accessories take precedence with this exhibit, also shown are specimens of reflexed horn loudspeakers for Public Address.

RESLO ribbon microphones have a background of twenty-four years specialisation in the type and a larger total sale than any other the world over. RESLO microphones have unique features which, being so well known, are sometimes and quite wrongly included in generalisations; per contra, certain blanket quoted disabilities do not apply at all.

The RESLO design bases upon a precisely limp ribbon which is formed under anneal from Duralumin foil. After heat treatment the ribbon is pre-stressed by passing current before exact setting to a sub frame by optical means (Brit. Pat. No. 793261). The cost of a ribbon by this method is perhaps one hundred times that of bent up aluminium and is thus not one to be lightly dismissed or claimed as usual, nor could any alternative survive the process.

Advantage derives by the inherent quality control and by retention of original set despite any of the usual hazards by excess pressure, shock, or electrical testing.

Whilst it is possible to make an equally good microphone with aluminium ribbon the exact engineering technique could not be duplicated and the life expectation to original characteristics must be debatable. Taken with another exclusive feature in that the factory set ribbon assembly is exchangeable with only a modicum of skill, it becomes evident how a world market for these instruments has been built up. Those who observe their Television screens and the News reels will know the degree of RESLO acceptance in these critical fields and how this compares with other ribbon microphones commercially available.

For frequency response and output level RESLO yields nothing to others at anywhere near the cost; and in: compactness, finish, impedance-range, and versatility of accessories, none can compare.

Present models include: bi-directional and cardioid types for all usual input systems including transistors; there are a number of dual impedances immediately selectable by cable change.

All types are available from stock or with very short delay.

Demonstration of microphones in performance at an exhibition of this nature is really unpractical, but all information will be provided and visitors are invited to discuss their problems.

ROGERS

Rogers Developments (Electronics) Ltd.
Rodevco Works
4-14 Barmeston Road
Catford
London, S.E.6

BOOTH 4

DEMONSTRATION ROOM 321

In addition to our usual range of unit high fidelity equipment, the first models in an entirely new range of Integrated Equipment will be introduced at the Fair.

Model HG88. An Integrated Stereo Amplifier, rated at 8 watts per channel, providing in a single compact unit every requirement for Home Stereo Systems. No less than ten inputs provide for every possible programme source, including low output stereo pick-ups and direct replay from tape heads. Seven panel controls ensure optimum results whatever the programme material or listening conditions, additional pre-set controls facilitate matching of associated equipment. Styling represents a completely fresh approach to this important aspect of design and features a control panel in either solid brushed brass or ivory enamel and a case finished in figured teak.

The most critical design feature of any Stereo Amplifier is the volume control.

The volume control fitted to the Model HG88 is unique in that instead of the customary carbon potentiometer, a two bank 18-way selector wired with 5% resistors is employed. This form of control ensures that stable accurate stereo balance is maintained at all volume settings, within $\pm \frac{1}{2}$ db in this case, and avoids the difficulties associated with carbon potentiometers when used for stereo. As far as we know this feature is exclusive to the Model HG88.

Model LG88. Essentially a simplified version of the HG88, the LG88 is designed primarily for use with crystal and ceramic pick-ups. The Low Pass Filter has been omitted and a close tolerance two-ganged carbon potentiometer replaces the precision volume control fitted to the HG88. In all other respects the two models are identical.

It is hoped to have a self-powered FM Receiver suitable for use with either the Model HG88 or LG88 and styled to match, available by the time of the Fair.

The '1284' 3-way Speaker System which was introduced at the Northern Audio Fair in October and proved such an immediate success, is joined by the '84' a 2-way Speaker System, employing the same design principles and both Reproducers will be demonstrated together with the HG88.

We would emphasise that the units used for demonstration and static display are standard production models in every respect and have not in any way been modified for exhibition purposes. This applies particularly to the standard of wiring to be seen on the Static Display.

ROLA CELESTION

Rola Celestion Limited

Ferry Works, Thames Ditton
Surrey

Loudspeakers for All Purposes

BOOTH 2

DEMONSTRATION ROOM 334

For over 30 years the name CELESTION has been identified with Loudspeakers of the highest quality. It is with this background of experience and technical knowledge that the COLAUDIO reproducer has been produced to meet the exacting requirements of modern V.H.F. radio and the latest recordings on disc and tape.

COLAUDIO MODEL 1550.

The Colaudio is distinguished from other reproducers by the use of two direct radiator pressure type high note units mounted in column form in front of a low note speaker. These units distribute the high frequencies fanwise throughout the room with little vertical radiation so that unwanted floor and ceiling reflection are minimised. The axis of the column can be adjusted to provide optimum high note distribution from a low loudspeaker mounting position.

The 15″ direct radiator bass speaker has a 3″ diameter voice coil driving an especially rigid cone with foam edge termination. These features combined with the large annular suspension and massive magnet system ensure a low note performance exceptionally free from distortion.

The main housing is die cast and combines accuracy with rigidity to form a pleasing design. It is finished in black crackle enamel with a silver trim to the metal mesh protecting the face of the high note column.

The high and low note speaker terminations are brought out to four terminals for connection to a separate coupling unit. So coupled and used with a suitable enclosure, the COLAUDIO has an output substantially level from 30-15,000 c/s.

A HIGH QUALITY FULL WIDTH STEREOPHONIC LOUDSPEAKER SYSTEM.

THE G. 44/1300 SYSTEM. For the reproduction of stereophonic recordings in the home CELESTION introduces this compact but efficient system, utilising two very small pressure type direct radiator units (H.F.1300), for the higher frequencies, and two 12″ reproducers (G.44) for the lower.

The system uses only one enclosure 15″ high × 42″ wide × 18″ deep to house the two G.44 Units, this enclosure being positioned near the centre and against one wall.

The two H.F.1300 Units being placed near the corners of the room, one on each side of the enclosure approximately 4 feet above the floor. The width of sound will very nearly correspond to the distance between the Units. No elaborate cross-over networks are required and the system is completed by a 12 Mfd. capacitor in series with each high note unit.

The price for two HF.1330 and two G.44 Units, together with full instructions, is £18. 10. 0.

Trade Name: ROLA CELESTION

SABA

Saba Villingen/Schw.

BOOTH 68

DEMONSTRATION ROOM 314

SABA, Villingen/Schwarzwald

Tape Recorders

The SABA is made by Germany's leading sound equipment manufacturers, who have produced the Criterion of tape recorders. The instrument ranks as a true Hi-Fi model, which is proven by its wide frequency range — 30 to 20,000 cycles, and the fitting of ultra sensitive Hi-fi sound heads.

The SABA embodies many up to the minute design features, including 4 hours recording time on twin track tapes, automatic reversal of tape without change of reels or attendance giving indefinite playback time.

The layout of the control panel is such that the operator needs less than a few minutes to " get the hang of it ".

Electronically operating illuminated keys respond to a 6oz pressure.

No end of fun may be had with the SABA, speech and music can be blended into previously recorded tapes by operation of the " trick " key. Sockets for headphones or extension loudspeakers are filled, also magic eye recording level indicator and tape meter.

Use of the recording selector switch sets the machine to the type of recording required " microphone ", " radio ", or " disc record ". All three channels can be kept connected to the machine without changing cables.

Operates on A.C. mains, 70 watts, adjustable voltages 110, 130, 220, 240V.

Dimensions: $12\frac{1}{2}'' \times 17\frac{1}{2}'' \times 8\frac{1}{2}''$ weight 39 lbs.
Output: 3·5 watts.
Speakers: $7 \times 4\frac{1}{2}''$ twin elliptical in stereo arrangement.
The Saba retails for 89 guineas.

"SCOTCH" BRAND

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

Tape Manufacturers

BOOTH 30

DEMONSTRATION ROOM 348

Sound Engineers prefer "SCOTCH" Brand!

This fact forms the basic theme of the presentation of the full range of 'SCOTCH' Brand Magnetic Tapes and Accessories. Greater depth and more realism is achieved by the rear of the stand representing the window of the Sound Engineer's box, through which can be seen the recording group which is a feature of the design of the new Magnetic tape boxes.

A basic feature of all "SCOTCH" Brand Magnetic Tapes is Silicone Dry Lubrication — a process which is built in during manufacture and lasts the life of the tape itself. This patented safety process is featured on the stand, illustrating the advantages to be gained by the use of "SCOTCH" Brand Magnetic Tapes.

Introduced for the first time is the new addition to the range, "SCOTCH" Brand No. 200 Double Play Polyester Tape. Now available for the domestic market this tape really "Doubles Your Playing Time" and is manufactured from tensilized polyester film for thinness and strength. In 400 feet, 1200 feet and 2400 feet reels, this double length, extra strong tape also has Silicone Dry Lubrication.

The complete range of empty spools, as well as splicing and leader tapes are well-represented and the new "SCOTCH" Brand Accessory Kit is introduced for the first time.

The extremely popular M.37A Counter Unit for retail counters is on display. This unit which carries stock of the complete range of "SCOTCH" Brand Magnetic Tapes has proved to be the most popular display stand of its type ever produced for retail outlets and should not be overlooked in view of its proved capability of increasing magnetic tape sales to the domestic consumer.

Trade Name: "SCOTCH" BRAND

SIMON

Simon Sound Service Limited
48, George Street
Portman Square, W.1

Recording and Associated Equipment

BOOTH 61
DEMONSTRATION
ROOM 347

To present satisfactorily to the prospective tape recordist, all the features of the Simon SP/4 Automatic Tape Recorder would prove difficult in the necessarily short demonstration time at an exhibition. The demonstration offered is intended to encompass the broad requirements of the average tape recorder user. For specialised uses enquiry may be made of any Simon Appointed Retail Dealer, who will be pleased to demonstrate particular facilities of the machine.

The demonstration tape you will hear comprises edited recordings made by a member of the Company's Sales Staff, (who is not of course a professional recording engineer) and represents the very high standard of recording quality available to the amateur user of the SP/4 and the Cadenza Microphone. Much of the tape was recorded " live " but to allow comparison of quality, items taken from a commercial pre-recorded tape, dubbed disc, and F.M. Radio have been included. For the live music recordings, the Cadenza was used in the low impedance condition, with a floor stand. The dialogue was recorded through a high impedance Cadenza, mixing and balancing being carried out on the Recorder itself, since full three way mixing is built-in.

By careful timing the tape falls naturally into two halves and both tracks are thus used. The listener will note that the track reversal is completely automatic, with a barely perceptible pause whilst the tape transport and heads are switched to use Track 2.

During recording of course, manual reversal was used, — this being push button operated, and the tape thereafter being edited and the reversal foil incorporated.

For an audience which can be accommodated in an hotel room, it is of course unnecessary to use more than a fraction of the 10W push/pull output built into the recorder, but the extremely low distortion level, coupled with the very wide frequency range covered does ensure perfect reproduction even where an audience of up to 300 or 400 is being addressed.

Now available is the new and extremely attractive Remote Control Unit. This useful accessory offers control of the Recorder in three functions either during recording or replay — Start, Run and Track-Change. It is normally supplied complete with 25 feet of cable and 3 pole plug. Longer leads can be fitted to meet special orders.

The popular Cadenza Ribbon Microphone offers exceptional quality of reproduction at a modest price, and is shown together with its various accessories. The Cadenza, by virtue of its dual impedance head, may be used in either high or low impedance condition, with any recorder or amplifier.

Eric Tomson, Chief Engineer was responsible for overall product design; Peter Bell, M.S.I.A., was the Styling Consultant.

Trade Names: SIMON, CADENZA

SOUND SALES

Sound Sales Limited
Works & Acoustic Laboratories
West Street, Farnham, Surrey
Manufacturers of Tri-Channel
and All "A-Z" Products
High Fidelity Sound Equipment

BOOTH 36

DEMONSTRATION ROOM

Established in 1931 Sound Sales Ltd., claim to be one of the oldest and most experienced firms in the specialised design and manufacture of Hi Fi Equipment including Transformers, Chokes, Chassis, Loudspeakers, Magnets and all major components which they produce for World markets.

A special feature this year will be the new A-Z Stereo Twin 20 Amplifier consisting of 2 - 10 watt Ultra Linear push pull stages with heavy duty Universal output transformers to suit British and American standard Hi Fi reproducers on a single chassis of compact nature combined with striking new styling. Continuous output 10 watts from 20 cps upwards. Peak output 13·5 per channel British rating. Price £30, designed for use with the Twin 20 Stereo Tone Control Unit specially designed for use with Decca, Elac and similar pick-ups. Price £20.

The latest Wide Range Tone Control Unit comprising all the refinements and versatility of the Twin 20 but with the addition of a transistor stage to match Grado, Shore, Ortofon and other moving coil pick-ups. Price £26.

The new Self Powered Stereo Convertor Unit for converting existing Monaural Equipment to Stereo. Price £17. 10s.

The famous Mark III Amplifier approved by the Council of Industrial Design for inclusion in the design index and the Senior A-Z Amplifier as supplied to the B.B.C. A range of Stereo Amplifiers including the Twin 10 and Twin 20 for use with A-Z Tone Control Units.

The Tri-Channel Mark V — the only Equipment in the World using pre-stage electronic crossover circuitry to provide three separate amplifying channels for bass, middle and treble frequencies in infinitely variable proportions, in turn feeding a multi unit labyrinth enclosure. The unique performance of this system and also that of the new Stereo Amplifiers can be heard at a special demonstration of Hi Fi at the Imperial Hotel during the Audio Fair.

The Council of Industrial Design have selected Sound Sales latest 108 Mc. Synchrolock Self Powered F.M. Unit for display at the Design Centre; this will be displayed also on Stand No. 36 together with a special exhibit of one of the original Sound Sales Quality Amplifiers which has been in continuous operation since 1937. Both the Sound Sales Phase Inverter and WAL Duo-Reflex Speakers will form part of the Hi Fi demonstration at the Imperial Hotel.

SPECTONE

Specto Limited
Vale Road
Windsor, Berks

BOOTH 49

DEMONSTRATION ROOM 215

Tape Recorders and Amplifiers

SPECTONE PORTABLE TAPE RECORDER, MODEL 161

A new recorder of the highest quality incorporating the current Collaro Mark IV tape deck, with digit counter. Recordings can be made at three speeds — 3¾″, 7½″ and 15″ per second. Other features include latest magic eye level indicator, full two channel mixing facilities, provision for super-imposition tape storage compartment, complete with Acos 39-1 microphone, lead and accessories including EMI spool. Price — 49 guineas.

SPECTONE PORTABLE TAPE RECORDER, MODEL 151/C

This recorder is designed for the high fidelity conscious enthusiast and is fitted with the latest Collaro tape deck, incorporating digit counter. Recordings can be made at 3 speeds — 3¾″, 7½″ and 15″ per second. Other features include:—Recording level meter, high and low impedance microphone inputs, a line-out input for external amplifier, a line-in input for direct recording from FM tuner or gramophone and extension speaker socket. Bass cut control for microphone recording, treble control for replay.
Price — 76 guineas, including crystal microphone.

SPECTONE RECORDER AND STEREOPHONIC REPRODUCER, MODEL 129

This console cabinet unit incorporating a modified Reflectograph tape transcriptor combines single channel recording and full three source mixing facility with twin channel stereophonic reproduction or single channel reproduction on one or two speakers. Tape speed is 7½″ per second. Maximum output 15 watts on each channel. A Goodman Axiom 150 Mark 2 speaker is mounted in the cabinet. Price — 175 guineas.

AMPLIFIER, TYPE WINDSOR 5-15

This complete amplifier equipment includes power amplifier, pre-amplifier, speech cable, connecting cable and co-axial plugs. The pre-amplifier is housed in a separate remote control unit, designed for easy mounting in a cabinet. Maximum output 15 watts. Equalised output for '78' and L.P. discs. Price — £24. 17. 6.

AMPLIFIER, TYPE ETON

A 15 watt power amplifier with volume control, bass and treble controls and input selector switch mounted on the chassis. Two inputs available. Plug-in equalisers available for certain types of pick-ups. Price—£18. 18. 0.

SPECTONE ELECTRONIC MIXER

The unit is enclosed in a light metal cabinet, suitable for easy mounting. Full mixing facility from three sources of sound available. Three separate gain controls entirely independent of each other enable any input signal to be regulated without affecting the other signals. Full equalisation for L.P. and '78' discs incorporated. Two models available:—

Model 142 (suitable where HT and LT is available from associated equipment). Price — 17 guineas.
Model 142A (Powered version) Price — 21 guineas.

S.T.C.

Standard Telephones & Cables Ltd.

BOOTH 35

Connaught House, 63, Aldwych
London, W.C.2
Tel: HOLborn 8765

DEMONSTRATION ROOM

Among the exhibits will be a selection of high quality S.T.C. microphones, including:—

The well known 4021 " Ball & Biscuit " moving coil microphone, an omni-directional instrument with a very smooth response. The 4032, a robust hand microphone widely used by radio and television reporters, interviewers, commentators, etc. The 4033 cardioid microphone and the 4035 general purpose instrument are also shown. The 4037 " pencil " microphone, popular as a light duty interviewer's microphone and used where there is need for an omni-directional and unobstrusive instrument. Two types of the 4037 — the long and the short model — are manufactured and both may be fitted with a windshield for out-of-door use.

One of the world's finest ribbon microphones, the 4038, has a wide and exceptionally flat frequency characteristic. The transient response is excellent, making it suitable for music reproduction. The high quality 4104 noise-cancelling commentator's lip microphone, an instrument essential to any outside broadcast where the highest quality and signal to noise ratio is required. The 4105 is the latest microphone in the range. It is primarily designed to meet the needs of a directional microphone for sound reinforcement systems. The microphone is small, and robust.

On show in the " Stantel " cabinet range of loudspeakers is the 5 foot column unit having a slot diffuser and capable of producing an ideal polar diagram for sound reinforcement systems. Also exhibited is an amplifier for sound reproduction systems. The 15 watt type on show, selected from the wide S.T.C. range, is an ideal unit for such applications. A selection of Brimar valves particularly suitable for audio applications is also on view.

Of particular interest is the Brimar type 8 D8 low microphony pentode which was specially developed for use as a high gain first stage amplifier in high fidelity reproduction equipment.

On show is the Brimar 6 BQ7A double triode with a separate internal screen between the two sections which makes it pinned suitable for intermediate amplifier stages. The EM.84 novel based side display tuning indicator which is especially suitable for use in tape recorders and FM units. Main interest centres on the Brimar high quality Stereo Amplifier is specially designed for the home constructor. Provision is made for full balancing and tone controls and the available output in each channel is 8 watts at less than 0·2 per cent. distortion.

STEREOSOUND

Stereosound Productions Ltd.
Capital Works
12/14 Wakefield Road
Brighouse, Yorks

Stereophonic Reproducing Equipment

BOOTH 25
DEMONSTRATION ROOM 214

STEREOSOUND specialise in Stereophonic sound and they feature two equipments incorporating their patented balancing systems.

VISUAL BALANCE

Introduced for the first time is a system of Visual Balance. This uses an ordinary tuning indicator valve. It enables the user to check balance as easily as using a tuning indicator to record accurate tuning of a radio receiver.

AURAL BALANCE

This alternative method of balancing is desirable in circumstances where the listener is sitting nearer to one speaker than the other. A sound signal is introduced so that the volume levels of each speaker can be adjusted to give suitable 'balance' at the point of listening.

In addition to offering an Amplifier only — Stereosound show their complete equipments which feature detachable speakers. For ordinary listening the speaker Systems can remain within the main cabinet and be moved only when first class Stereo is required.

Trade Name: STEREOSOUND

STUZZI

Stuzzi Radiotechnischer Betrieb
Stattermayergasse 30
Wien 15
Austria
Tape Recorders

BOOTH 65
DEMONSTRATION ROOM 112

Three Tape Recorders are on show from the Stuzzi Company and each one aims at a different requirement. The most spectacular one is undoubtedly the Stuzzi 'Magnette'. Here, for the first time the designers have succeeded in creating a battery operated machine offering the full range of facilities normally only enjoyed on the most modern mains operated Recorders, push button operated throughout and fitted with a counter, magic-eye, battery indicator, and input and output connections, this is a two-speed machine, which even boasts a safety lock to prevent accidental erasure and a pause control for dictation and transcription.

Already in use by B.O.A.C., on board their Comet Airliner, and in Universities, Colleges and in the field with many expeditions this machine is thoroughly reliable and backed by efficient service.

At the other end of the scale is the Stuzzi 'Mambo' catering for the home recordist who wants a machine that is compact, elegant and capable of first class reproduction at a sensible price. At $3\frac{1}{4}''$ the frequency response extends from 50 to 12,500 cycles. Moreover, it is easy to handle and has proved very reliable in service.

"A brand new model is the Stuzzi 'Tricord', with a range of facilities to suit the professional or the most ambitious amateur. Three speeds, namely $3\frac{3}{4}''$, $1\frac{7}{8}''$ and $\frac{15}{16}''$ per second, frequency response of 16000 cycles, D.C. heating of first stages, built-in mixer, variable super-imposition control, twin loud speakers, remote control, automatic stop and a maximum playing time of 12 hours on one reel of tape, are all features of this machine."

U.K. Distributors: Recording Devices Limited, 95, Villiers Road, London, N.W.2.

TANNOY

Tannoy Products Limited
Norwood Road, West Norwood
London, S.E.27

Sound Equipment Designers and Engineers

BOOTH 21
DEMONSTRATION ROOM 247

THE NEW TANNOY MONITOR 12″ AND 15″ DUAL CONCENTRIC LOUDSPEAKERS are the logical development of the already well-established models which, during the last 12 years, have set new standards for high quality reproduction, and are used by recording and broadcasting authorities throughout the world. The Monitor incorporates many unique features including the Tannoy patented magnetic shunt, increasing the useful flux by as much as 20%, resulting in smoother response, better damping and improved transients. The new H.F. diaphragm loading improves high frequency response, and reduces distortion still further. Ideal for the highest quality home music system, its fully integrated sound source is especially suitable for stereophonic reproduction.

THE TANNOY VARI-TWIN STEREO CARTRIDGE is of advanced design resulting in very low dynamic mass, high compliance, wide frequency response and negligible distortion. Channel Separation is in excess of 20 decibels while the output is ample for all modern pre-amplifiers.

THE TANNOY VARILUCTANCE PHONO CARTRIDGE MARK II has a high reputation for performance and is used by Television and Broadcasting organisations throughout the world, wherever the highest professional standards are demanded.

TANNOY LOUDSPEAKER ENCLOSURES

THE GUY R. FOUNTAIN AUTOGRAPH ENCLOSURE providing front and rear horn loading for the 15″ Monitor Dual Concentric uses the exclusive Tannoy expanding source principle and gives reproduction of the highest quality where space is not an important consideration.

THE G.R.F. ENCLOSURE has many of the advantages of the Autograph but is of smaller size, thus increasing its appeal. It provides horn loading, is fitted with a 15″ Monitor Dual Concentric and is used as a quality standard throughout the world.

THE YORK, CANTERBURY AND LANSDOWNE dual throated port bass reflex enclosures are of simple design, suitable for home construction and give excellent results. The York accommodates either the 12″ or the 15″ Monitor Dual Concentric, the Lansdowne and Canterbury the 12″ Monitor only.

THE CHATSWORTH ENCLOSURE is a completely aperiodic infinite baffle, designed to accommodate the 12″ Monitor Dual Concentric unit. Occupying only ¾ cu. ft. floor space, its slim lines make it ideal for use in pairs for stereophonic reproduction.

THE TANNOY HI-GAIN 15 COMBINED PRE-AMPLIFIER/POWER AMPLIFIER has an undistorted output of 15-watts peak, combined with very high input sensitivity capable of being loaded directly from a tape head or modern low output pick-ups and incorporates very flexible tone control and input facilities. The outstanding feature is that two amplifiers are coupled together with a unique master volume control unit, thereby providing complete stereo facilities.

TAPE RECORDING AND HI-FI MAGAZINE

BOOTH 28

DEMONSTRATION ROOM

Print and Press Services Limited
7, Tudor Street
London, E.C.4

Magazines and other publications covering tape recording and high-fidelity sound

The art of the old fashioned blacksmith was to strike when the iron was at exactly the right temperature, and the art of the modern publisher is to produce a magazine at precisely the moment when the demand arises.

With tape recording, that moment came well over two years ago, when TAPE RECORDING AND HI-FI MAGAZINE made its first appearance. Today it is firmly established as the leading publication in this field in the world — the largest in size, the largest in circulation, and the most ambitious in its journalistic standards.

It has an exciting pioneering history. It has grown up with the industry and with the clubs, many of which it has actively helped during their earliest days. And, of course, it conceived and established the British Amateur Tape Recording Contest, which is now linked with the International Recording Contest.

Today, at the opening of this 1959 Audio Fair, a new moment of opportunity and of creation occurs.

On many stands you will see evidence of the faith of manufacturers in the future of stereophonic sound recording and reproduction.

We share that faith and so, as you would expect, we are in the vanguard with them. We are proud to launch now the world's first STEREO SOUND AND MUSIC MAGAZINE, which will help to popularise this field with the same vigour and journalistic skill as has been shown on the tape recording side.

STEREO SOUND AND MUSIC MAGAZINE is on sale for the first time at the Audio Fair, price 2s. 6d. We urge you to buy your copy quickly, for, once out of print, it will become a collector's piece.

In future STEREO SOUND will appear on the first of each month, TAPE RECORDING on the 20th of each month. You should have a regular standing order for both of them.

Nowhere else will you find such a full, up-to-date, well-illustrated record of developments in these two fields.

On the Print and Press Services stand you will learn also of other important publishing activities that will be of great interest to tape, stereo and hi-fi enthusiasts.

TELEFUNKEN

Telefunken G.M.B.H.
Gottinger Chaussee 76
Hannover
Germany
Tape Recorders

BOOTH 50
DEMONSTRATION ROOM 337

TELEFUNKEN are proud to display a range of tape recorders surpassing in quality anything that has previously been offered in the domestic field.

TELEFUNKEN in conjunction with their associated company the AEG invented and developed the first tape recorders in the world and since then have led the field in the production of studio machines.

Model 85K at the price of 75 guineas offers the following guaranteed specifications:

UNPRECEDENTED FREQUENCY RANGE NEVER BEFORE ACHIEVED. 30-20,000 cps. at 7½ ips. ± 3db, 30-15,000 cps. at 3¾ ips.

CERTIFICATE WITH EVERY MACHINE. Test certificate presented with every machine guarantees frequency response figures.

NEW TECHNICAL ACHIEVEMENT. DC heated preamplifier valves eliminate hum and back-ground noise.

2 OVAL LOUDSPEAKERS, TREBLE/BASS TONE CONTROLS with input selector switch for microphone /radio/gram.

TRICK BUTTON allows superimposing on existing recordings.

OVER 4 HOURS PLAY (when using TELEFUNKEN L.P. Tape). stage and stereo versions available.

Can be used as straight through amplifier. Loudspeakers can be used for monitoring recording. Magic Eye recording level control. Push Pull Output stage and stereo versions available.

The smaller model 75 provides incredible quality at the slowest tape speed of 1⅞ ips. 60-16.000 cps FREQUENCY RANGE at 3¾ ips and 60-9.000 cps at 1⅞ ips. OVER 6 HOURS PLAY on one tape at 1⅞ ips.

A wide range of accessories is available including the following:

Trick button
Twin Channel Mixer
Telechron 1 unit (for electronic control of slide projectors)
Remote Control Dictation Microphone and Back Spacer
Dictation Loudspeaker (for table models)

The New M23 small studio recorder provides a needed link between the domestic machines and the highly priced studio machines at a price within the reach of most professional users.

Studio Specification, Instrument Level Control, 4 Channel Mixer incorporated, Interchangeable Head Assemblies, 3 Motors — 9″ Spools, Cabinet and Chassis Models available.

Also various unique studio machines will be on display with condenser microphones and associated studio equipment. Demonstrations of the latest stereo equipment are envisaged.

The staff of WELMEC CORPORATION and technical experts from the TELEFUNKEN works will be in attendance and be pleased to give information.

TRIX

Trix Electrical Co. Ltd.
1/5, Maple Place
Tottenham Court Road
London, W.1.

BOOTH 32

DEMONSTRATION ROOM 211

Amplifiers, Loudspeakers
Microphones, High Fidelity Equipment
Record Reproducers

The equipment shown by the Trix Electrical Company Limited, comprises a range of Record Reproducers and Amplifiers for home use as well as examples of high quality Sound Reproduction Equipment for Public Address Systems, and represents the steady development achieved in more than 30 years of specialisation by the Company in this field.

For Stereo Reproduction the TRIXTEREO Portable Reproducer provides all the features required for true stereo reproduction in a simple and portable form with a central control panel and two detachable Speakers. Controls are ganged to operate both channels simultaneously and include volume, bass, treble and a separate balance control.

Model XT.202 Stereo and Monaural High Fidelity Amplifier, is designed for operation with any suitable pick-ups and loudspeakers and has selector switch for Pick-up, Tape, and Tuner inputs with provision for stereo and monaural reproduction. The controls also include switches for rumble filter and bass compensation. This model comprises the pre-amplifier and power amplifier in a single unit with attractive front panel and provides a total output of 8 watts.

In the field of Sound Reproduction Equipment, the TRIX range includes Amplifiers, Rack-Mounted Equipment, Microphones and Loudspeakers of numerous types which are used with Public Address Systems and installations large and small in many parts of the world.

AMPLIFIERS. Many types are available with outputs from 5 watts to 150 watts and Rack Mounted Equipments can be provided for large installations with outputs up to 1,000 watts or more.

LOUDSPEAKERS. Indoor and outdoor types are shown, including new cabinet models and the latest Sound Column type speakers, giving a highly efficient beam effect with minimum of feed-back.

MICROPHONES. These are available in Moving Coil and Ribbon Types to suit every requirement and new models include G7871/D Moving Coil pattern fitted with switch, and an improved Ribbon Type G7823.

AIRCRAFT EQUIPMENT. The TRIXADIO Passenger Address System as installed on the Comet 4 Aircraft, is on view. This is a fully transistorised equipment of unique design combining high efficiency with low weight.

This system is installed on Comet aircraft used by B.O.A.C. and also by foreign airlines.

Trade Names: TRIX, TRIXONIC, TRIXETTE, INTERVOX
TRIXADIO, TRIXTEREO, TRIXOMATIC

TRUVOX

Truvox Limited
Neasden Lane
London, N.W.10
Tel. Gladstone 6455

Tape Recorders
Components and Accessories

BOOTH 16

DEMONSTRATION ROOM 342

The products to be displayed at the Fair will include the Truvox Mark VI Tape Deck. This is an entirely new design and will only be available to Tape Recorder Manufacturers and for Export for some months. This Tape Deck can be supplied with monaural or stereophonic heads for recording and reproduction.

The Truvox Type 'K' Tape Recording Amplifier Mark II has improved circuitry and is suitable for use with the Mark IV and VI Tape Decks — one only for monaural record and replay and two of these Amplifiers for stereophonic recording and replay.

The equipment shown includes the Truvox R2 Tape Recorder, which has an output of 4 watts and a frequency response of 50-12,000 cps. ± 3 db. As this Recorder was designed for musical appreciation, it is fitted with a 10″ × 6″ 10,000 lines speaker, which enables the Recorder to be used in large rooms without power amplifiers and additional speakers.

The Truvox Stereophonic Head, which is sold separately, is now available from stock.

The full range of Radio Jacks will be shown. These are Germanium Diode crystal tuners for use with Amplifiers or Tape Recorders and will receive the Light and Home Programmes on the Medium Wave Band or the Light Programme on 1500 metres and two other stations on the Medium Band according to the model purchased.

The Stereo Twin-set will be demonstrated in Room No. 342.

VERITONE

Veritone Limited
Avenue Parade, Ridge Avenue
London, N.21
Tel: LABurnum 6641/2

Tape Recorders

BOOTH 45
DEMONSTRATION ROOM 220

"INSTANT AUDIO CHECK"

The new Veritone Venus Console and Portable models introduce a new definition; a new development as important as high fidelity itself. We believe that having used this new method of recording, the enthusiast will not wish to return to anything other than this system.

"INSTANT AUDIO CHECK" is fitted to both Veritone models and provides the only really fool-proof method of recording. Three heads are used on the tape deck, and two separate amplifiers are employed in every machine. Only one-fifth of a second can elapse before a signal put on the tape is replayed. Whilst a recording is being made the actual replay off the tape is heard, so that adjustments of the record amplifier can be made while actually listening to the reproduction from the playback amplifier. INSTANT AUDIO CHECK dispenses with meters; gives great accuracy; makes superb recording simple. YOU HEAR AS YOU RECORD.

SUPERIMPOSING on VERITONE recorders is NOT effected by purely removing an erase link. It has been found that by either shielding or disconnecting the erase head the original signal is severely effected. For this reason a special circuit is introduced by a switch that not only cuts the erase head but also COMPENSATES THE BIAS ON THE RECORD HEAD. We believe, also, that superimposing is not practical unless one can hear the existing signal on the tape whilst superimposing a second one. VERITONE therefore provide for the first signal to be heard while superimposing! Accuracy to within one-fifth second can be achieved.

ECHO. Artificial reverberation — 'echo effects' can be added while recording, and superimposition enables these effects to be applied also to existing tapes.

VERITONE VENUS SPECIAL FEATURES

* 3 heads (1 erase, 1 record, 1 playback).
* Separate record and playback amplifiers.
* 10″ × 6″ Eliptical speaker (12,000 lines).
* Separate bass and treble controls.
* Straight-through amp. switch.
* Digital counter.
* Solenoid braking.
* PRICE: PORTABLE 58 gns. CONSOLE: 66 gns.

VITAVOX

Vitavox Limited
Westmoreland Road
London, N.W.9

Loudspeakers, Microphones

BOOTH 7

DEMONSTRATION ROOM 322

Vitavox Limited specialize in the production of loudspeakers of the highest grade to meet the requirements of the most discerning musical listener.

HALLMARK Loudspeaker Systems incorporate the renowned Vitavox Type DU120 Duplex-Coaxial Full Range Loudspeaker, comprising mechanically and electrically separate bass and treble units to give a smooth, extended frequency response with distortion reduced to negligible proportions.

Freedom from distortion and from pronounced response peaks results in effortless listening free of the aural fatigue associated with the harsh, exaggerated performance of inferior loudspeakers.

Of a restrained design at home with any furnishing scheme, the craftsman-made cabinets are veneered in teak, walnut or mahogany with a hand-polished satin finish.

The Type DU120 Duplex Coaxial Loudspeaker has achieved a notable success in export markets where the superiority of finish and performance are particularly appreciated. This loudspeaker is available in chassis form for building into the users own cabinet and drawings of recommended enclosures are available for the home constructor. The two units are of the direct radiator moving-coil type, chosen because of their proven reliability under all conditions and the ease with which they can be used with any standard quality amplifier. The technical advantage of the duplex construction include reduced intermodulation distortion, superior transient response, improved performance at high frequencies and better acoustic distribution.

The following additional products will be displayed:—

TR30 HIGH FREQUENCY UNIT

A new component for use in conjunction with single cone loudspeakers such as the AK120 series or the earlier K12/10 and K12/20 models to give a standard of reproduction equivalent to that of the DU120.

AK120 SERIES LOUDSPEAKERS

A comprehensive range of twelve-inch single cone loudspeakers constructed throughout to the highest standards.

K15/40 LOUDSPEAKER

A fifteen-inch single cone loudspeaker particularly intended for low frequency reproduction.

S2. PRESSURE UNIT

Unsurpassed both for finish and performance; the high frequency unit for the most exacting applications.

G.P.1 PRESSURE UNIT

For medium quality auditorium installations as a high frequency unit or for sound-reinforcement installations.

B.50 SERIES MICROPHONES

Speech quality dynamic microphone combining small size, robust construction, comprehensive switching and excellence of performance.

Trade Names: VITAVOX, HALLMARK, BITONE, KLIPSCHORN

VORTEXION

Vortexion Limited
257/263, The Broadway
London, S.W.19

Tape Recorders, Amplifiers, Public Address and Electronic Equipment

BOOTH I
DEMONSTRATION ROOM 352

All models now have provision for Stereo or for easy conversion at a later date. Conversion units are also available.

The regular models are retained with additions and improvements. Our high Standard which has made these recorders famous, resulting in their being chosen for the foremost musical centre in this country, has been maintained.

TWELVE-CHANNEL ELECTRONIC MIXER.

This is similar to the 4-channel, but is fitted with 12 hermetically sealed controls, 12 balanced line microphone transformers potted in mu-metal boxes, and a mains transformer also potted in mu-metal. All components which can affect noise are tested and selected before insertion. It is supplied in standard steel case or 7 inch rack panel.

30/50 WATT AMPLIFIER.

Gives 30 watts continuous signal and 50 watts peak Audio. With voice coil feedback distortion is under 0·1%, and when arranged for tertiary feedback and 100 volt line it is under 0·15%. The hum and noise is better than —85 db referred to 30 watt.

It is available in our standard steel case with Baxendale tone controls and up to 4 mixed inputs, which may be balanced line 30 ohm microphones or equalised P.U.s to choice.

120/200 WATT AMPLIFIER.

Will deliver 120 watts continous signal and over 200 watts peak Audio.

It is completely stable with any type of load and may be used to drive motors or other devices to over 120 watts at frequencies from 20,000 down to 30 cps in standard form or other frequencies to order. The distortion is less than 0·2% and the noise level —95 db. A floating series parallel output is provided for 100-120V. or 200-240 V. and this cool running amplifier occupies $12\frac{1}{4}$ inches of standard rack space by 11 inches deep. Weight 60 lb.

TRAP VALVE AMPLIFIERS.

For 300 and 600 ohm input and 75 and 600 ohm output, screened balanced or unbalanced, output +20 dbm at 0·05% distortion, response 20 cps to 20,000 within 2 db. Hum and noise level —77 db. With built-in power pack it occupies 5 inches of rack height. Matching equalisers are also available.

WALTERS

Walters (Sales) Limited
Garth Road, Morden
Surrey

Tape Recorders

BOOTH 67
DEMONSTRATION ROOM 312

Walter Instruments Limited present their two exhibition models.

The first of these is the Walter 505 High Fidelity portable tape recorder which sells at 57 gns. — an extremely modest figure in view of its wealth of features and special recording facilities. It is designed around the latest Walter Mk II tape deck which incorporates the well-known Walter " joy-stick " master tape control for selecting record, playback or fast wind in either direction. Mechanical features include two tape speeds — $7\frac{1}{2}$ and $3\frac{3}{4}$ r.p.s. — pause control — and a digital counter. On the electronic side there are volume and tone controls, separate controls for microphone and radio recording levels which also operate as a 2-channel mixer, and a super-impose button which allows the erase head to be cut out, to permit a new recording to be superimposed on an already recorded tape. The 4-watt amplifier (which can be used independently) has a level frequency response from 40 to 14,000 c.p.s. at $7\frac{1}{2}$" p.s., and there are three speakers: two are 9" × 5" elliptical speakers and a 4" tweeter. The deck is a streamlined cream plastic moulding and the case is finished in green and buff leatherette. There is a range of attachments and provision for driving the Walter Cine Synchroniser.

The Walter 1000 is a self-contained console model designed for the out-and-out luxury market.

To own the Walter 1000 console tape recorder is to have the satisfaction of possessing an instrument that takes its place naturally among the better things of life. It has been designed with one aim in view — perfection. In a single, elegant piece of fine furniture, it houses a sound installation of superb quality, the result of over 30 years of experience in manufacturing electronic components for leading set manufacture in the radio and television industries.

The Walter 1000 is intended to satisfy the critical ear — and eye — of the connoisseur, and the discriminating few who place performance before price, will count the modest extra cost of this superb instrument well spent.

The technical specification includes the latest Walter tape deck with all the outstanding features of the 505 Hi-Fi, but in addition there are no fewer than 5 matched and balanced speakers and a 10 watt amplifier — with a really outstanding performance over the whole musical scale.

This handsome veneered console model provides for the addition of one of three recommended makes of F.M. tuning unit and there is a master switch giving a choice of 4 facilities: straight reproduction from F.M. tuner; record from F.M. tuner; record/play from tape recorders; straight through amplifier.

Every Walter 1000 is individually installed by Walter technical experts — with no extra charge.

WHARFEDALE

Wharfedale Wireless Works Ltd.
Idle, Bradford
Yorkshire

Loudspeakers, Enclosures, Transformers
Separator Units and Volume Controls

BOOTH 31

DEMONSTRATION ROOM 236

The WHARFEDALE range of high quality loudspeakers is very extensive and covers all domestic requirements. It incorporates complete systems as well as a wide variety of individual units and accessories.

After several months of intensive research and experiment we are now able to offer a range of three cabinet loudspeaker systems designed to give optimum results in the minimum of space — a requirement obviously of growing importance with the advent of stereo. The new cabinet models are the W2, W3 and W4. As the titles indicate they are respectively two, three and four speaker systems, increasing in size, weight, quality and of course price, in the same order. All are based on a new 12″ bass unit type WLS/12, which has a high-compliance suspension designed to give improved linearity with bass resonance in the region 25 – 30 c/s. All three enclosures give pure bass down to 30 c/s with 4 watts input. These compact loudspeaker systems are suitable for single channel operation as well as in pairs for stereo. Owners of a good loudspeaker of any make can choose one of the new models to work along with it when converting to stereo. Controls are fitted to facilitate loudspeaker matching in these circumstances.

COAXIAL 12

Prototypes of this new model were first shown and demonstrated at the Northern Audio Fair in October 1958, where it aroused considerable interest. The unit is now in full production, and specimens can be seen on our booth in the main Exhibition Hall.

DEMONSTRATIONS

Demonstrations in Room 236 will include examples of mono as well as stereo reproduction, since we firmly believe that the sound quality obtainable from the best LP records is still worth listening to. A variety of loudspeakers will be compared, and during the stereo demonstrations items will be played with different loudspeakers in each channel as well as on matched pairs.

W. B. STENTORIAN

Whiteley Electrical Radio Co. Ltd.
Victoria Street, Mansfield
Notts.

BOOTH 3
DEMONSTRATION ROOM 302

High Fidelity Loudspeakers, Quality Amplifiers, V.H.F. Tuner, Ready to Assemble Cabinets and Portland Transformers

The results of over thirty years specialisation and complete manufacture within the organisation is to be seen in the outstanding range of W.B. Stentorian High Fidelity products being displayed and demonstrated.

The comprehensive range of loudspeakers includes units varying in size from $1\frac{3}{4}$ inches in diameter to 18 inches in diameter and these units are available with a variety of cone construction, speech coil impedance and magnet strength to suit all requirements. Following the success and acceptance of the 8 and 10 inch units fitted with 16,000 gauss magnets a complementary 12 inch unit has been designed. This unit is fitted with a specially designed cone and suspension and has an aluminium voice coil. The loudspeaker is for use as a full range reproducer and may be mounted in the Prelude Major Bass Reflex Cabinet when very high quality reproduction is obtained.

The requirement of stereophonic reproduction are met by a range of special cabinets including Senior and Junior column units and the Stentereo corner speaker system. This latter, shown for the first time at the Northern Audio Fair, has many novel features. The enclosure is divided into two sections the lower taking the form of an infinite baffle. As is well known the high frequency spectrum tends to be directional and provision is made in the upper section of the cabinet for rotating the baffle by the listener to give the best stereo effect.

To enable users of W.B.12 amplifiers to convert to stereophonic systems a stereo control unit has been introduced which can be used with either two W.B.12 main amplifiers or the W.B.8S stereo amplifier. The W.B.12 amplifier and tone controls and the W.B.8 amplifier are, of course, still available together with the Mk.II V.H.F. tuner. Also available is a 300 milliwatt transistor amplifier using printed circuit technique. This amplifier is suitable for a wide variety of applications particularly in the field of portable sound reproduction equipment.

A large range of ready to assemble cabinets is available to house the loudspeakers and amplifiers, these cabinets being finished in Sapele mahogany or polished walnut.

WIRELESS & ELECTRICAL TRADER

Trades Publishing Co. Ltd.

Dorset House, Stamford Street
London, S.E.1

BOOTH 46

DEMONSTRATION ROOM

WIRELESS & ELECTRICAL TRADER is the leading trade journal of the radio, television and light electrical industries, widely read by dealers, service engineers, manufacturers and wholesalers. Obtainable only on subscription basis by bona fide members of the trade, it provides an invaluable weekly survey of trade trends, experienced observers reporting on every development, technical or commercial. " Audiotopics ", a regular feature now in its second year, presents the latest technical and commercial aspects of the audio field — an invaluable aid to dealers in keeping right up-to-date in this increasingly important subject. Practical details of new products, sales promotion and display schemes are supplemented by service sheets compiled in the " Trader's " own laboratory.

WIRELESS & ELECTRICAL TRADER costs £2. 15s. 0d. a year, including postage.

WIRELESS & ELECTRICAL TRADER YEAR BOOK 1959 contains the latest buying, technical, general and legal information to solve all the trade's day-to-day problems. 13s. 6d. including postage (10s. 6d. to Trader subscribers).

The exhibit also includes sales aids, forms etc. for the trade.

WIRELESS WORLD & ELECTRONIC RADIO ENGINEER

BOOTH 44

DEMONSTRATION ROOM

Iliffe & Sons Ltd.

London, S.E.1
Dorset House, Stamford Street

WIRELESS WORLD is Britain's leading technical journal in the general field of radio, television and electronics. Providing a complete and accurate survey of the newest British technique in design and manufacture, its articles cover every phase of the radio and allied industries. Contributions by recognized experts deal with design data and circuits for every application. High fidelity receives continuous and searching attention. WIRELESS WORLD is published monthly, 2s.

ELECTRONIC & RADIO ENGINEER caters for the world's advanced technicians and designers in electronics, radio and television, with an authority and understanding of their needs based on over 30 years' continuous service. It covers not only the latest results of pure research; original articles by leading physicists open up many new lines of approach and make practical contributions to further progress. Its abstracts and reference section is one of the finest sources of research information published anywhere, whilst the journal has the benefit of an Editorial Advisory Board representing the country's leading technical bodies. Every month 3s. 6d.

TECHNICAL BOOKS. Authoritative and up-to-date works on many aspects of radio and television are also on show.

NOTES

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LUSTRAPHONE LTD.

STAND No. 20

the foremost designers and makers
of
microphones
for all requirements
stands — transformers — accessories
transistor microphone mixer units
transistor preamplifiers and audio amplifiers
transistor portable public address systems

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Trade Marks :

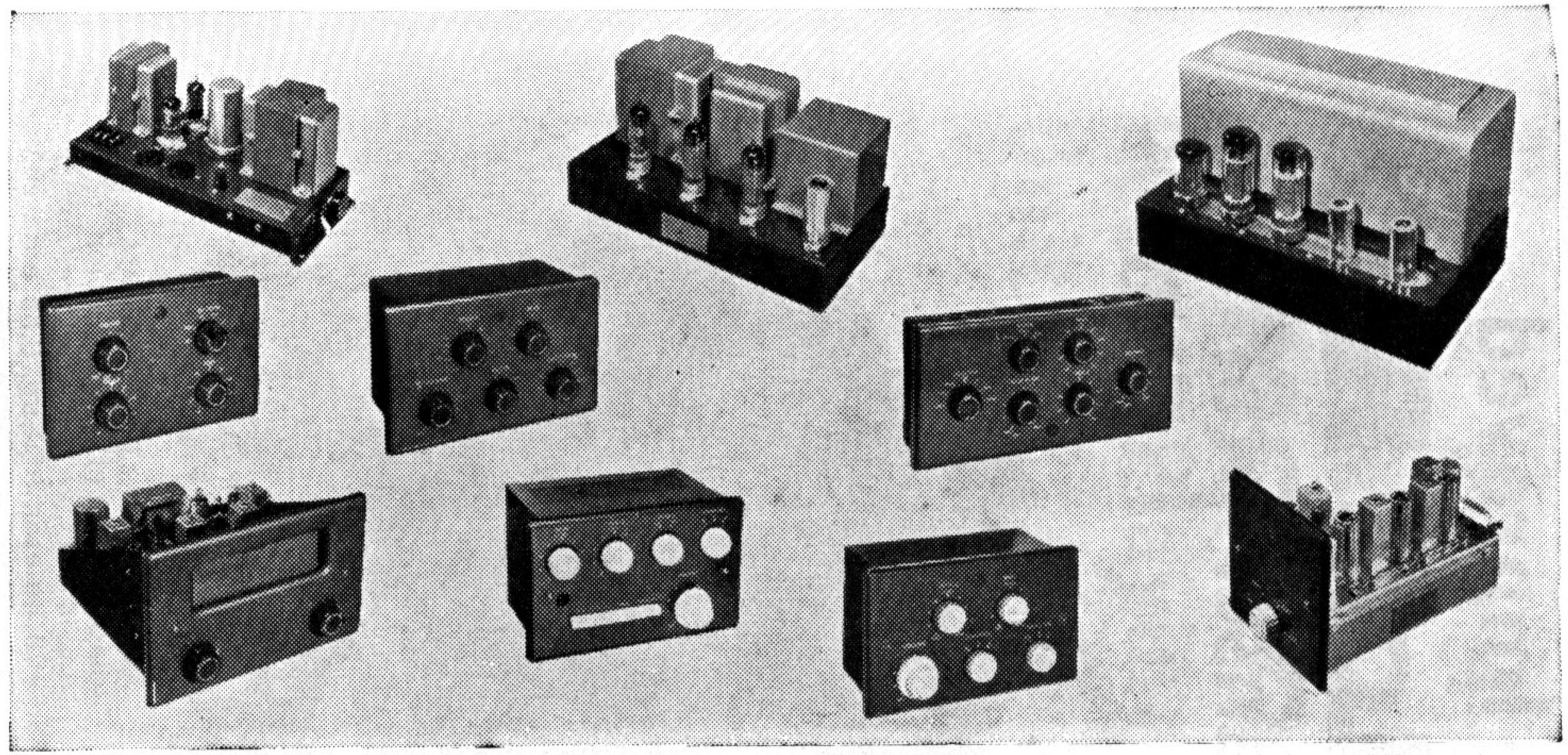
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"TRANSISPHONE"

Enquiries to Stand or

LUSTRAPHONE LTD. ST. GEORGE'S WORKS, REGENTS PARK ROAD, LONDON N.W.1.

Phone : PRImrose 8844 · Grams : LUSTRAPHON NORWEST LONDON
Cables LUSTRAPHON LONDON

Britain's most comprehensive range of Home High Fidelity Equipment



The ten units illustrated, comprising three Amplifiers, three Monaural Control Units, two Stereo Control Units and two FM Receivers, make up the most comprehensive and flexible range of equipment on the British market.

Styled to match and fully interchangeable they enable Hi-Fi Systems to be built up covering every possible requirement.

THE INTEGRATED LINE

An entirely new range of equipment is being introduced at this year's Audio Fair, the first item of which will be an Integrated Stereo Amplifier, rated at 8 watts per channel, to be called the Model HG88.

Every worth-while feature has been included in the specification and the styling represents a fresh approach to this important aspect of design.

We invite you to make a point of seeing and hearing the HG88 while at the Audio Fair.

Stand No. 66
Demonstration Room No. 321

Trade and Export enquiries invited

ROGERS DEVELOPMENTS (ELECTRONICS) **LTD**

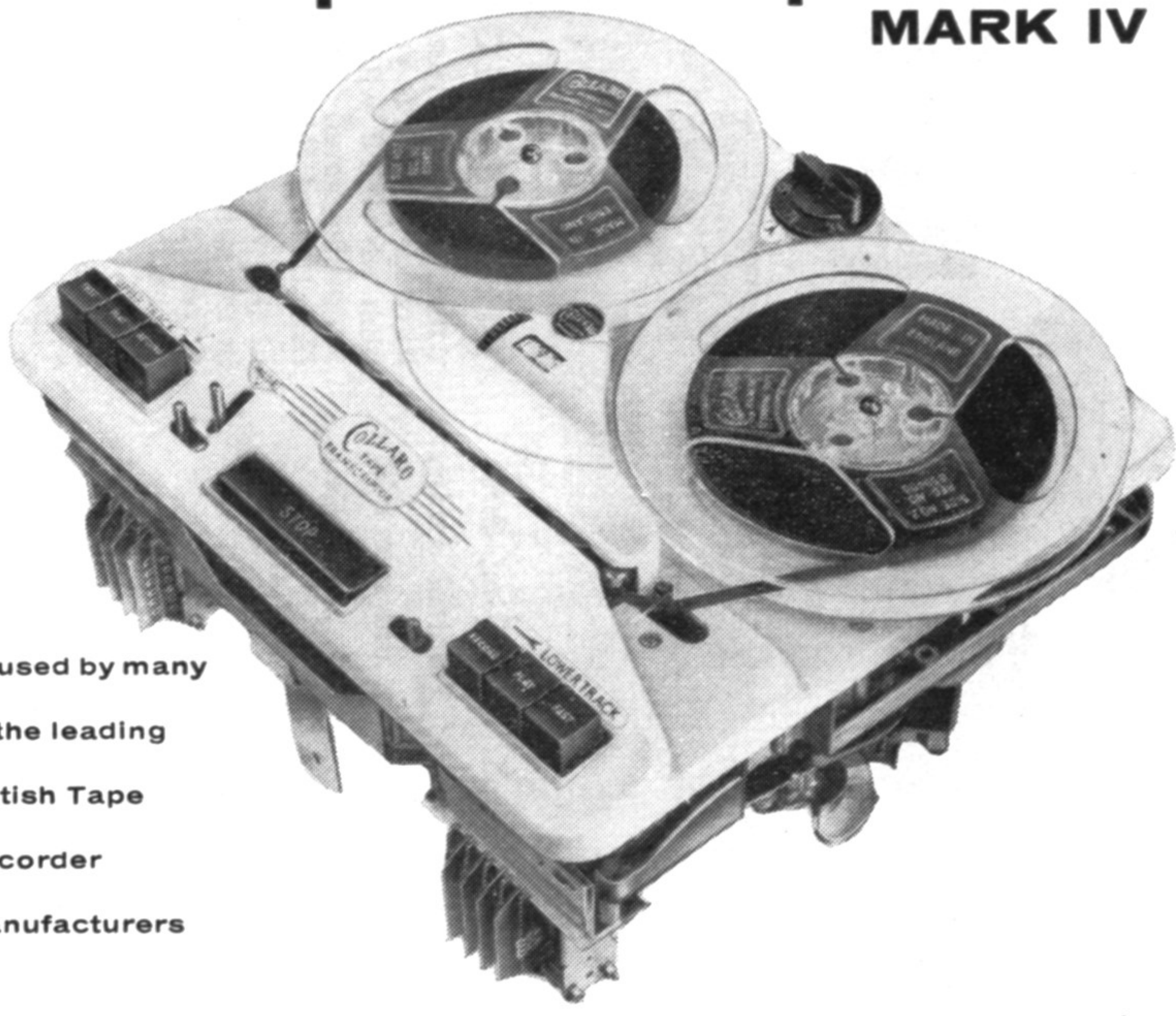
"RODEVCO WORKS" . 4-14 BARMESTON ROAD . CATFORD, LONDON, S.E. 6 . Hither Green 7424/4340

The New Improved

COLLARO

Tape Transcriptor

MARK IV



as used by many of the leading British Tape Recorder manufacturers

This High-Fidelity instrument, designed on Transcription quality principles for recording and for reproducing pre-recorded tapes, is a twin-track model having two sets of heads and running at speeds of 3¾, 7½ and 15 inches per second, with a pause control for live programme editing. A record safety latch prevents accidental erasure of recorded tapes.

An inter-connected Micro-Switch and Fly-Wheel Brake switch off both motors and stop the Fly-Wheel immediately the "stop" button is operated. Any of the six smaller knobs will then restart the machine in either direction. Reduced wattage input ensures cooler and quieter motors. The enlarged motor pulleys, with new type re-wind pulleys and springing arrangements, make for more active re-wind.

The **COLLARO STUDIO MICROPHONE** is a high - fidelity, super - sensitive, crystal type, miniature hand-microphone in maroon or cream. Frequency range is 30—10,000 c.p.s., and output is 1.8 m.v./u.b. at 1,000 c.p.s. The capacity is equal to 1,500 pf.

COLLARO

SEE IT ON STAND 55
HEAR IT IN
DEMONSTRATION ROOM 237

COLLARO LTD., RIPPLE WORKS
BY-PASS ROAD, BARKING, ESSEX

Telephone : RIPpleway 5533-Telex 28748. *Telegrams : Korllaro-Telex-Barking.*

Makers of Record Changers, Gramophone Units, Pickups, Electric Motors, etc.

New 4-Speed STEREOPHONIC and MONOPHONIC Record Playing Unit

MODEL RP 594



A Reliable Small Unit For Sound Reproduction

The RP594 has been specially designed to give the finest results when playing stereophonic records, while giving top performance on coarse and fine groove monophonic records, and improved technique in the construction and assembly of the motor ensures reproduction almost entirely free from frequency modulation. The fully automatic stop is independent of record size or length of playing surface: its design is extremely light and it is intended for use with a stereophonic pickup.

The unit is normally fitted with the Counter / Balanced Arm, the best for stereophonic playing; but it can also be supplied with any other moulded Arms and any "Studio" Cartridge.

The RP594, finished in hard, scratch-proof enamel, is supplied with a motor suitable for 200/250 volt, or 110/125 volt, 50-cycle; or with a motor suitable for 117 volt, 60-cycle only.

The **COLLARO 4T200 GRAMOPHONE TRANSCRIPTION UNIT** is suitable for stereophonic reproduction, and can be supplied with stereo cartridge. Model 4TR200 has a smaller unit plate which allows for independent mounting on the motor board of any type of pick-up.

COLLARO

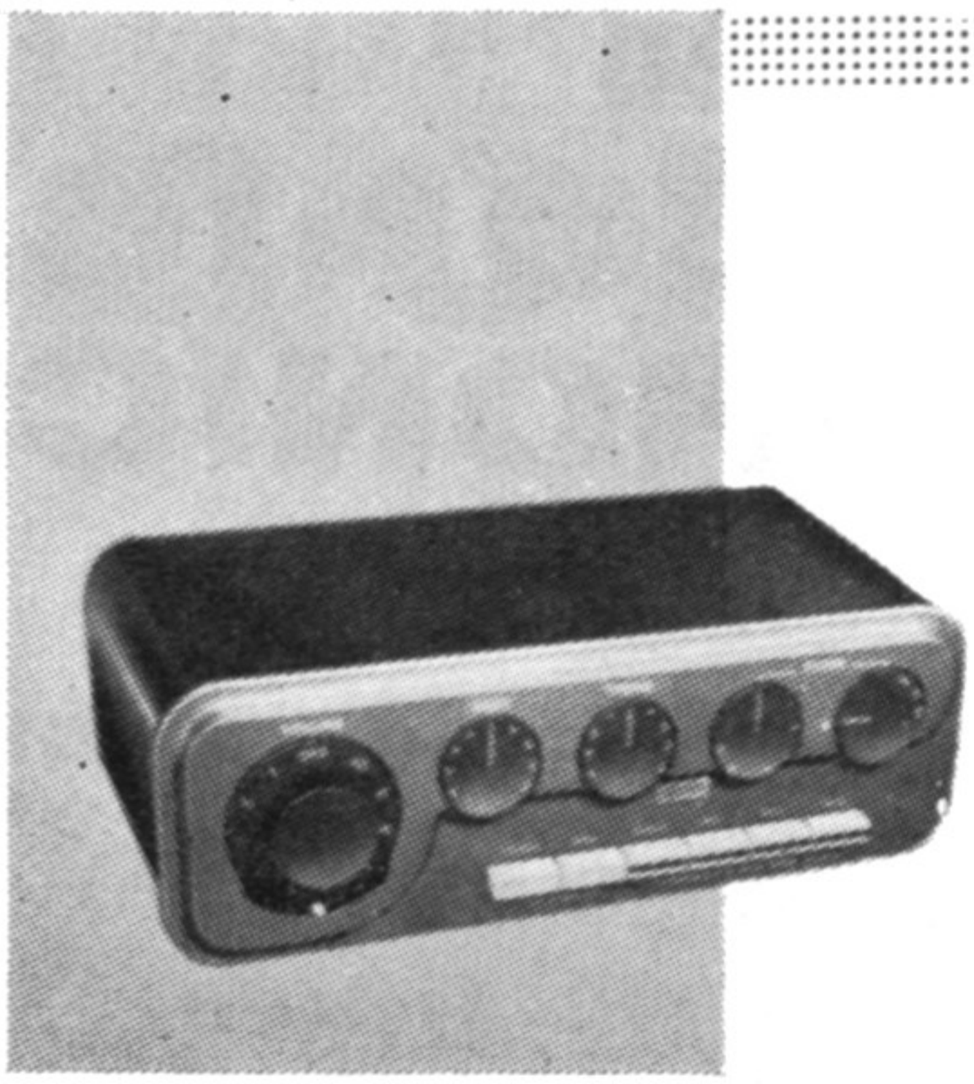
SEE THEM ON STAND 55
HEAR THEM IN
DEMONSTRATION ROOM 237

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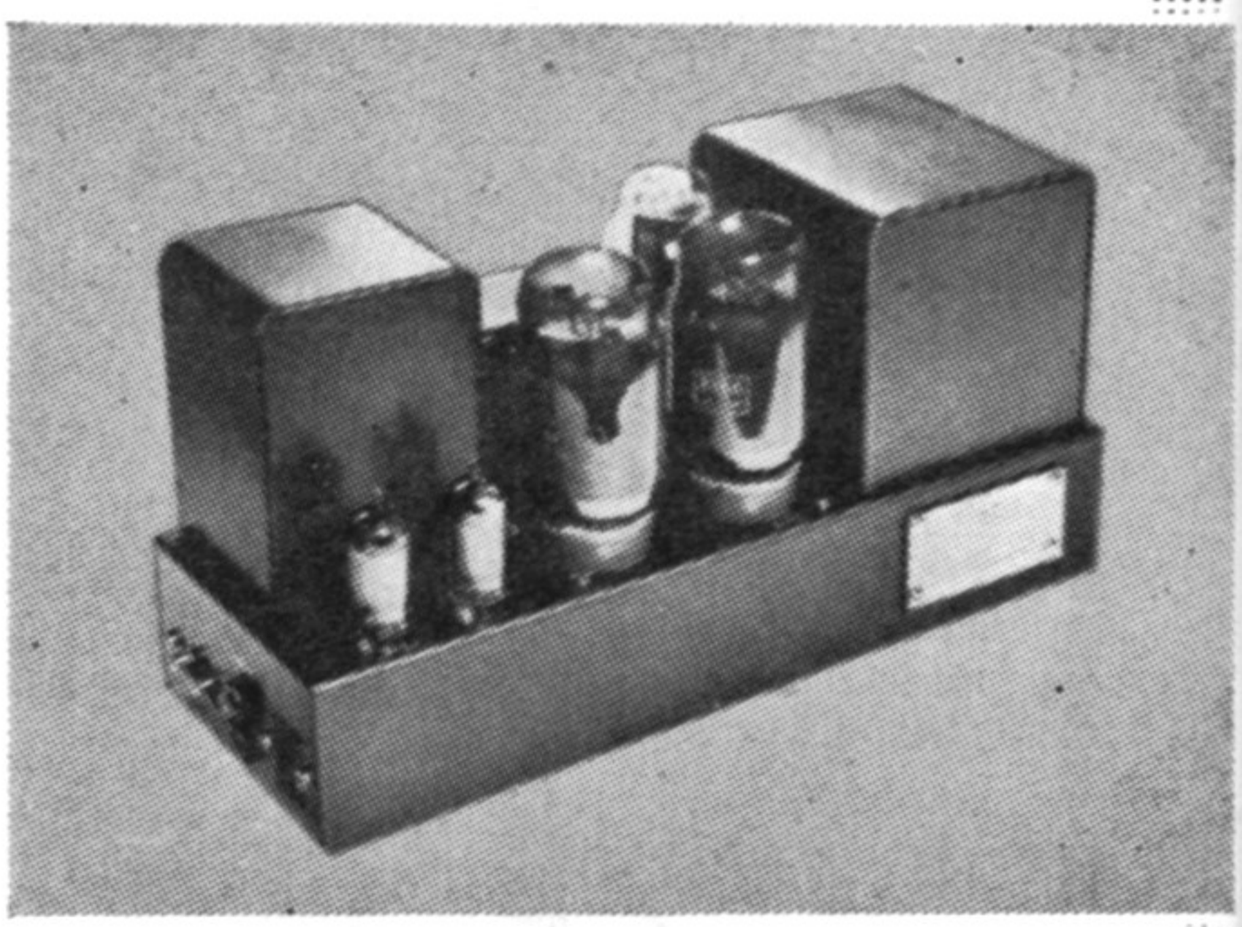


QUAD

for the closest approach to the original sound

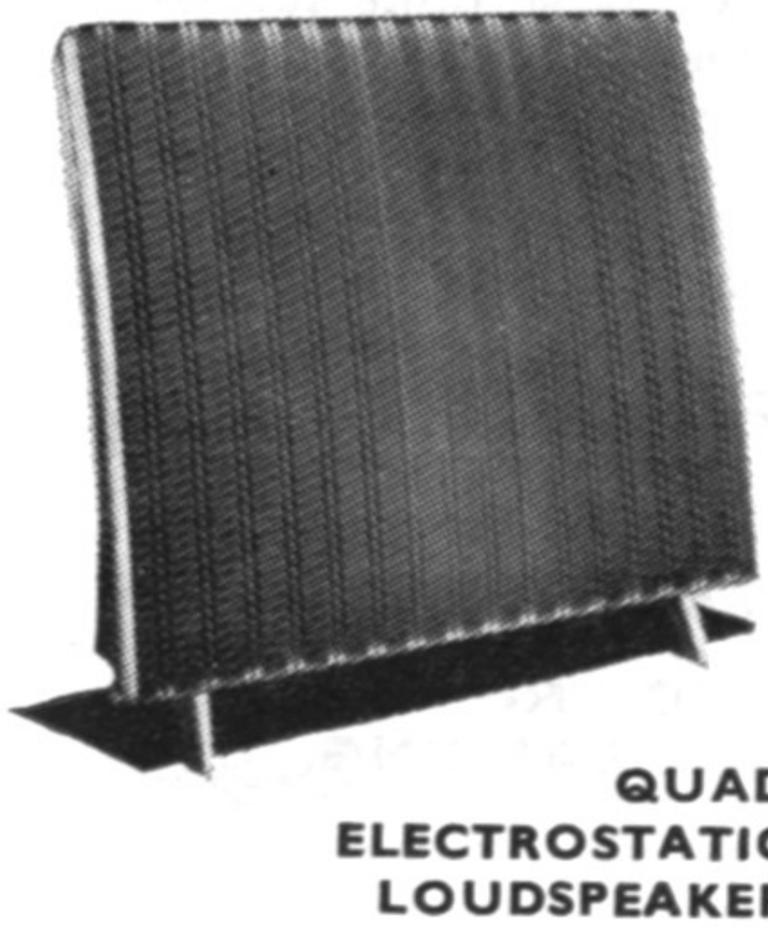
QUAD 22 CONTROL UNIT

F.M TUNER



QUAD II POWER AMPLIFIER

STAND Nº 15
DEMONSTRATION ROOM Nº 117



QUAD ELECTROSTATIC LOUDSPEAKER

ACOUSTICAL MANUFACTURING COMPANY LIMITED

HUNTINGDON, HUNTS

Telephone : Huntingdon 361

For optimum performance with your equipment you need a Ribbon microphone



The FIRST name and World's largest producer

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List prices £8 15s. 0d. to £10 15 0d.

RESLOSOUND LTD

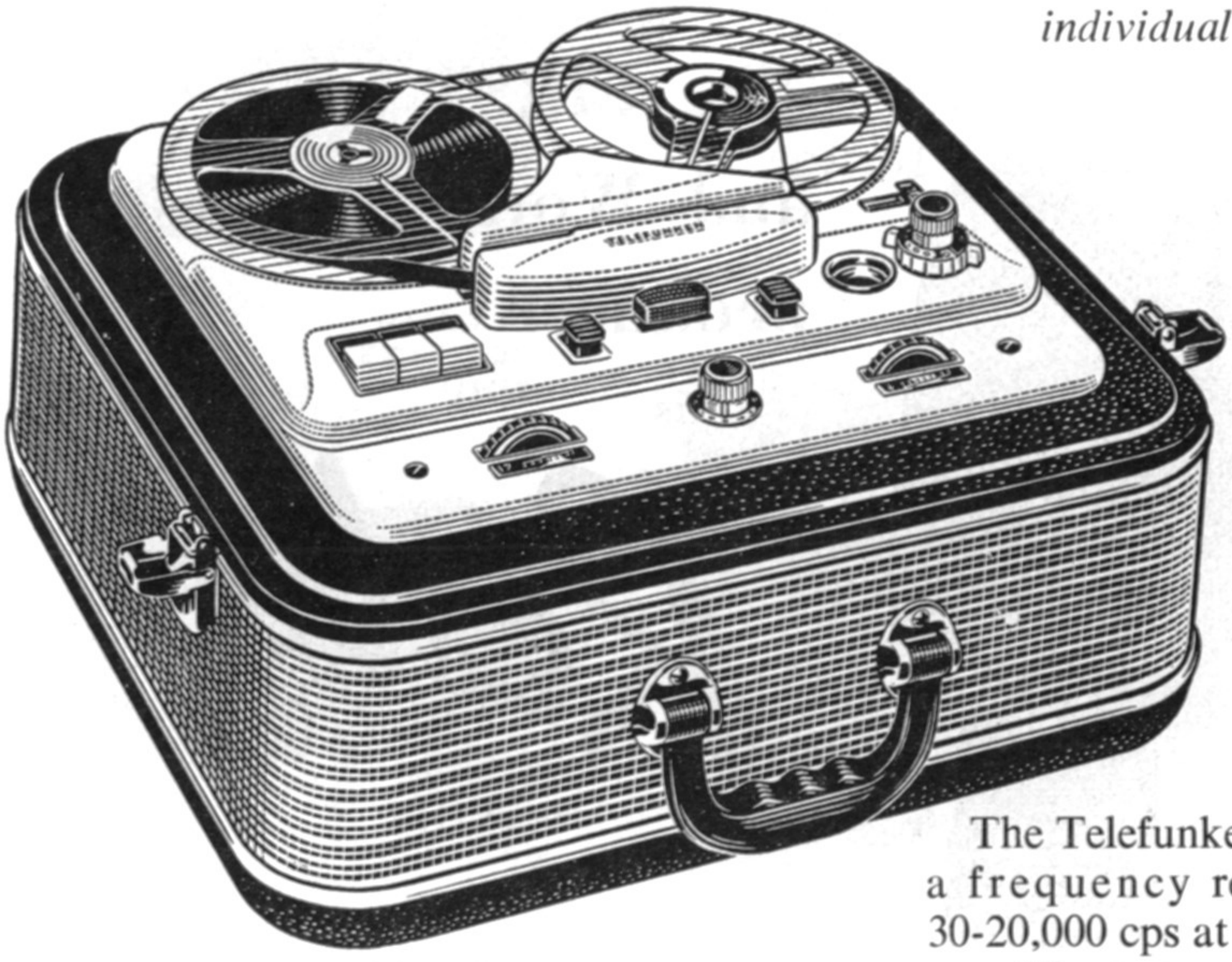
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TELEFUNKEN

MODEL KL 85 K

Portable model - 75 Gns

Frequency response guaranteed by individual certificate



The Telefunken 85K has a frequency response of 30-20,000 cps at 7½ ips and a certificate presented with each model, guarantees this superb performance.

DC heated pre-amplifier valves cut out all hum and background noise whilst two matched loudspeakers have separate input controls for microphone and gramophone. Five push buttons give instant control including quick stop and trick button for super-imposition (Erase cut-out).

TELEFUNKEN have equipped nearly all the major Radio Stations of Europe!

OTHER MODELS IN THE 85 RANGE include :

85T table model for direct use with HI-FI equipment andra diogram - 75 gns. 75KL specification as 85K but with 6 watts push-pull output stage 79 gns. Stereo models - 85T-95gns. 85K (portable) - 112gns. Excluding microphone - extra from 5 gns.

THE ORIGINATORS OF TAPE-RECORDING

DEMONSTRATION ROOM No. 337

★

Daily Demonstrations of the full Telefunken Range.

Illustrated below is one of the latest additions to the Telefunken range — the M 23.

A small-studio model which makes studio performance available to all.



TELEFUNKEN M 23 has two tape speeds of $7\frac{1}{2}$ and $3\frac{3}{4}$ ips, 3 driving motors which provide extremely smooth tape movement. 5 interchangeable head assemblies. 4 intermixable, separately controlled input channels. Instrument bevel control before or " off " the tape. The 9″ reels give 6 hours playing from one tape. The M 23 comes in a strong oak cabinet with a lockable lid £150. Chassis model £140. Portable model now being prepared with 4 loudspeakers £180.

Sole Distributors for the U.K.

WELMEC CORPORATION LIMITED

147 Strand, London WC2

TELEFUNKEN
The originators of tape recording

and now Ampex audio tape recorders

Rank Cintel Ltd., who have been modifying to British standards and distributing the world famous Ampex Videotape recorder, now have great pleasure in introducing the range of Ampex audio tape equipment for professional quality recording.

In Room 259 at the forthcoming LONDON AUDIO FAIR continuous demonstrations of monophonic and stereophonic tape recordings especially made for the occasion will be given and you are cordially invited to attend.

Among the equipment demonstrated will be the Ampex 351 two-channel recorder, the 601-2 portable two-channel recorder and the 620 amplifier-speaker: brief details of these are given below.

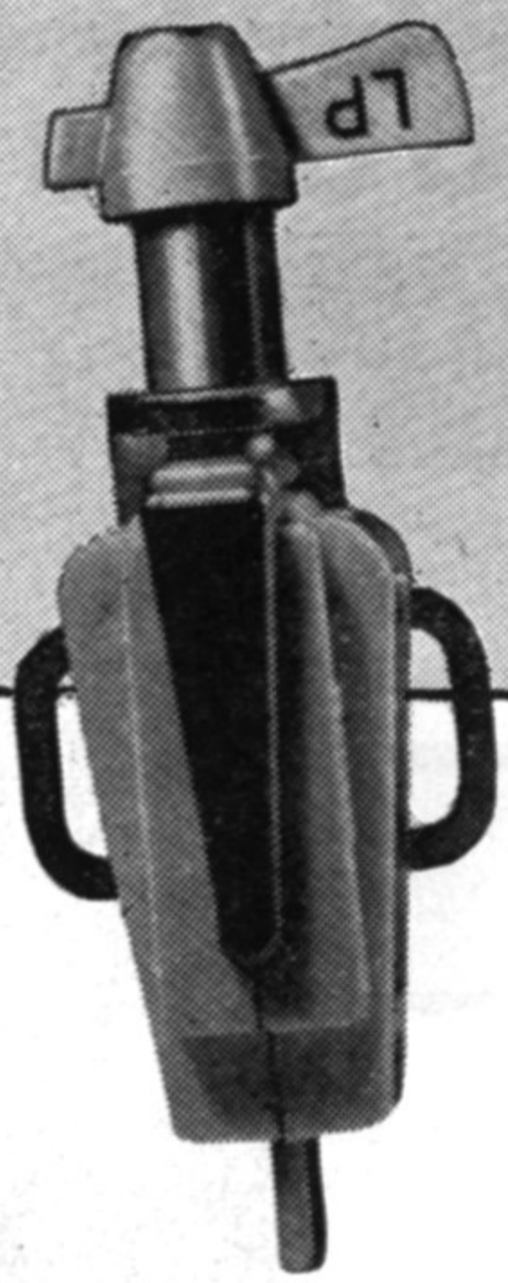
351 Two-channel Recorder. $7\frac{1}{2}$ and 15 or $3\frac{3}{4}$ and $7\frac{1}{2}$ i.p.s. ±2dB 30 to 15 000c/s at 15 i.p.s. Signal/noise ratio at 15 i.p.s. 70dB full track, 65dB half track and two-channel stereo. Crosstalk rejection 50dB Flutter and wow less than 0.15% r.m.s. Separate record and playback heads and amplifiers, 105 μV input for full record level, output +8dB from 600 Ω or 2V in high Z.

601-2 Two-channel Portable Recorder. Weight 42lb. $7\frac{1}{2}$ i.p.s. ±2dB 40 to 10 000c/s ±4dB 30 to 15 000c/s. Separate erase, record and playback heads. Signal/noise ratio and Crosstalk rejection better than 50dB Flutter and wow less than 0.17%. Separate record, playback, microphone and line amplifiers all 0.1% maximum distortion. Metered input levels.

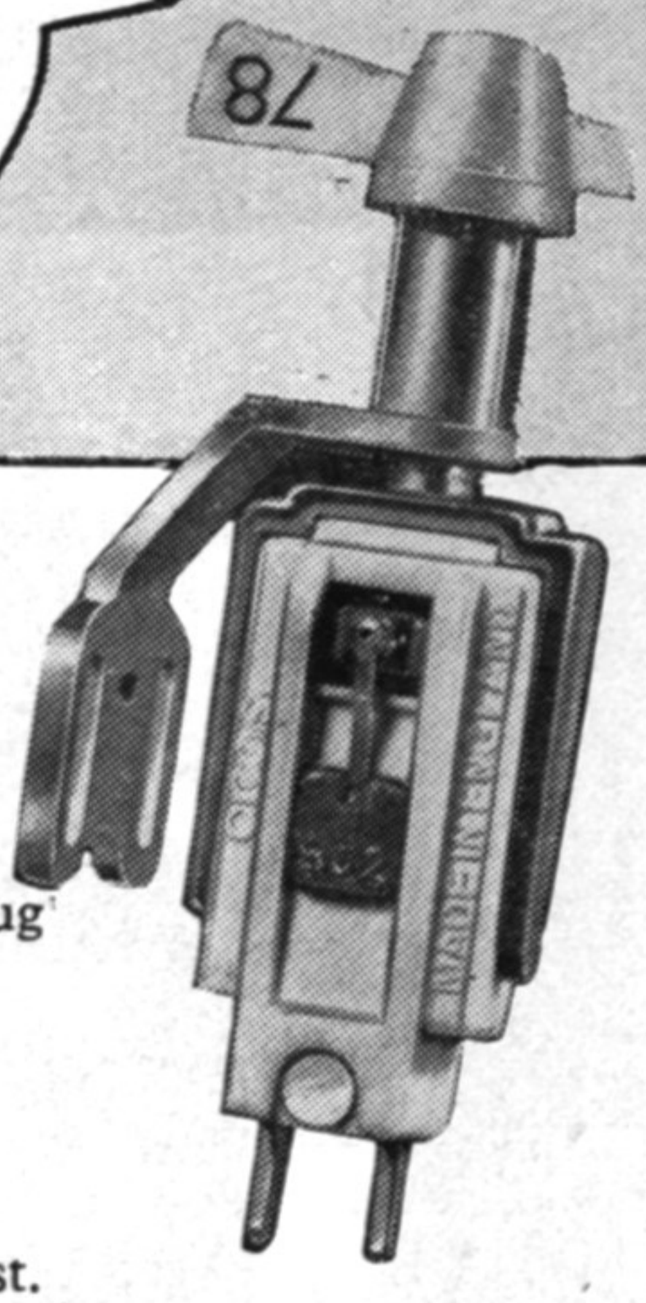
CINTEL

RANK CINTEL LIMITED
WORSLEY BRIDGE ROAD
LONDON SE26
HITHER GREEN 4600

Acos are doing things in styli



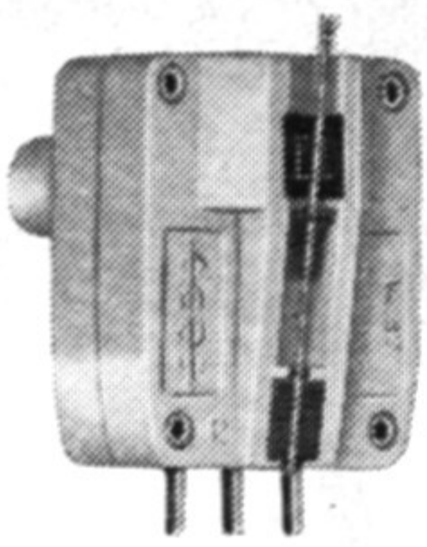
Acos are doing things in stereo



Acos monophonic cartridges have long been famous. The new ACOStereo cartridges are also a resounding success at home and abroad. Acos styli protect records, the new Acos Dustbug protects the stylus and the disc. Acos microphones are second to none. Altogether, Acos gives faithful sound—mono or stereo—at a reasonable cost.



GP 67-1 One of the famous Acos monophonic turnover cartridges.



Type 71 A successful ACOStereo cartridge, for many plug-in heads.



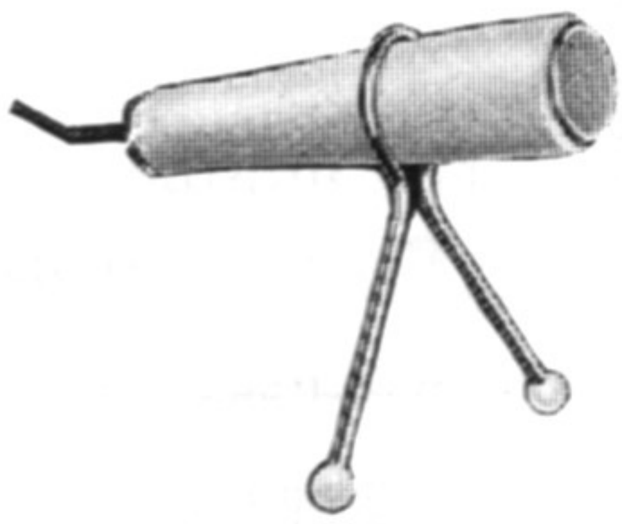
Type 73 The superb ACOStereo turnover cartridge, for stereo, LP and standard. Fits most popular arms.



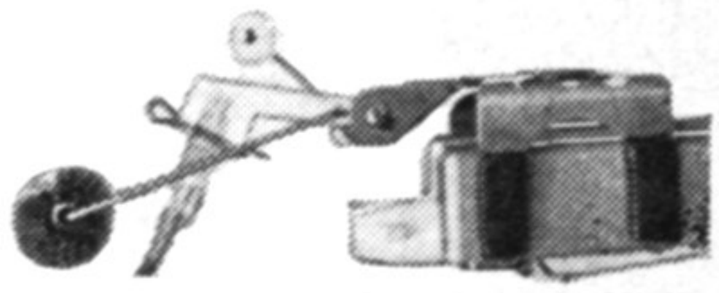
x500 Acos Styli Individually tested, Sapphire and Diamond. For all Acos and many other makes of cartridge.



MIC 40 Outstandingly popular fold-away microphone. Neat, small.



MIC 39 Handsome, stick microphone. Excellent sensitivity. Available with choice of three stands.



The new Acos Changer Dust Bug increases stylus and record life up to six times.

ROOM 315
BOOTH 48

acos **ARE DOING THINGS IN STYLI**

COSMOCORD LTD WALTHAM CROSS HERTS · TEL: WALTHAM CROSS 5206 (London subscribers please dial WA4 5206)

Avantic

STEREOPHONIC SOUND



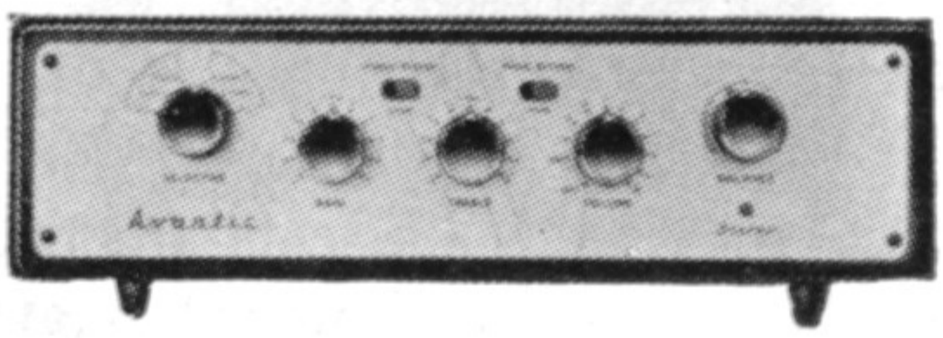
The Junior
‘ Glyndebourne ’.

This attractive solidly built cabinet, finished in contrasting walnut and mahogany veneers, is specially designed to house the new Avantic range of amplifiers. It can be supplied fitted with either the SPA11 or SPA21 Stereo amplifiers or the PL6–21 monaural amplifier. There is ample space for a motor and pick-up or a tape deck and compartments are provided on either side for disc or tape spool storage

£49. 7s. *with SPA11 amplifier fitted.*

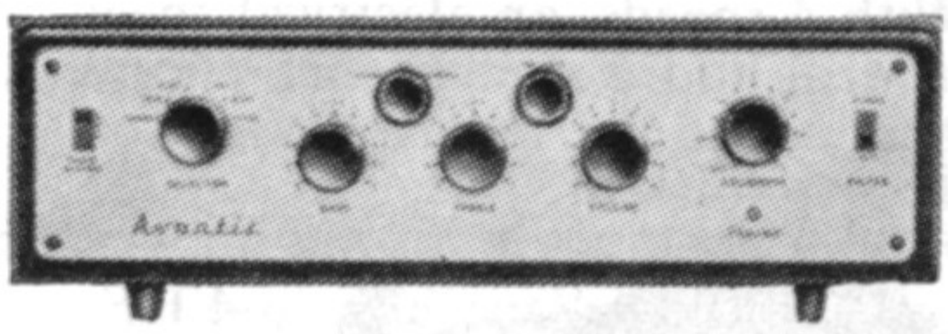
is being demonstrated on Ist floor in room No. 115

SPA11 Stereophonic Amplifier.



This complete twin-channel amplifier with combined pre-amplifier control unit has caused exceptional interest. With a push-pull output stage for each channel delivering 14 watts peak power output and built to the usual high standard of Avantic workmanship it offers exceptional value at **28 gns.**

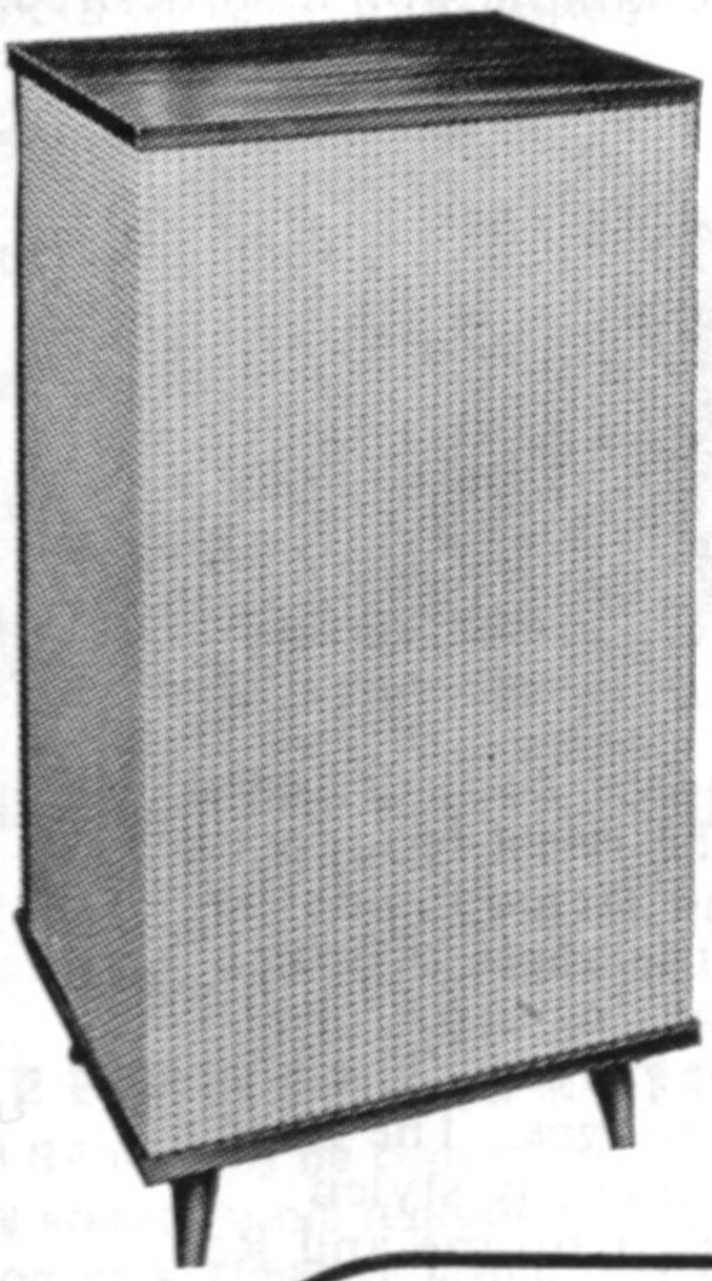
SPA21 Stereophonic Amplifier.



A complete twin-channel amplifier with combined pre-amplifier control unit, the SPA21 has twin push-pull output stages delivering 20 watts peak power output for each channel. **£48. 10s.**

SP21 Stereophonic Pre-Amplifier Control Unit,

is identical in design to that used in the SPA21 Amplifier and offers an ideal first step towards stereo conversion. **£28. 10s.**



Left:

SL12-21 Loudspeaker Enclosure.

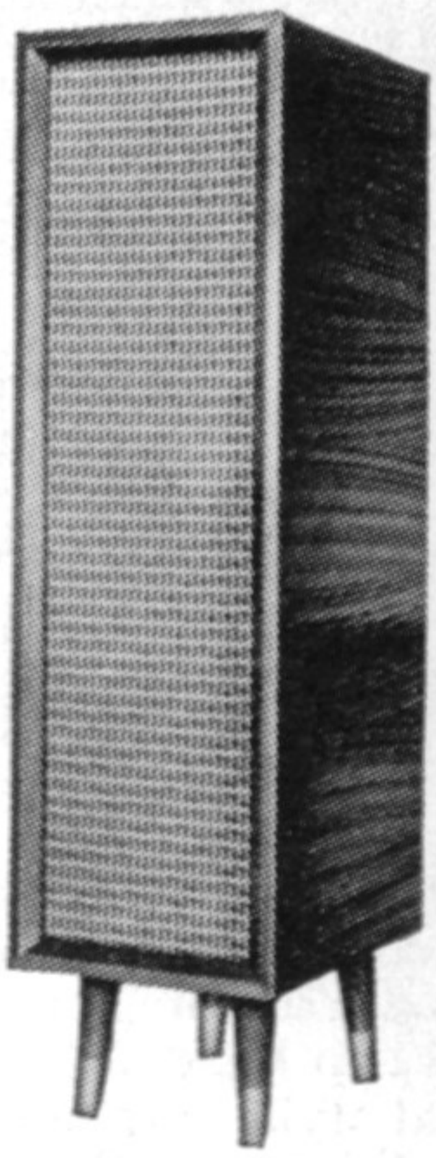
This enclosure has been designed, primarily, for use with stereophonic amplifiers of up to 15 watts rating. It contains a 12-inch diameter loudspeaker and a high frequency pressure-unit which combine to give a useful response of 40 c/s to 17 kc/s which is sensibly flat from 60 c/s to 15 kc/s. **22 gns.**

Right:

SL71 Loudspeaker Enclosure.

This very neat enclosure is ideal for stereophonic reproduction in small rooms. Separate low and high frequency units contained in the slender, solidly built cabinet give a useful response of 55 c/s to 15 kc/s which is sensibly flat from 80 c/s to 12 kc/s.

17 gns. inc. P.T.



STAND No. 6.

BEAM-ECHO LIMITED

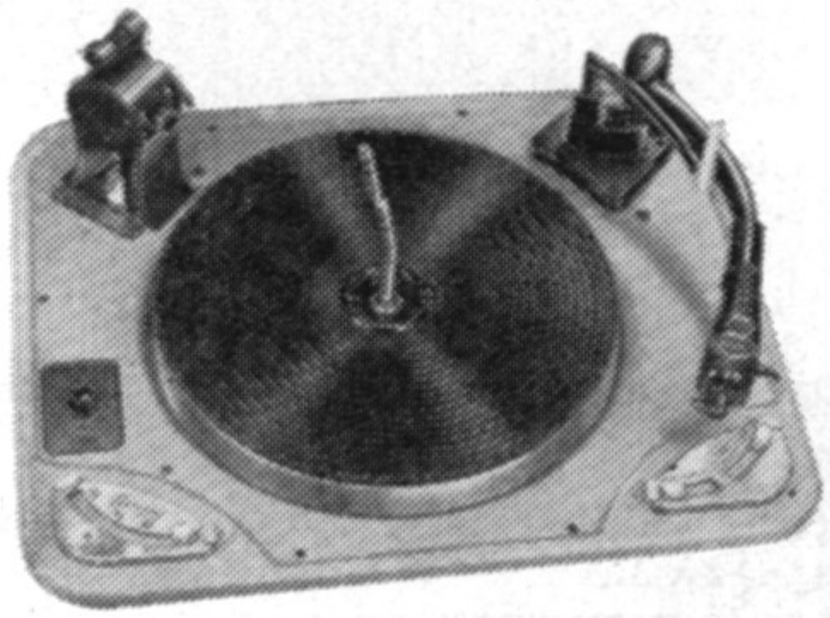
13 South Molton Street, London, W.1

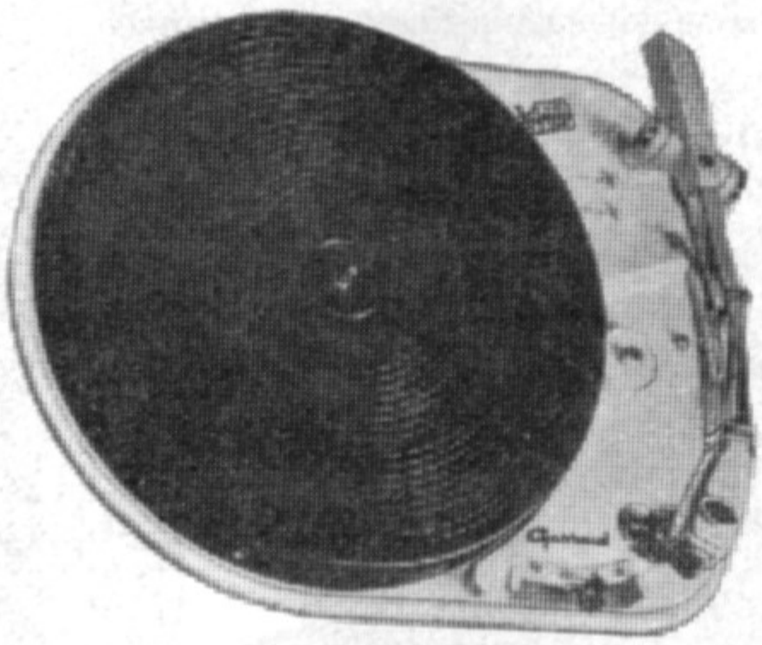
Showrooms: 8, Eccleston St., S.W.1. Phone: SLo 0695-7

Garrard AUDIO PERFECTION

MODEL RC.98/4

This unit can be used as either a manually operated truly High Fidelity record player or a fully automatic record changer which will play any number of records up to eight. With 4 speeds, an electrical speed control and a switch click suppressor; it is indeed the record player for the connoisseur.



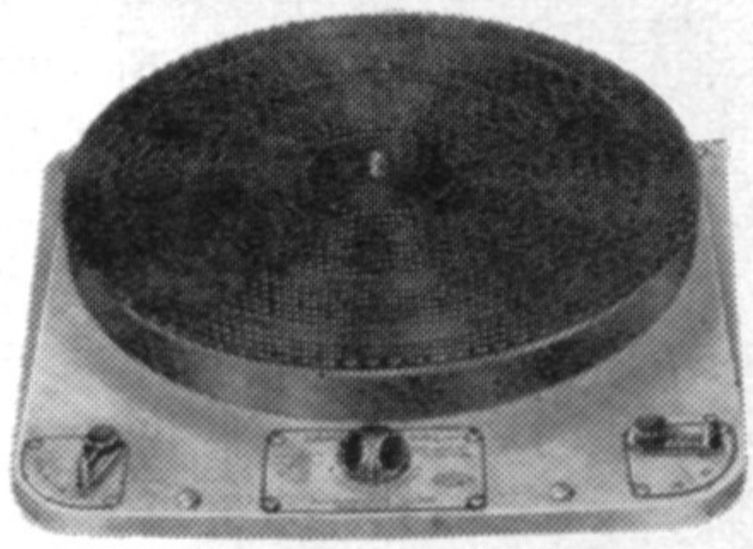


4 HF

This unit has been designed to meet the demand for a high quality single record player at a reasonable price. A 12″ diameter formed turntable weighing 4 lbs. has been incorporated. Speed variation on all four speeds of plus or minus 3% is obtainable by means of an electrical speed control. Provision is made for disengaging the automatic stop if so desired.

MODEL 301

This motor has a 6 lb. accurately balanced die cast aluminium turntable. It is of the shaded pole induction type, is in heavy cast casing and is magnetically screened. The precise speed can be obtained by means of the eddy current brake. It is used by the B.B.C. and many broadcasting stations throughout the world.





TPA.12

This pickup arm has been designed to comply with the latest requirements for monaural and stereophonic record reproduction. The pickup head is offset, the angle of which was carefully calculated to give the minimum tracking error. Its length allows for records up to 16″ diameter to be played. The plug-in pickup head will house most types of pickup cartridges. The height and stylus pressure are readily adjustable. It is elegantly styled and finished in an attractive combination of Ivory, Chrome and Red.

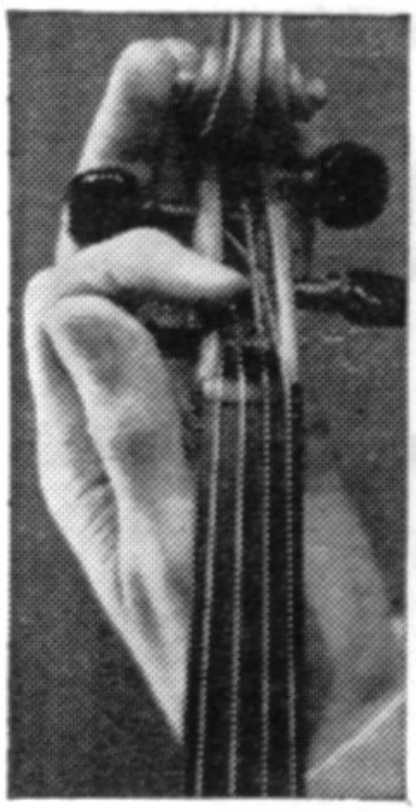
PICKUPS. Monaural and Stereophonic Pickups.

A fully illustrated brochure giving full details of the whole Garrard range is available on request.

Garrard

THE GARRARD ENGINEERING & MANUFACTURING CO. LTD. SWINDON, WILTSHIRE, ENGLAND

GARRARD



EKCO TUNED FIDELITY

'NINE OCTAVE' RECORD REPRODUCER

In the short time that it has been available,
the Ekco 'Nine Octave' Reproducer has already made its mark as
one of the finest record players ever produced.

MODEL RP341 Elegant and conveniently sized—yet offering the superlative high fidelity reproduction formerly associated only with large and costly equipment

- ✻ 10″ high-flux elliptical speaker in **INDIVIDUALLY TUNED** acoustic chamber—plus two 4″ high-frequency units
- ✻ 30 c/s to 16 kc/s response
- ✻ 4-speed auto-changer
- ✻ Turnover crystal pick-up
- ✻ Bass and Treble controls
- ✻ 8 watts output
- ✻ Rigidly constructed cabinet, in fine walnut veneers
- ✻ Simple plug-in STEREO facilities

52 gns.



STEREO REPRODUCTION

Model RP341 may be converted for high-quality stereophonic reproduction by the addition of a similarly styled unit comprising a matched amplifier and speaker system. The Stereo Unit, Model SU341, is supplied complete with plug-in stereo pick-up head.

28 gns.

Stand no. 14—demonstration room 318

E. K. COLE LTD · SOUTHEND-ON-SEA · ESSEX

W.P.S. 336

ALTOBASS

HIGH FIDELITY
EQUIPMENT

for faithful reproduction of concert hall quality



510 PRE-AMPLIFIER

A Single Stage unit for use with crystal pickups.

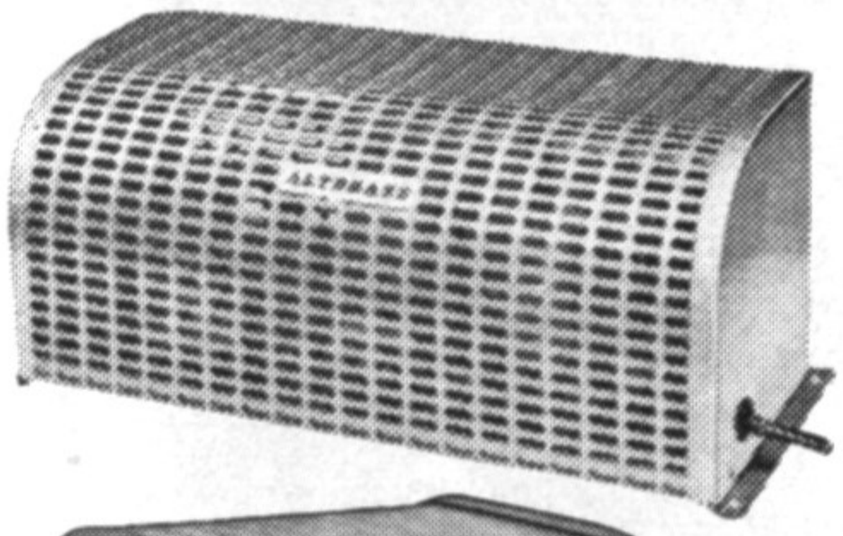
8 gns.



Seventy PRE-AMPLIFIER

A high gain unit for use with any type of pickup. May be fed direct from a tape head.

16 gns.



510 POWER AMPLIFIER

Suitable for use with either of the above pre-amplifiers. Power Output 10 watts 0·1% distortion.

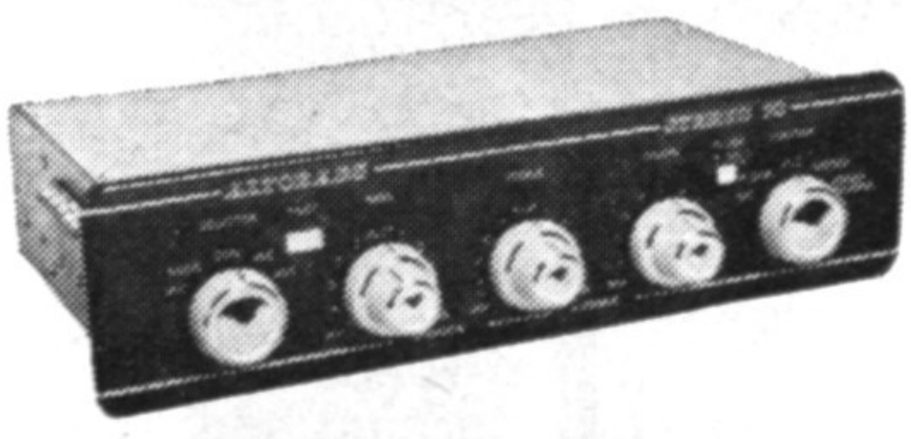
15 gns.



TWIN-TWO STEREO AMPLIFIER

A simple, inexpensive system for stereophonic reproduction of very good quality.

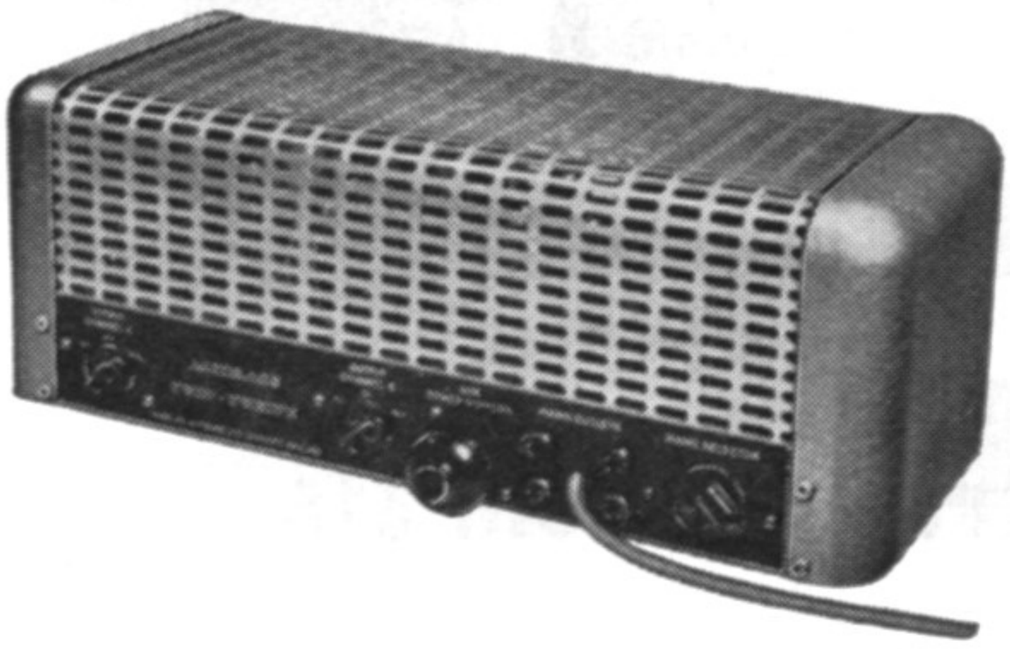
16 gns.



STEREO 70 PRE-AMPLIFIER

A most comprehensive amplifier system for the reproduction of stereo discs and tapes. Suitable for use with any type of stereo pickup.

23 gns.



TWIN-TWELVE POWER AMPLIFIER

A stereo amplifier unit, incorporating two 12 watt power amplifiers on a common chassis. For use with the Stereo 70 pre-amplifier.

29 gns.

ALTOBASS LIMITED, PERCY ROAD, LEICESTER

See the latest in

★ **PICK-UP CARTRIDGES**

on **STAND 58**

ELECTRONIC REPRODUCERS (COMPONENTS) LTD.
specialise in the design and manufacture of gramophone pick-up cartridges.

Included in the range of products is the well-known "Power Point" plug-in miniature ceramic cartridge which is in extensive use by leading Radio Manufacturers throughout the World.

The 1959 Audio Fair sees the introduction of the latest ceramic stereo pick-up cartridge designed for fitment to virtually any type of record playing equipment.

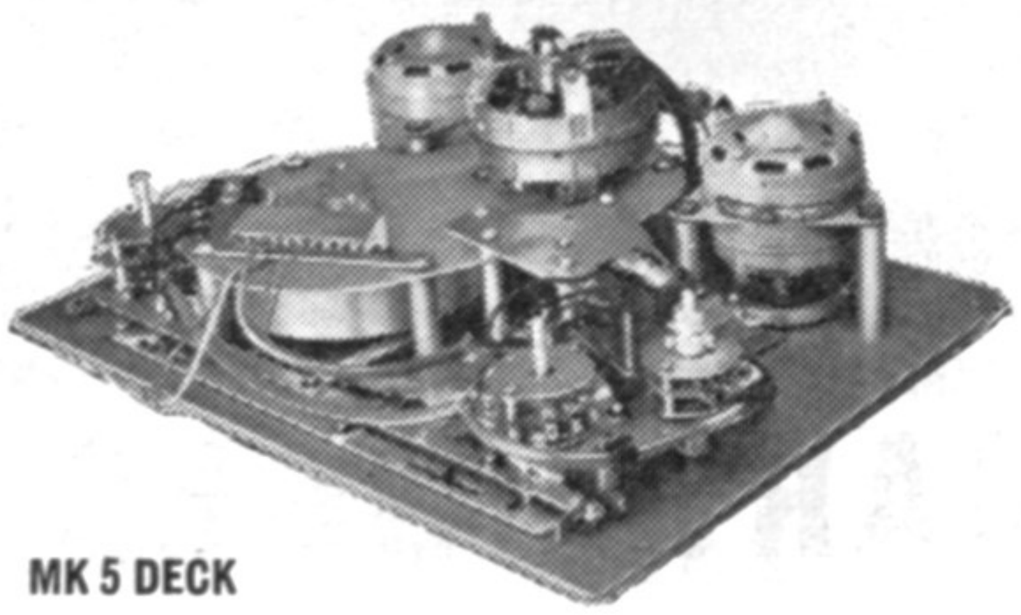
Other products in the E.R. range are sapphire and diamond stylii.

E.R. cordially invite you to visit their Stand where full information on all their products is available.

ELECTRONIC REPRODUCERS (Components) LIMITED

formerly E-V Limited

London Office	*Factory*
Camp Bird House, 39, Dover Street, London, W.1.	Denbigh Road, Bletchley, Bucks.



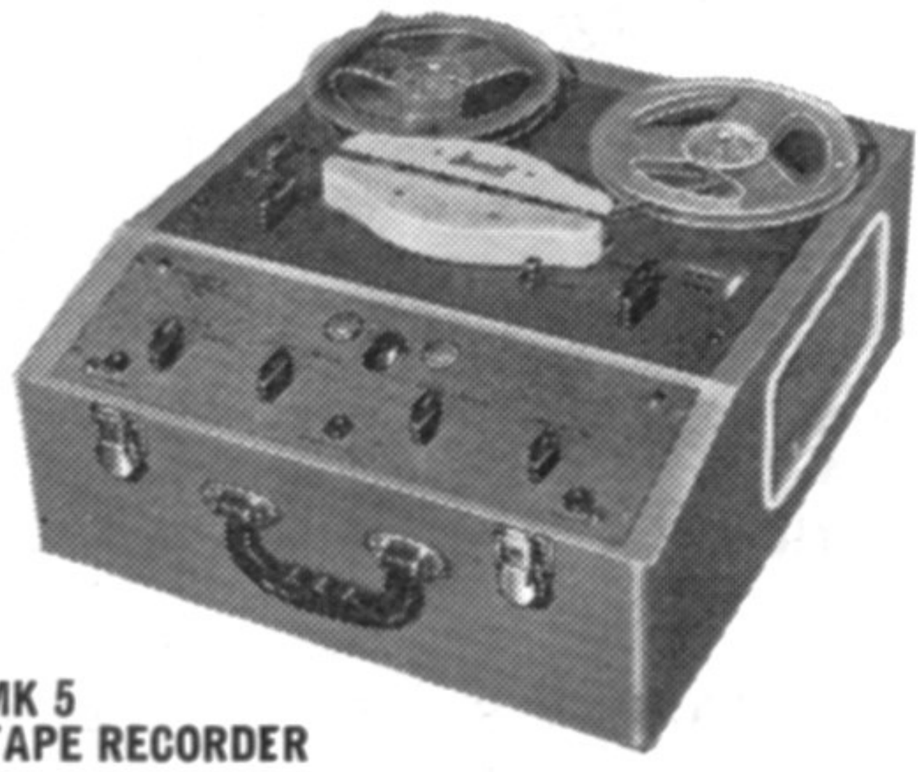
MK 5 DECK

4 operating speeds. 4 heads can be fitted. 8¼ in. reels accommodated.. 3 independent motors. Instant stop without spillage. Two switches only for simple control, etc.

Tape deck with provision for extra heads .. .. **28 gns.**

Complete record/playback amplifier with power unit .. .. **£24. 0. 0.**

Stero/record playback (including mounting rack) .. .. **£93. 16. 0.**



MK 5
TAPE RECORDER

Incorporating the Mk.5 deck with all its outstanding features. Its unit construction makes internal inspection, lubrication and adjustment a matter of minutes .. **64 gns.**
(including 1,200ft. of tape)



3 STAR
PORTABLE

Smart appearance, brilliant performance, fine engineering at a price within the reach of almost everyone. Recently approved by the Council of Industrial Design .. **58 gns.**
(including 1,200ft. of tape, spool and microphone)

Brenell PERFORMANCE IS TRUE TO LIFE PERFORMANCE

The Famous BRENELL Range — each model with exceptional features!

Versatility—realism—precision engineering at its best. Tape recording equipment made by Brenell is the outcome of nearly 10 years' research and manufacturing experience. Visit Stand 37 and Demonstration Room 111 to see and hear the Brenell Deck and recorders which present such outstanding possibilities for the hi-fi enthusiast.

STOP PRESS!

Special monaural/stereo model is also being demonstrated at the Fair. Do not miss it!

Full details of all models are available on request from sole manufacturers

BRENELL ENGINEERING CO. LTD.
1a Doughty St. London, W.C.1
Telephone CHA 5809 & HOL 7358

Reproduction from the new stereo discs is a revelation . . . Reproduction from mono discs is equally striking

the DECCA ffss*
PICK-UP



undoubtedly the finest in the world for both stereo and mono microgroove discs

This fabulous transducer is now available from hi-fi equipment dealers. A full description appears on our 'description of exhibit' page in this catalogue, and

THE DECCA ffss PICK-UP MAY BE HEARD IN ROOM 319

PRICE **£22** (TAX PAID)

DECCA

*** ffss — full frequency stereophonic sound**

THE DECCA RECORD COMPANY LTD DECCA HOUSE ALBERT EMBANKMENT LONDON S E 1 1

HEAR YE! HEAR YE! HEAR YE!



YOU CAN NOW BUY

SCOTCH BRAND
No. 200 DOUBLE-PLAY TAPE

Extra long, extra strong, doubles your playing time

The compact design of your tape-recorder limits spool size and, therefore, playing time—and how infuriating that limitation can be!

NOW, you can get *two hours'* continuous recording (single-track at $3\frac{3}{4}$" per second) on a 7" spool —with the new "SCOTCH" Brand No. 200 Double-play Tape!

And there are other advantages—the tensilized polyester base is not only thinner but *stronger* —you have a better signal to print ratio and a better high frequency response—and, of course, you have "SCOTCH" Brand exclusive silicone "dry lubrication". And if storage-life is a consideration, this tape will not deteriorate even in severe conditions of temperature and humidity.

"SCOTCH" Brand No. 200 Double-play Tape offers new possibilities to the enthusiast; come and discuss it at

STAND 30

"SCOTCH" Brand perfection is still available on Standard Acetate Base, Super PVC Base, and Extra Play Polyester Base; but "SCOTCH" Brand No. 200 Double-play Tape will give faithful reproduction (on nearly all makes of recorder) for twice as long!

TRADE MARK **SCOTCH** BRAND

MAGNETIC TAPE DOES THE JOB BETTER!

PRODUCT OF 3M COMPANY RESEARCH MADE IN ENGLAND

MINNESOTA MINING AND MANUFACTURING CO. LTD

Tape and Electrical Products Division **HEAD OFFICE: 3M HOUSE, WIGMORE STREET, LONDON W.1.**
And at Birmingham, Manchester, Glasgow

STAND No. 10
DEMONSTRATION ROOM 254

In High Fidelity

Pamphonic

for sound—*NATURALLY!*

For over a quarter of a century the name Pamphonic has been associated with the finest Sound Reproducing equipment available throughout the world.

Pamphonic has an outstanding reputation in the Industrial Public Address and High Fidelity fields.

Unending research and unique production resources enabled Pamphonic to be the first to demonstrate Stereophonic Sound at last years Audio Fair.

Remember — Pamphonic for sound — *Naturally!*

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GOODMANS for High Fidelity



Model IB3

Measures only 24″ × 12¼″ × 14¼″ high, yet contains a full size 25-watt 3 way High Fidelity Loudspeaker System. Specification and performance outclass most systems three times its size.

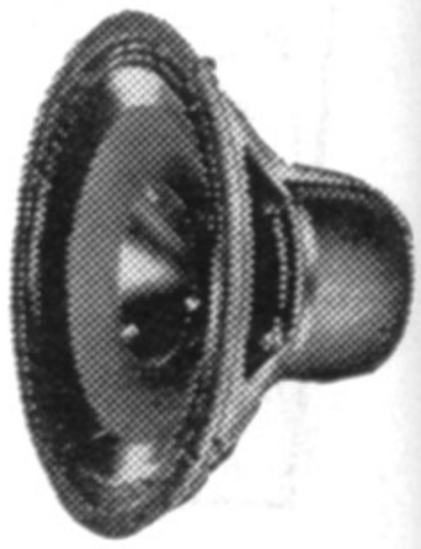
Frequency range: 35 c/s—16,000 c/s. **Bass:** (35 c/s to 950 c/s) 12″ unique triple suspension, pneumatic air control. ***22 lb. magnet system.***

Mid range: (950 c/s—5 Kc/s) Pressure driven horn loaded unit.

High Frequency: (5 Kc/s—16 Kc/s) Pressure driven horn loaded unit. Separate external L-pad controls for mid-range and high frequency units. Multiple crossover network. Walnut veneered, hard wax polished enclosure.

Axiom 300

The most advanced twin radiator 12″ high fidelity loudspeaker produced. Provides smoother and more extended response than previously achieved by this type of unit.



Frequency response 30—16,000 c/s. **Power handling capacity** 15 watts. Enclosure volume required, 7,800 cubic inches, with Acoustic Resistance Unit loading. (ARU. 172).

STEREOPHONIC SOUND ***Two IB3 reproducers are ideal for use with the best stereophonic equipment, and form a very compact system. Two AXIOM 300 units, properly housed, will also provide outstanding performance, but with greater space requirements.***



Axiette

The AXIETTE is an 8″ Full Range (40 c/s-15,000 c/s.) High Fidelity Loudspeaker which has achieved World-wide popularity because of its impressive performance, modest space requirements, and sensible price. It is exceptionally versatile. In addition to its main application as a full range unit, it may also be employed in multiple systems as a high-frequency unit, a mid-range unit, or it can combine both functions in one.

For domestic Stereophonic installations, two Axiettes constitute a logical and highly satisfactory choice, and occupy a total floor space of less than 2½ square feet when mounted in reflex enclosures. The overall performance of the Axiette is so exceptionally smooth and well controlled that it compares very favourably with larger units; and is thus perfectly suitable for use as the second channel unit when one channel is already catered for by an existing good High Fidelity loudspeaker system.

SPECIFICATION

Frequency Range:	*40 c/s.-15,000 c/s.*
Fundamental Resonance:	*65 c/s.*
Power Handling Capacity:	*6 watts.*
Flux Density:	*15,000 gauss on 1″ dia. pole.*
Impedance:	*3 or 15 ohms.*

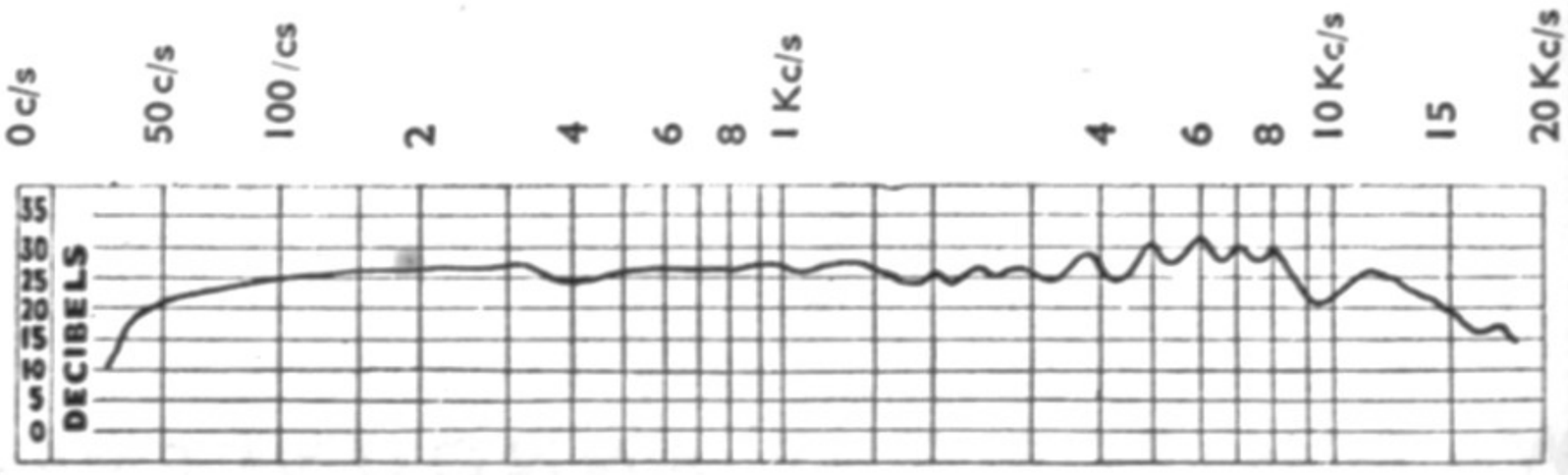
Goodmans High Fidelity Loudspeaker Manual, *which contains full information on Goodmans High Fidelity products, free on request.*

AXIETTE 8″

Input: *Constant Voltage*

Microphone: *On Axis, 18″*

Further Data: *Anechoic Conditions. Mounted on Infinite Baffle*



GOODMANS

GOODMANS INDUSTRIES, LIMITED
AXIOM WORKS, WEMBLEY, MIDDLESEX
Wembley 1200 (8 lines) Grams: Goodaxiom, Wembley, England

Demonstration Room 333
Booth No. 18

Europe's largest Manufacturers and the World's largest Exporters of High Fidelity Loudspeakers

AUDIO FIDELITY

BOOTH No. 29
ROOM No. 356

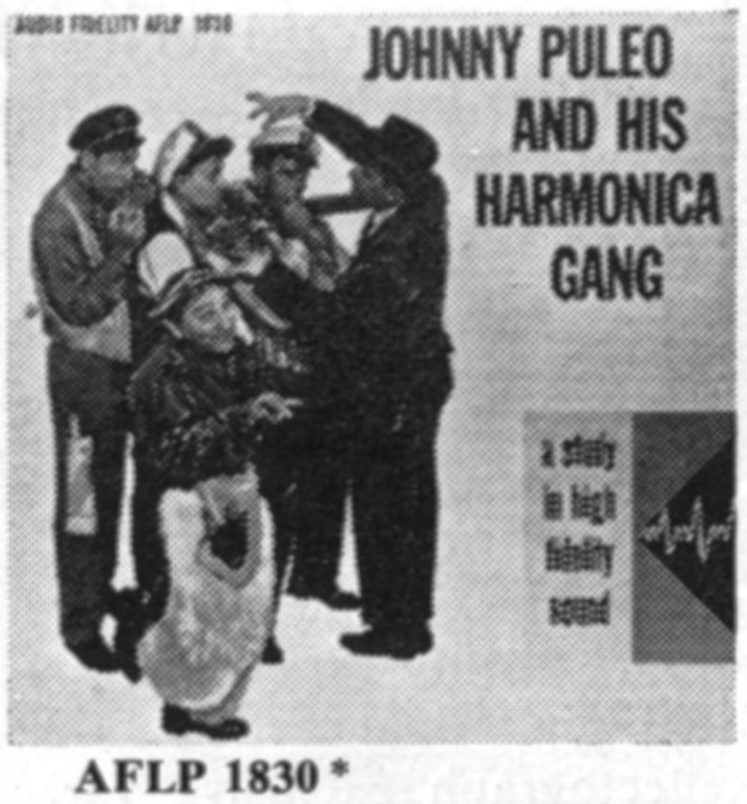
MONAURAL AND STEREO RECORDINGS



AFLP 1825 *



AFLY 1833



AFLP 1830 *



AFLP 1823 *



AFLP 1810



AFLP 1801



AFLP 1877 *



AFLP 1873



AFLP 1848

THE HIGHEST STANDARD IN HIGH FIDELITY RECORDINGS

The Ultimate in Sound Reproduction
The Records that will set the Standard in the Recording Industry

AUDIO FIDELITY

*** Available in Stereo Albums**

LONDON HEAD OFFICE: 44 CRAWFORD SREET, W.1

Introducing the **new**

Reflectograph STEREACORDER model 570

The unique self-contained, transportable recorder incorporating separate record and playback stacked (in line) heads, separate record and playback amplifiers and Goodmans monitor loudspeakers. It *records* and plays back tapes . . .

STEREOPHONICALLY MONOPHONICALLY TWO-CHANNEL

Permitting superimposition on one track and reproduces stereo records from a stereo pick-up through the high quality amplifiers.

BRIEF SPECIFICATION:
Case in pigskin and luxan hide colours with loudspeakers fitted in dual-section lid. Reflectograph exclusive variable speed deck 8-3¾ i.p.s. Neon-lit stroboscope showing precise speeds of 7½ and 3¾ i.p.s. Three Garrard motors. Push button and lever controls, including "inching" facility. Provision for 8¼″ reels. Clock-type tape position indicator. Bib tape splicer. Full tape width erase head (switchable). 45 db separation between each track of playback head, allowing interference free reproduction of one track of a two-track tape. Two pairs of separate record and playback amplifiers. Each pair having 3 watts undistorted output to CCIR response. Tape/Input switch providing instant comparison between input signal and signal recorded on tape. Treble and bass tone cut controls. Two input and two output sockets. Peak level record meter. Complete with two 10 ft. speaker leads, two screened plugs, splicing tape, demonstration stereo tape and tape reel. Price 149 gns.

FOR THE TECHNICAL MAN—
Dimensions: 31″ long x 14½″ wide x 11½″ high: Weight 70 lbs. Frequency Response; ± 2 dB. 50—10,000 c/s: ±3 dB. 45—12,000 c/s. Overall Response: Strictly to C.C.I.R. recommended specifications. Signal to Noise Ratio: Better than—45 dB. (unweighted, including hum). Output from Playback Preamplifier: 200mV. R.M.S. Inputs to Record Amplifier (High Impedance): Microphone 1mV.: Radio or pick-up 50-200mV. —for maximum record level. "Wow" and "Flutter": Better than 0.2% R.M.S. as measured on the G.B.-Kalee-Flutter Meter.

ONE YEAR'S FREE MAINTENANCE:
All Reflectographs are guaranteed for one year (including valves) . . . available throughout U.K. Service undertaken immediately by Engineers of the E.M.I. Company, Home Maintenance Ltd. Annual Service Contract available for 20 years subsequent for small annual fee.



Model 570
Price: 149 gns
1 year's Free Service (including valves)

MULTIMUSIC LTD, MAYLANDS AVENUE,
HEMEL HEMPSTEAD, HERTS. TEL: BOXMOOR 3636

Hear the 570 and 500
in our studio on the 1st floor at the
AUDIO FAIR
live stereo recording sessions every 20 minutes

For Hi-Fi



say PHILIPS

High Fidelity means faithful reproduction — reproduction of the full range of the sound recorded. To get freedom from the mechanical noise produced by ordinary record-playing equipment, Hi-Fi reproduction requires special top-quality equipment — Philips equipment, like the exclusive Philips Magneto-dynamic pickup Model NG5400 and the superb Philips motor and turntable unit Model AG2009.

See these units on Stand 33.

Model AG2009 *(Made in Holland)*
Philips new 4-speed Hi-Fi Record Player Unit with variable speed control ± 2%. Dual stylus pickup and adjustable playing weight. Pickup lifting and lowering device. Stereo head, optional extra. Price **10 gns.** *tax paid.*

Model NG5400
is Philips 'Magnetodynamic' pickup with transcription arm, using a diamond stylus, adjustable weight, high sensitivity pickup with ferroxdure movement flat response from 20-20000 cycles. **19 gns.** *tax paid.*

Transcription Arm with Stereo crystal pickup head 15½ gns. tax paid.

PHILIPS MAKE OTHER FIRST-CLASS HI-FI UNITS, TOO !

PHILIPS

PHILIPS ELECTRICAL LTD

CENTURY HOUSE · SHAFTESBURY AVENUE · LONDON, W.C.2.

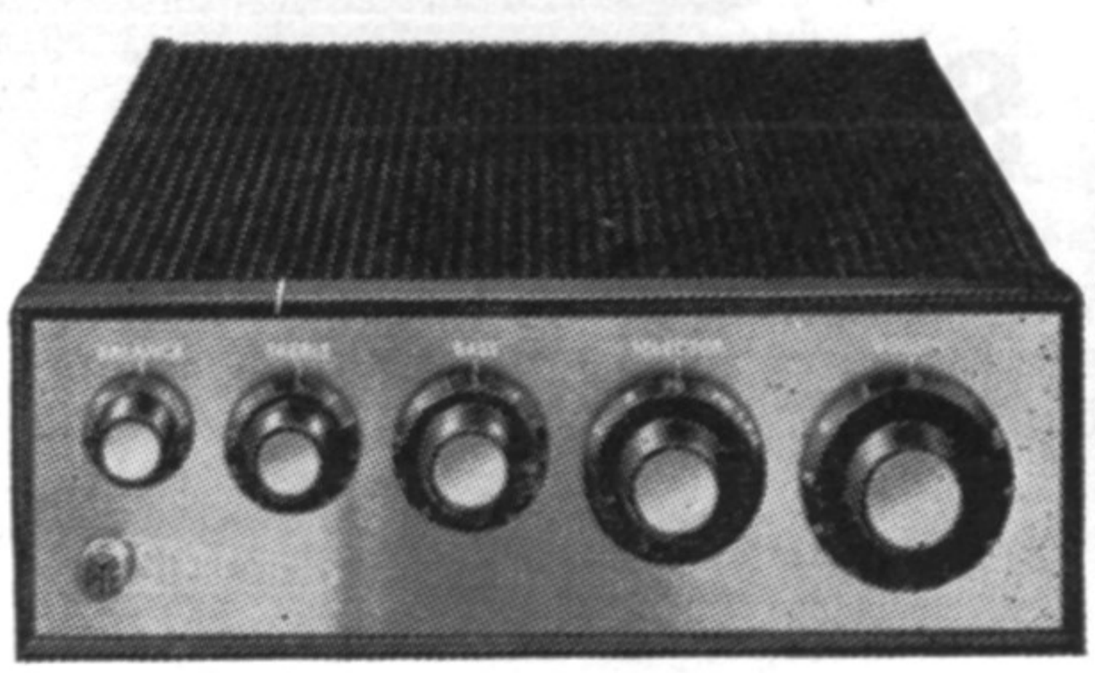
(PR2532)

Take an outstanding amplifier...double it... and you have the finest instrument of its kind available today



Making high fidelity equipment is a specialist business calling for knowledge and techniques of the highest order. The Pye High Fidelity Division is a completely separate and self-contained organisation. Meticulous attention is paid to every detail. Exacting performance tests are carried out at every stage. Hand-finishing is by experts. The result is a range of instruments which are among the finest available in their power ratings.

The new Pye Mozart Double 10-watt Stereo Amplifier Model HFS20. This outstanding new stereo amplifier is mounted on a chassis only a few inches deeper than the original single-channel Mozart amplifier. Available in a metal case as a combined Amplifier and Pre-Amplifier or in chassis form as a separate Amplifier and Pre-Amplifier with three feet of linking cable. Control panel is identical in size and finish to the Mozart FM Tuner.



TECHNICAL SPECIFICATION PER CHANNEL

PRE AMPLIFIER

Sensitivities: P.U. 7 mV. Tape 100 mV. Radio 100 mV. Tape record output 300 mV at above specified input sensitivities.

Hum and Noise: P.U. —55 db. Tape —60 db. Radio —60 db.

Frequency Response: Tape 20 to 20000 cycles ± 1½ db. Radio 20 to 20000 cycles ± 1½ db. P.U. Within 1½ db of published replay curves.

Channel Separation: between —40 db and —50 db overall.

Controls: Volume: Continuously variable. Bass: +10 db to —15 db at 50 cycles. Treble: +10 db to —15 db at 10000 cycles. Balance: Variation of 6 db per channel. Illuminated Push/Push on/off switch.

Selector Switch: (5 Position) Tape. Radio. 78 (all 78 records). L.P.O. (Pre 1955 recordings). L.P.N. (Recordings to R.I.A.A.)

Output: 0.2 V into 100 K.

Pick-up matching: by "Dialomatic" compensation.

MAIN AMPLIFIER

Sensitivity: 0.2 V.

Output: 10 watts per channel.

Distortion: 0·3% total harmonic at 9 watts.

L.F. Power Output: 8 watts at 40 cps.

Loudspeaker Impedance: 4, 8 and 15 ohms (with phase reverse switch).

Damping Factor: 30

Hum and Noise: —70 db with 100 K input impedance.

Frequency Response: 10 —50,000 cycles ±2 db.

Negative Feedback: 27 db (in 3 loops).

Total Power Consumption: 110 vA.

Mains: 200 V to 250 V AC 50 cycles. 110 V to 120 V AC 60 cycles (Export model).

See us at the Audio Fair, Stand No. 47
Demonstration Room 256

HIGH FIDELITY SYSTEMS

HIGH FIDELITY DIVISION • FAIRVIEW ROAD
LONDON • S.W.16



This is just one of the fabulous records

will be demonstrating in Stereo

at this month's **LONDON AUDIO FAIR**

(ROOM No. 119) HOTEL RUSSELL, LONDON, W.1.

Pye Group Records (Sales) Ltd., 10a Chandos Street, London, W.1.

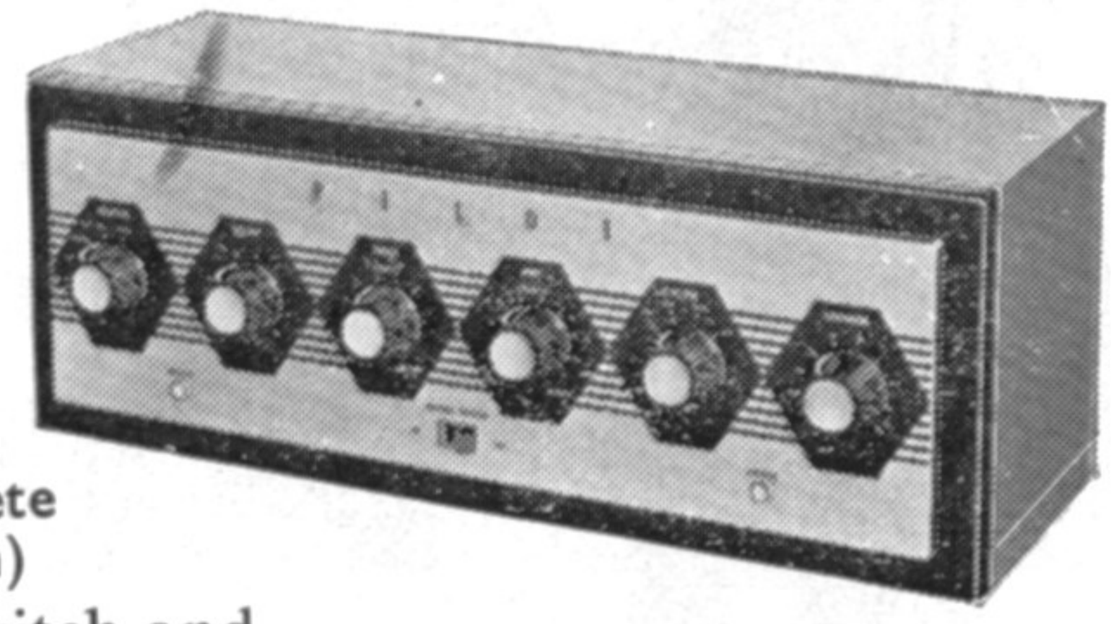
Outstanding Amplifiers by PILOT



HFA 11
10 WATT COMBINED AMPLIFIER/CONTROL UNIT

24 gns.

Compact mon-aural amplifier styled for free standing or panel mounting. 3/5 mV sensitivity provides full facility for all audio inputs.



HFA 12 12 WATT POWER AMPLIFIER.
HFC 12 CONTROL UNIT PRE-AMPLIFIER (illustrated)

The '12' system consists of two units. **28 gns.** (complete system) It includes the Pilot muting switch and wide flexibility of control with all associate equipment.



SHF 15 COMBINED STEREO AMPLIFIER & CONTROL UNIT

A newly introduced stereophonic amplifier with 3/5 mV sensitivity and facility for all inputs. Output of 7·5 watts each channel. **32 gns.**

Mr. Thomas Heinitz reviewing a prototype model in December's "Records & Recording" included these comments:—

"The Pilot SHF.15 . . . is a remarkably compact instrument housing a complete twin-channel amplifier and control unit within a metal case only 13¼" wide, 8¾" deep and 5" high. It requires no cabinet and its technical specifications are astonishing for a model selling at 32 Gns."

PILOT

HIGH FIDELITY DIVISION
PARK ROYAL ROAD, LONDON, N.W.10 ELGar 7353

STAND 59 and ROOM 242 (2nd Floor)



TAPE RECORDING STEREOPHONIC TWINSET

See them at the TRUVOX stand



A NEW TAPE DECK

(MARK VI)

Manufactured in Great Britain by

TRUVOX LIMITED

NEASDEN LANE, LONDON, N.W.10

Telephone: Gladstone 6455

STAND No 16 DEM. ROOM 342

TECHNICAL SUPPLIERS LIMITED

announce their

1959 Programme of High-Fidelity Tape Recorder Equipment

This consists of:

1. HARTING HM5M MONOPHONIC TAPE RECORDER. Speeds of 7½" and 3¾" with extended frequency range of 30 to 20,000 cps.
Price 82 gns.

2. HARTING HM5S STEREOPHONIC TAPE RECORDER with identical characteristics to above with extra facility for stereo playback.
Price 95 gns.

3. HARTING HM5SD STEREOPHONIC TAPE DECK for the home constructor and high-fidelity market. Facilities for monophonic and stereophonic recording and playback.

SPECIFICATION

Frequency response — 30 to 20 kc/s within + 2 dB at 7½ i.p.s.
Playing Time — Up to 4 hours at 3¾ i.p.s.
Wow and Flutter — Better than ·1 of 1 per cent.
Signal to Noise Ratio — Better than 55 dB unweighted.
Reel Size — 7 in.

Price complete 42 gns.

This specification also applies to items 1 and 2 above.

4. THE NEW TANDBERG QUADRUPLE 4-TRACK MODEL 5 STEREO PLUS. This machine is unique. The sensation of the recent New York Audio Fair. Double the recording and playing time of any other machine available in the world today. Uses standard ¼" tape and carries 4 tracks instead of 2, thus giving two entirely separate stereo recordings or four individual monophonic recordings.

Extra Facilities—Two built-in balanced stereo amplifiers with individual controls capable of playing stereo discs as a normal high fidelity stereo amplifier.
Stereo amplifiers for high fidelity live use, either paralleled for monaural with twice the output, or separated for stereophonic use.

SPECIFICATION

Frequency Response—
From 30-18,000 cps. within ± 3 dB at 7½ i.p.s.
From 30-12,000 cps. within ± 3 dB at 3¾ i.p.s.
From 30- 6,500 cps. within ± 3 dB at 1⅞ i.p.s.
Wow and Flutter—Total wow and flutter better than 0·15% at 7½ i.p.s.
Amplifiers—Two built-in high fidelity amplifiers constructed within close tolerance limits. An output of 3½ watts is available from each amplifier.
Signal to Noise Ratio—55 dB below recording level.
Valve Line-up—2x EF804. 2x ECC83. 2x EL84. EM71 magic eye and 3 bridge circuit metal rectifiers.
Speeds—7½ i.p.s., 3¾ i.p.s., 1⅞ i.p.s.
Recording and Replay Characteristics—Corrected to C.C.I.R. or NARTB standards.
Recording Facilities—
Monaural recording on each of 4 tracks or ¼-track system.
Monaural recording on each of 2 tracks or ½-track system.
Stereo recording on 2 pairs of tracks or ¼-track system.
Stereo recording on 1 pair of tracks or ½-track system.
Playback Facilities—
Four-track or ¼-track stereo.
Four-track or ¼-track monaural.
Two-track or ½-track stereo.
Two-track or ½-track monaural.
Full-track monaural.
Reel Size—7 in. reels maximum.
Heads—Record/Replay head: specially made in line stereo quadruple. Head gap: 0·00016in. Two-track erase head. Cross-talk between the two head halves better than 60 dB.
Inputs—(a) radio (b) microphone (c) disc (d) amplifier.
Loudspeaker Facilities—Built-in monitoring loudspeaker.
Distortion—A recording level 10 dBs below the saturation point results in less than 1% distortion of a 400 c/s signal on replay.
Speed Tolerance—Better than ± 1% for all speeds.
Erase Safety Switch fitted to prevent accidental erasure.
Tape Playing Time with double play tape—

½-track monaural.	4-track monaural.
2 hours at 7½ i.p.s.	4 hours at 7½ i.p.s.
4 hours at 3¾ i.p.s.	8 hours at 3¾ i.p.s.
8 hours at 1⅞ i.p.s.	16 hours at 1⅞ i.p.s.

Note.—On stereo recording or playback above times are halved.
Size—Recorder in portable case: 12½ in. × 16 in. × 7½ in.
Weight—Recorder in portable case: 27 lb.
Price 124 gns.

5. TANDBERG STEREO ADD-ON RECORDING UNIT. To record stereo on either two tracks or four tracks from live sources, stereo discs, or from stereo programmes now being transmitted by the B.B.C., TANDBERG presents the STEREO RECORDING ADD-ON UNIT. This is a 3-valve recording amplifier to match the TANDBERG Model 5 recorder with built-in magic eye indicator to permit perfect balance with the main recorder.
Price £17

6. HARTING RECORDER. EMG9/2 PORTABLE TAPE RECORDER. Lightweight, portable, high fidelity, single speed of 3¾ i.p.s. with recording and playback facilities giving response of 30 to 16,000 i.p.s. Uses 5¼" reels with a maximum playing time of 3 hours.
Price 47½ gns.

Obtainable from all High Class Hi-Fi, Music and Radio Dealers

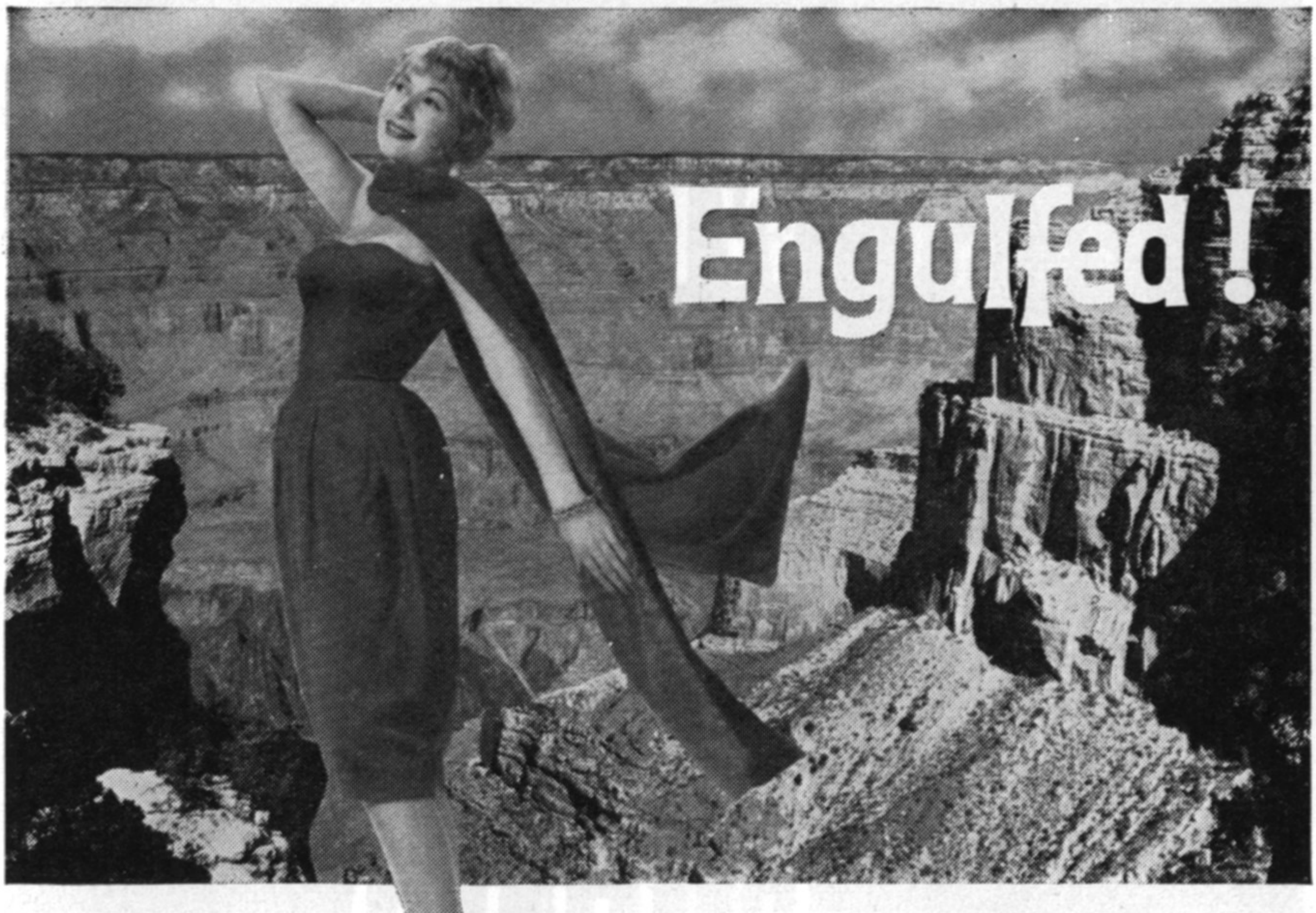
Fully illustrated technical catalogue is available on request from:

TECHNICAL SUPPLIERS LIMITED

HUDSON HOUSE, 63 GOLDHAWK ROAD, LONDON, W.12

Telephone: SHEpherds Bush 2581/4794

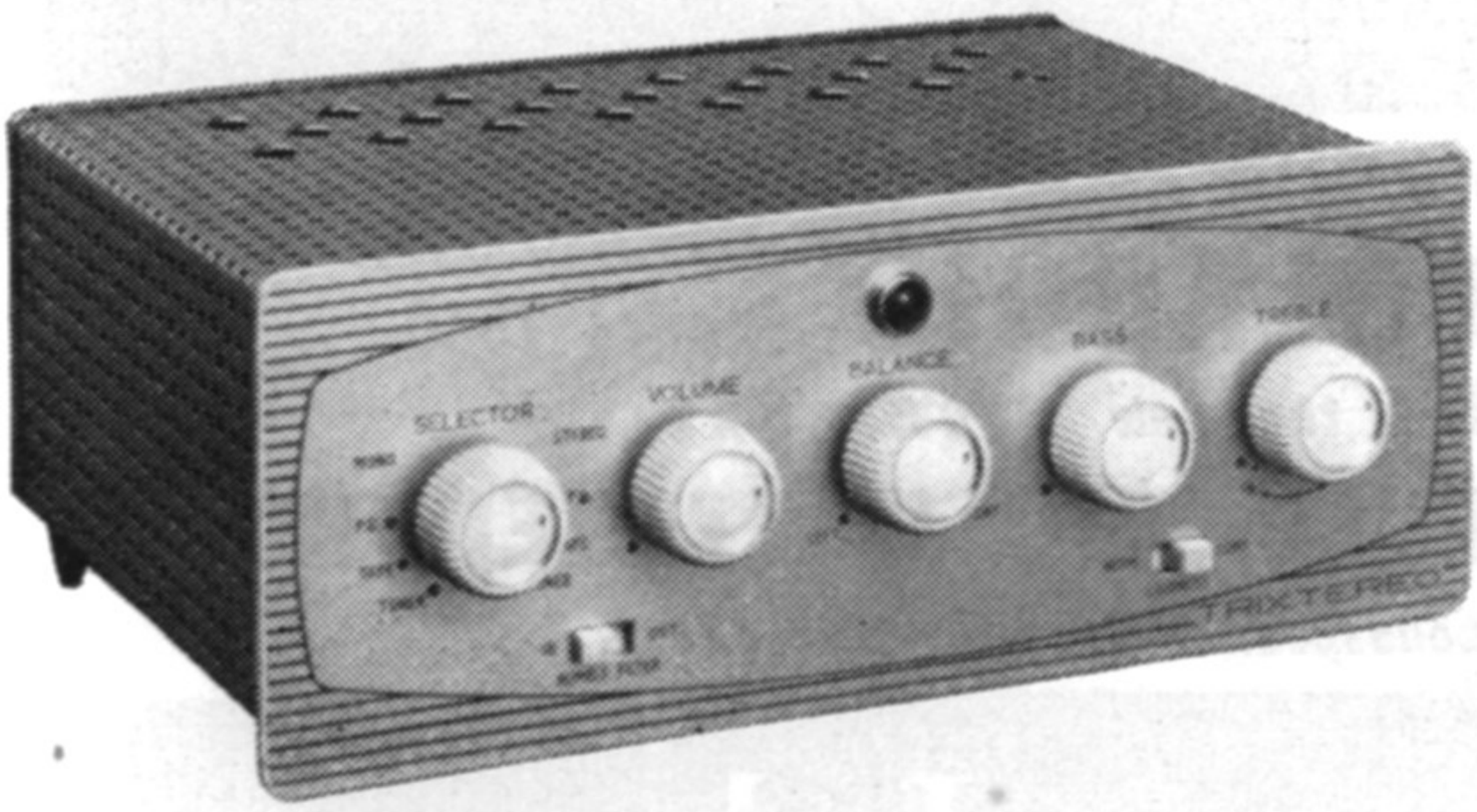
Telegrams — Home: TEKNIKA, LONDON, W.12 **Overseas: TEKNIKA, LONDON**



- *Price: 22 gns.*
- *Output 8 watts. (total)*
- *Frequency Response 40 cps. to 20,000 cps.*
- *Input selector for Pick-up, Tape and Tuner enabling the amplifier to be used both for Stereo and Monaural reproduction.*
- *Balance Control.*
- *Independent Bass and Treble Controls.*
- *Rumble Filter.*
- *Loudness Compensator.*

with TRIXTEREO

Magnificently engulfed with TRIXTEREO deep-sound — sound which swirls around you in a new, living way. From Tchaikovsky to Cha-Cha-Cha the golden toned clarity of wonderful TRIXTEREO is a superb experience for the critical listener.



This High Fidelity amplifier is designed for both stereo and normal Hi-Fi use, and provides outstanding reproduction when operated with suitable speakers and pick-ups.

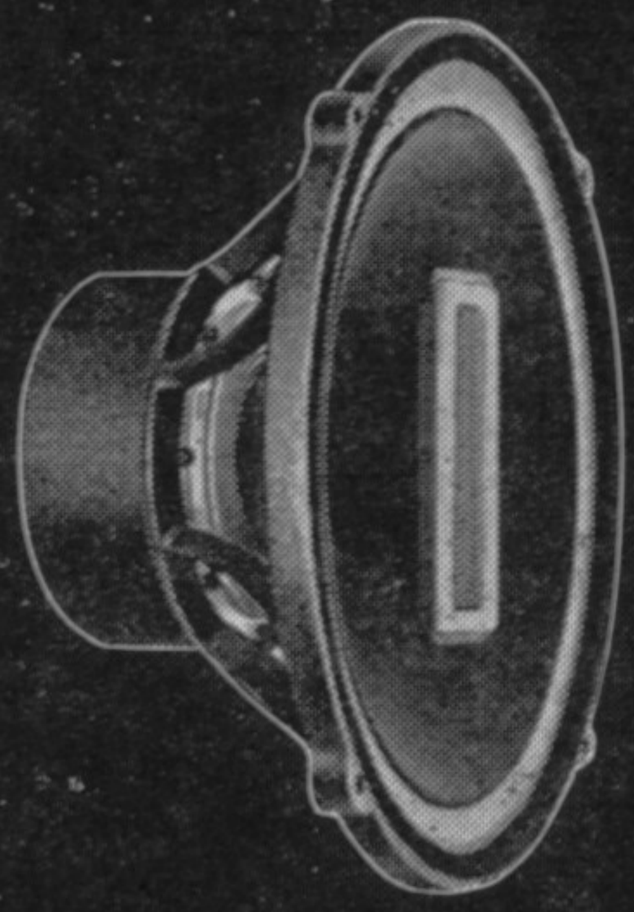
Combined Amplifier & Control Unit
Model XT202 22 gns.

Monaural Record Reproducers, Trixtereo and a full range of Sound Amplification equipment all displayed at the Audio Fair.

Only by TRIX

★ ***COME AND SEE US AT THE LONDON AUDIO FAIR, APRIL 2 - APRIL 5, IN DEMONSTRATION ROOM 211 AND ON STAND NO. 32 . . . THE TRIX ELECTRICAL CO. LTD.***

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where there's sound there's CELESTION

LOUDSPEAKERS FOR ALL PURPOSES

DEM. ROOM 334
STAND 2

Hear the
COLAUDIO Model 1550
and the new HIGH QUALITY
FULL WIDTH STEREOPHONIC
Loudspeaker System - G44/1300

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FERRY WORKS, THAMES DITTON, ENGLAND.
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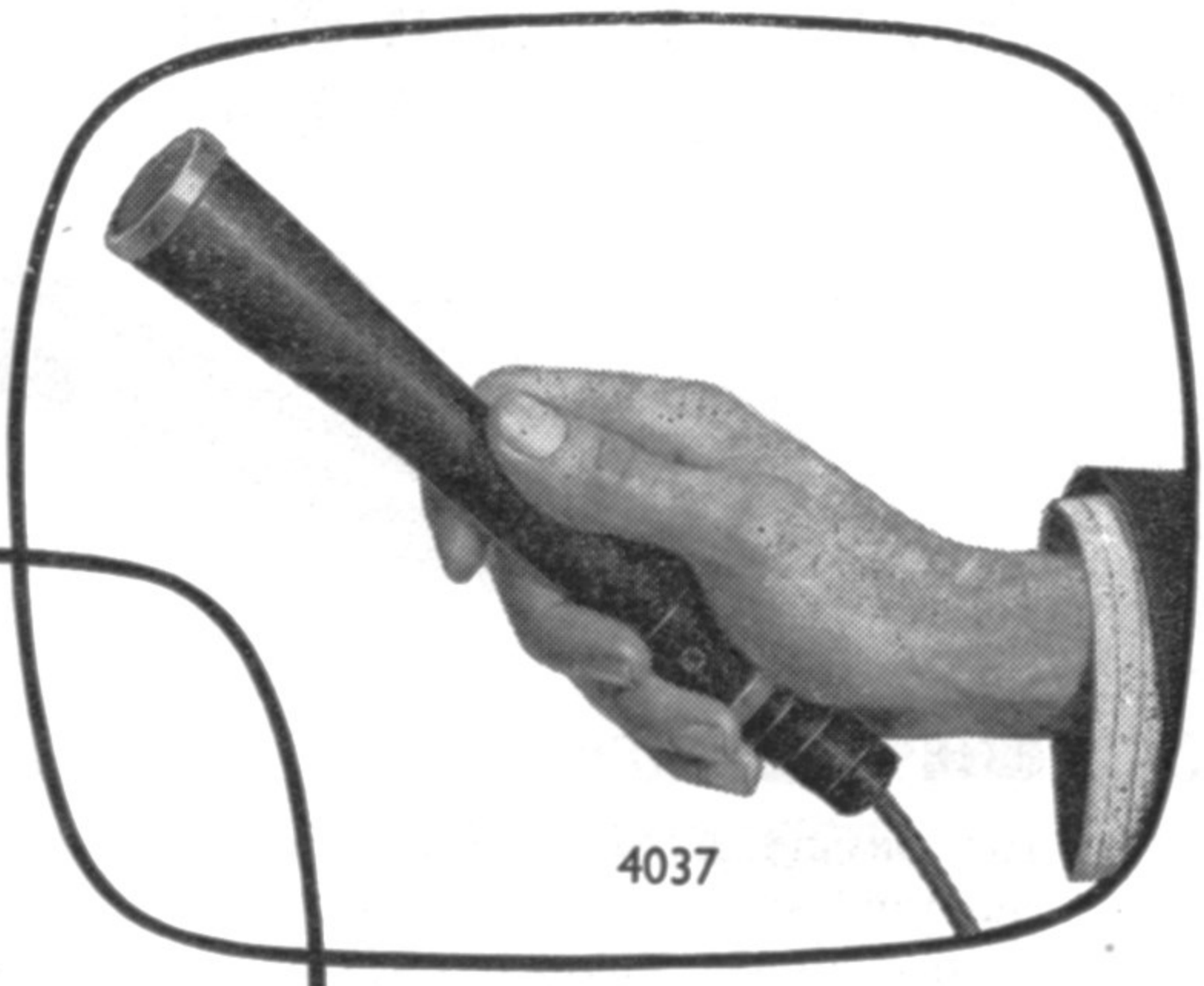
High Quality microphones

Often the least considered link in the electronic chain, the microphone is an important factor if the highest quality sound reproduction is to be achieved. Any initial loss of quality can never be regained in the amplifying equipment however good it may be.

S.T.C. microphones are precision made instruments utilising the finest materials and techniques and will satisfy the most fanatical Hi-Fi enthusiast for high quality reproduction of speech and music.

BOOTH No. 35

The microphones you see on television





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Moving Coil Microphone

Firmly established for high-quality studio work and acoustical measurement.

4038

Ribbon Microphone

One of the world's best, and specially suitable for the reproduction of music.

4037

Moving Coil Microphone

Light-weight. Unobtrusive appearance. High-fidelity, omini-directional polar respose.

OTHER MICROPHONES IN THE RANGE

4032 Hand Microphone
4035 General Purpose Microphone
4105 Cardioid Microphone
4033 Cardioid Microphone
4104 Commentator's Lip Microphone

Each STC microphone is individually tested to a very exacting specification over the whole range of its performance.

ELECTRONIC SYSTEMS GROUP

Standard Telephones and Cables Limited

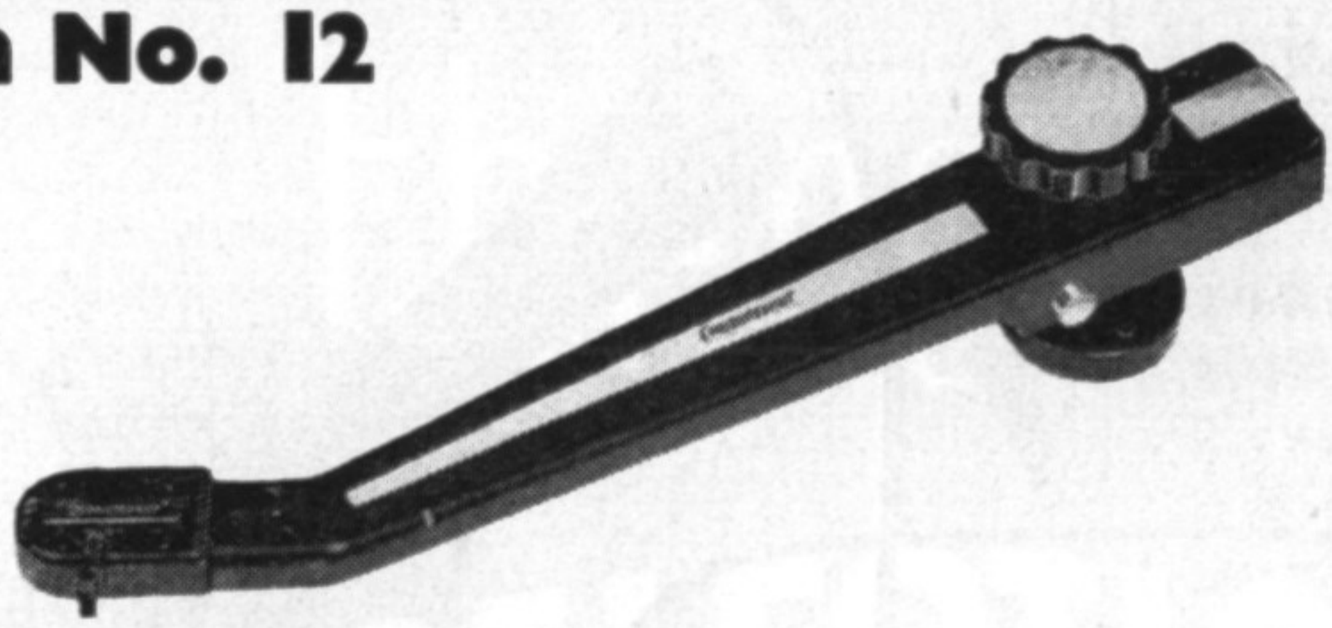
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STEREO SOUND SUPREME

by Connoisseur

The Result of Four Years Progressive Development

Demonstration Room 317
Booth No. 12



THE STEREO PICKUP

for playing 45/45 records. Miniature ceramic type with replaceable diamond stylus. Constant velocity output approximately 20mv from each channel. Frequency range 20 to 16,000 cycles. Channel separation 20/25 dbs.

VARIABLE 3-SPEED MOTOR TYPE B

operates at 33⅓, 45 and 78 r.p.m. Non-ferrous turntable. **Built-in large stroboscope with internal light source.** Precision ground and lapped spindles. Adjustable nylon graphite bearings. Synchronous motor.

STEREOPHONIC AMPLIFIER AND PRE-AMPLIFIER

Twin-channel amplifier and pre-amplifier for reproducing monaural and stereophonic sound from disc, radio and compensated tape. Ultra linear push/pull output giving 7·5 watts peak from each channel.

A. R. SUGDEN & CO. (Engineers) LTD.
MARKET STREET . BRIGHOUSE . YORKS.
Tel. 2142

Meet SPECTONE on Stand No 49

Come and see

THE NEW 161 TAPE RECORDER

. . . and look at the super modern clean lines of the new SPECTONE 161. Finished in cerise and Windsor beige leathercloth, the smart exterior reflects the superb design of the electronics, and the precision engineered mechanism. The 161 has built-in mixing and superimposition facilities and two pairs of recording/playback and erase heads for twin track uses. *49 Gns.*

151 TAPE RECORDER

Specifications include two direction recording and replay; three speeds, 3¾ i.p.s., 7½ i.p.s. and 15 i.p.s., an accurate digit tape counter, and an easy-to-read recording level meter. The machine is built and rigorously tested to C.C.I.R. specification, and is backed by the unequalled Specto after-sales service.

With Microphone 76 Gns.

129 STEREOPHONIC REPRODUCER

This unit combines single-channel recording and full three source mixing facility with twin-channel stereophonic reproduction or single-channel reproduction on one or two speakers. *Price 175 Gns.*

MIXERS

The Spectone Electronic Mixer provides full mixing facilities from three sources of sound. Three separate gain controls entirely independent of each other enable any input signal to be regulated without affecting the other signals. Full equalisation for LP and 78 discs incorporated. Two models available: *Model 142 (unpowered version) Price 17 Gns.*

Model 142a (powered version) Price 21 Gns.

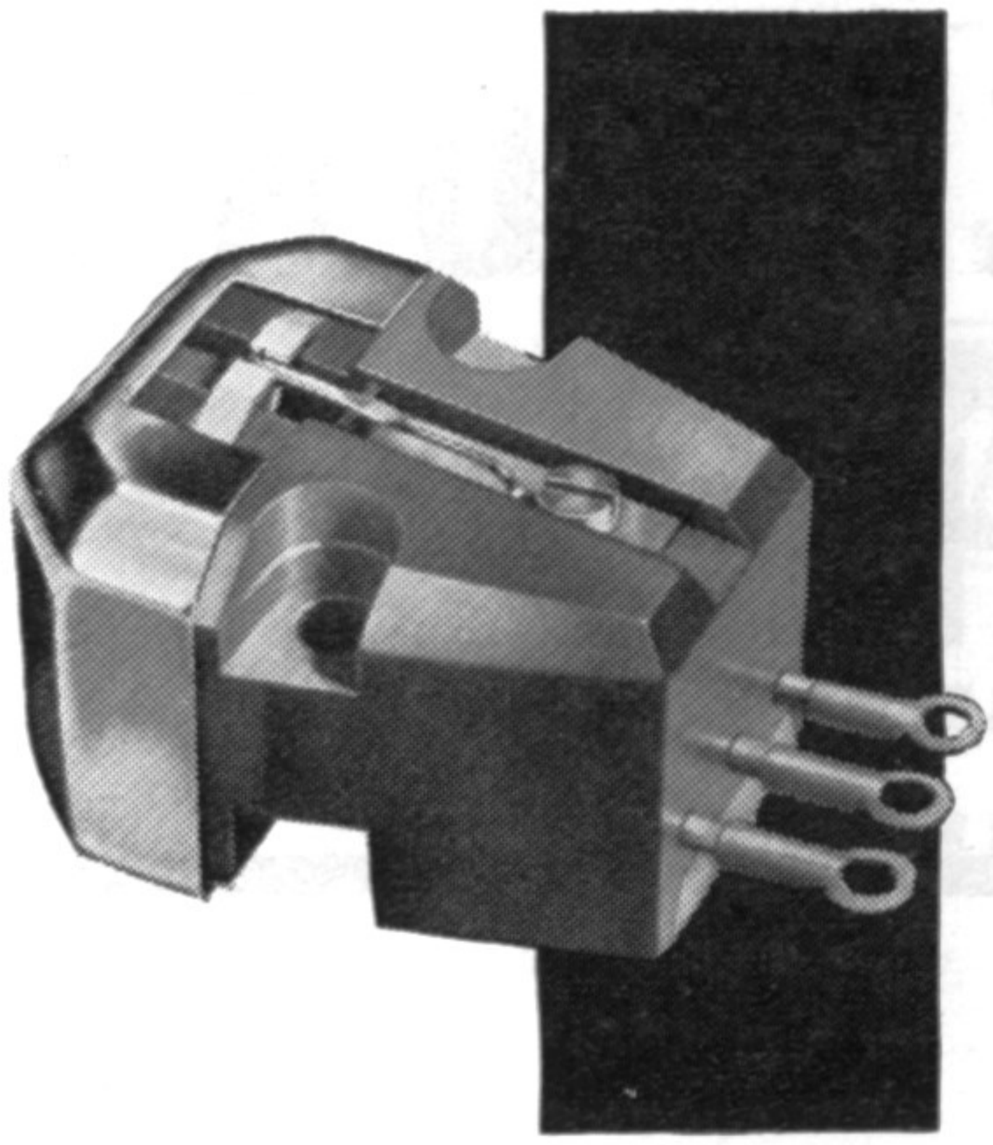
AMPLIFIERS

Complete with pre-amplifier. This remarkable equipment based on the famous Mullard 5-10 circuit will meet the most exacting requirements of " high fidelity " at an extremely low price. Maximum output 15 watts, equalised output for 78 and LP discs. *Price £24. 17. 6.*

Specto LIMITED

VALE ROAD · WINDSOR · BERKS

(Telephone: Windsor 1241)



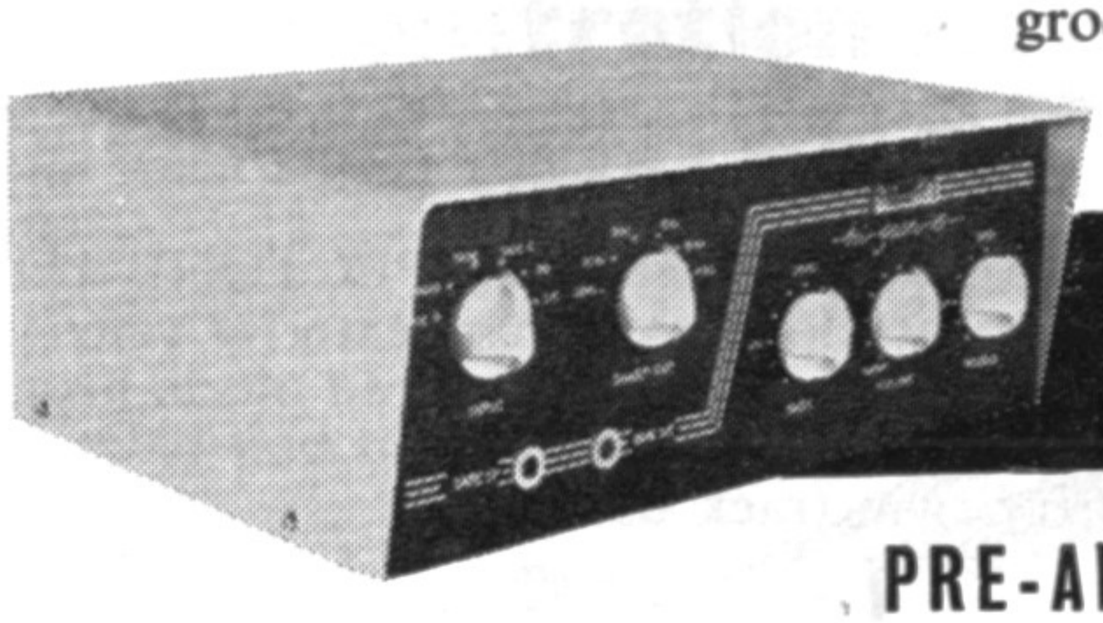
Stereophonic or Monaural . . .

the standard is TANNOY

Where quality is concerned price cannot be the first consideration. Tannoy have earned for their products a reputation by which others are often judged.

THE VARI-TWIN PICK-UP

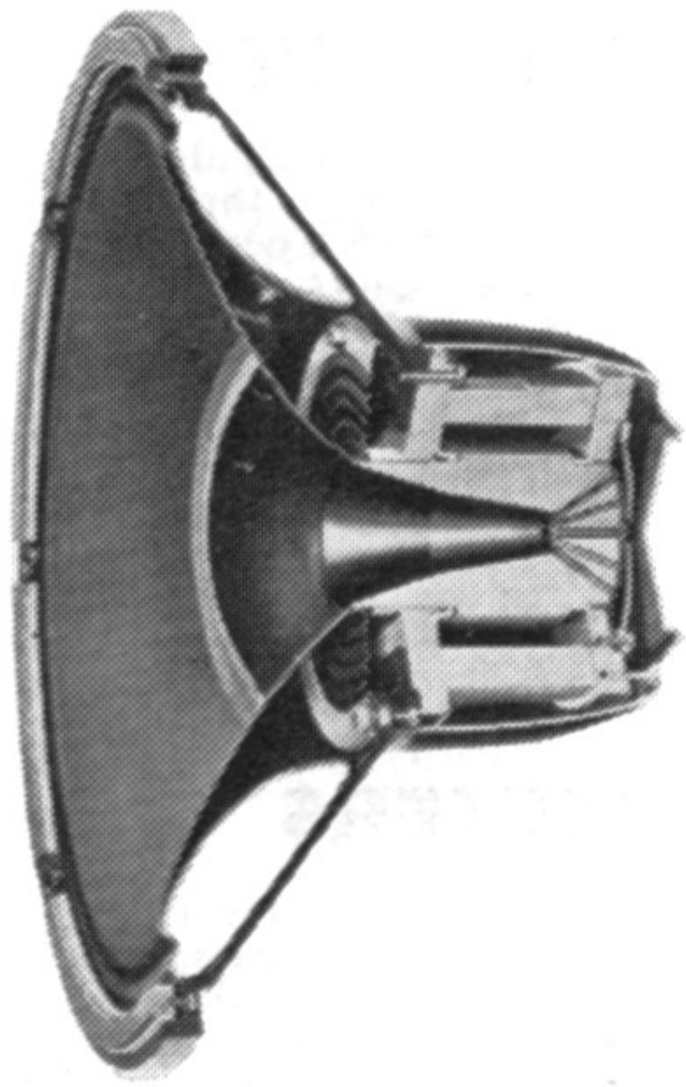
This Tannoy magnetic stereo-cartridge has been designed for stereophonic discs of the Westrex 45/45 type. With suitable stylus it will also play monaural micro-groove records.



hi-gain 15

PRE-AMPLIFIER/POWER AMPLIFIER

The Hi-Gain 15 provides all the facilities for reproduction of radio, records and tape in a single elegantly styled unit. Output is 10 watts for less than 0.1% total harmonic content, between 40 and 15000 c.p.s.



THE *Monitor*

DUAL CONCENTRIC

This new co-axial loudspeaker is so named because it has been employed as the quality standard by many of the world's leading recording, broadcasting and television companies. It offers the home listener possibly the greatest advance in loudspeaker magnet design of recent times. It is especially suitable for stereophonic reproduction.

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Vortexion

All models now have provision for Stereo or for easy conversion at a later date.

Conversion units are also available. The regular models are retained with additions and improvements. Our high Standard which has made these recorders famous, resulting in their being chosen for the foremost musical centre in this country, has been maintained.



TWELVE-CHANNEL ELECTRONIC MIXER

This is similar to the 4-channel, but is fitted with 12 hermetically sealed controls, 12 balanced line microphone transformers potted in mu-metal boxes, and a mains transformer also potted in mu-metal. All components which can affect noise are tested and selected before insertion. It is supplied in standard steel case or 7 inch rack panel.

30/50 WATT AMPLIFIER

Gives 30 watts continuous signal and 50 watts peak Audio. With voice coil feedback distortion is under 0·1%, and when arranged for tertiary feedback and 100 volt line it is under 0·15%. The hum and noise is better than −85 db referred to 30 watt.

It is available in our standard steel case with Baxendale tone controls and up to 4 mixed inputs, which may be balanced line 30 ohm microphones or equalised P.U.s to choice.

120/200 WATT AMPLIFIER

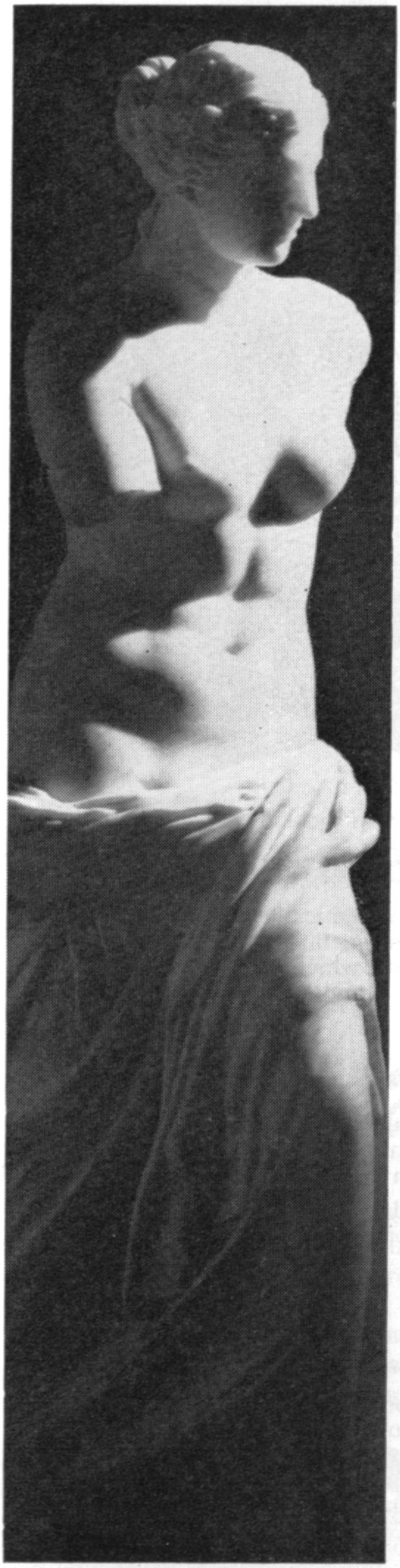
Will deliver 120 watts continuous signal and over 200 watts peak Audio.

It is completely stable with any type of load and may be used to drive motors or other devices to over 120 watts at frequencies from 20,000 down to 30 cps in standard form or other frequencies to order. The distortion is less than 0·2% and the noise level −95 db. A floating series parallel output is provided for 100-120V. or 200-240V. and this cool running amplifier occupies 12¼ inches of standard rack space by 11 inches deep. Weight 60 lb.

VORTEXION LIMITED

257-263 The Broadway, Wimbledon, London, S.W.19

Telephones: LIBerty 2814 and 6242-3 · Telegrams: "Vortexion, Wimble, London"

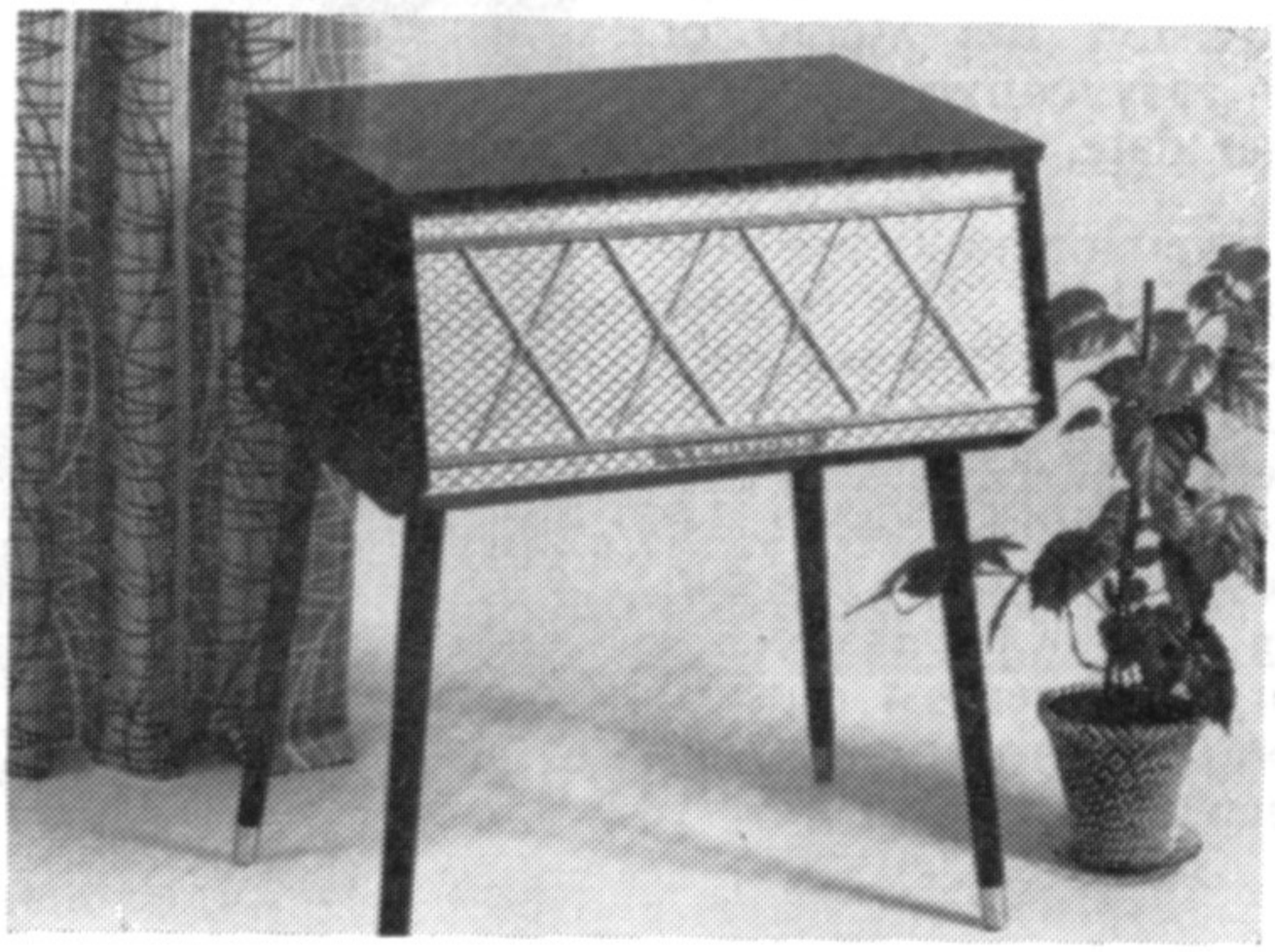


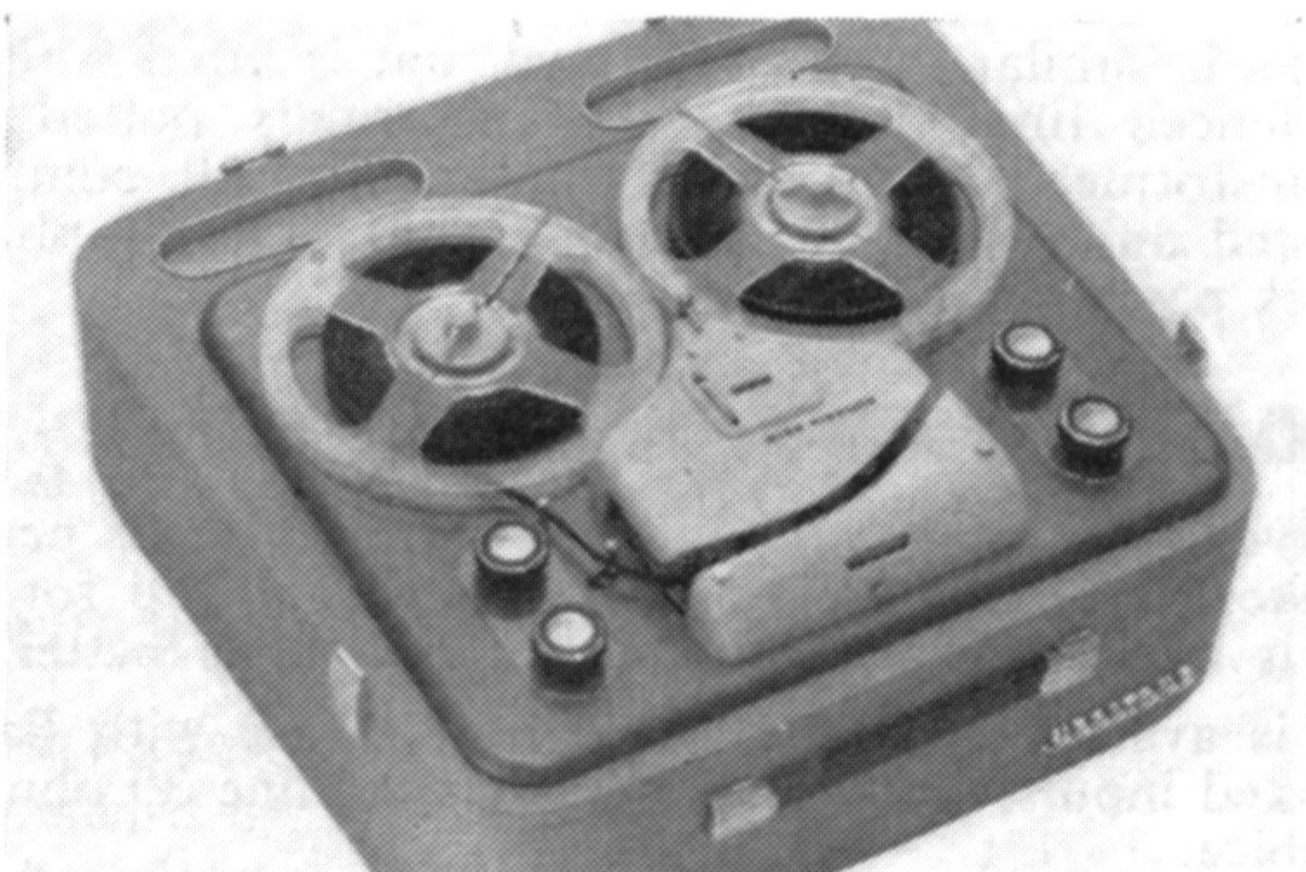
See and hear

VERITONE

VENUS

CONSOLE AND PORTABLE MODELS





BOOTH 45
DEMONSTRATION ROOM 220

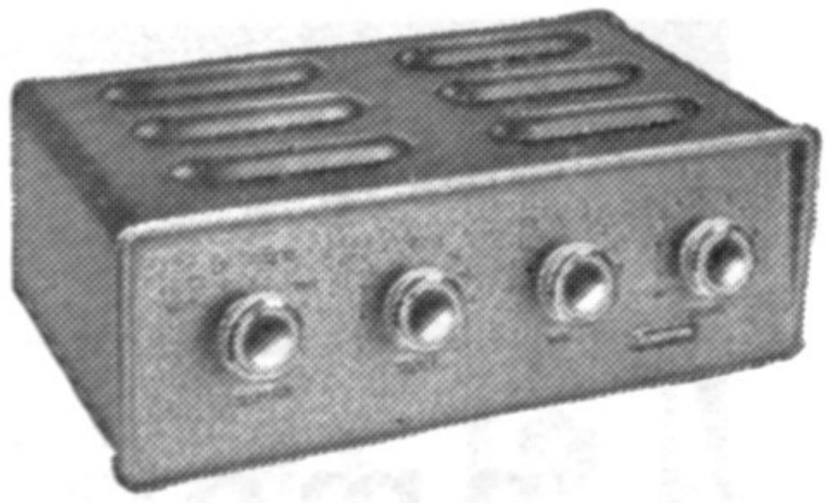
One is the most beautiful console yet made. The other the most efficient portable in its price range. Each sets completely new standards of sound reproduction. See them. Hear them. And prove for yourself how good they are.

VERITONE ***make the most reliable tape recorders***

Veritone Ltd., Avenue Parade, Ridge Avenue, London, N.21. *Tel: LABurnum 6641/2*

Stentorian

HIGH FIDELITY AT REALISTIC COST



W.B.8 Amplifier £19.19.0.

The items illustrated are representative of the wide range of W.B. Hi Fi equipment. A noteworthy recent addition is the "Stentereo" Stereophonic Speaker System embodying many novel features. Our experience in sound reproduction covers 33 years: such a background is a guarantee of quality. Full details of all W.B. products will gladly be sent on request.

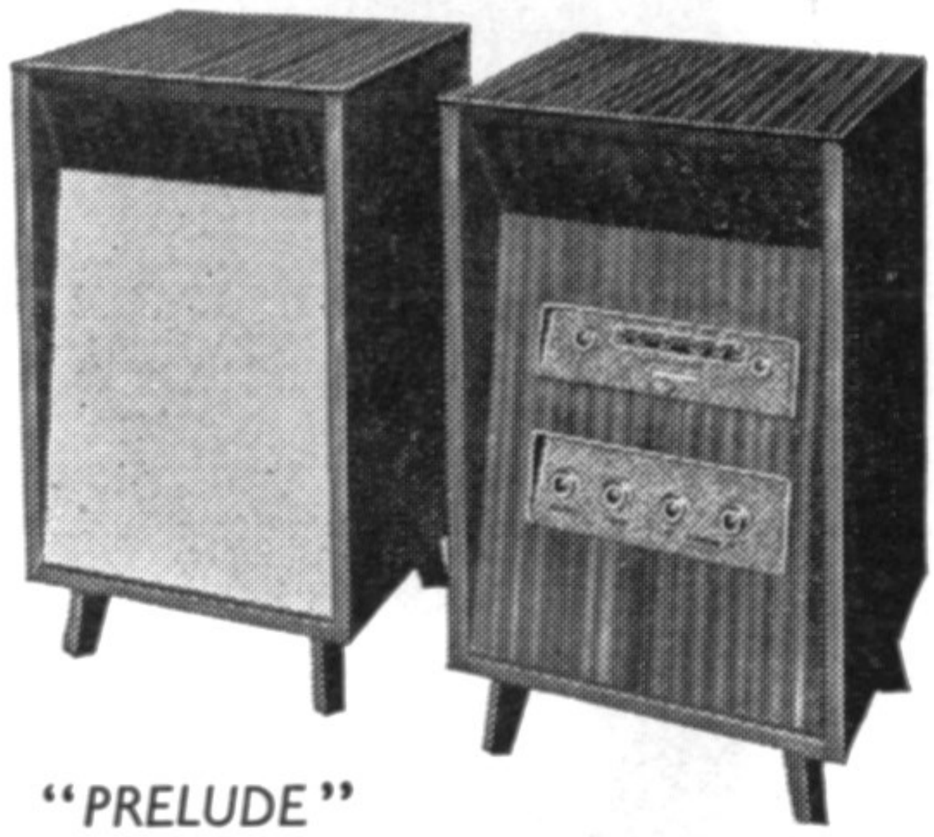


Stentorian V.H.F. Tuner £23.2.0.

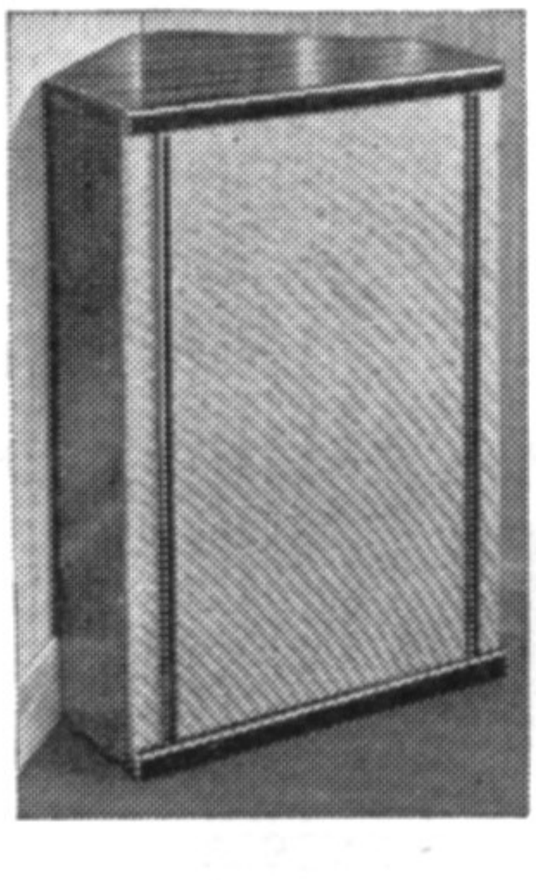


Stentorian Cambric Cone Hi-Fi Units.

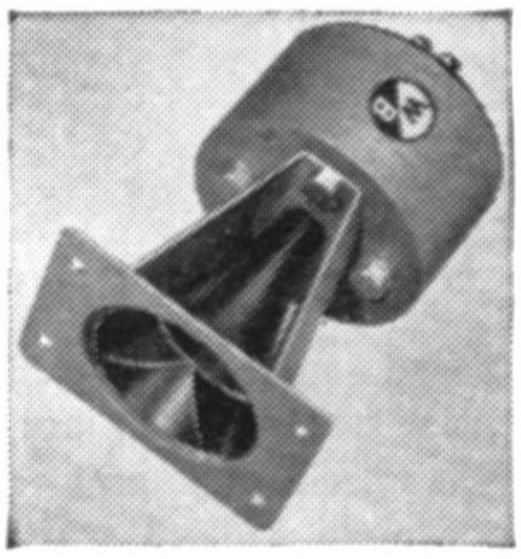
The famous H.F.1016 at £8.0.0.
Others from £1.6.9.



Ready-to-assemble cabinets in polished walnut from £5.10.0 to £16.16.0.



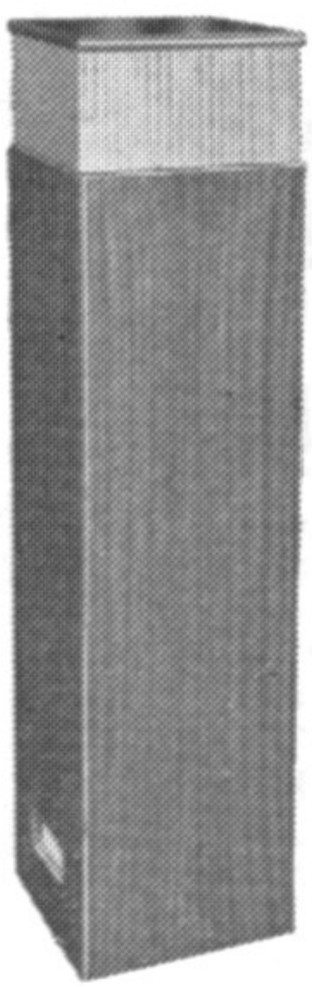
"PRELUDE"
ready-to-assemble cabinets in striped sapele from £9.19.6 to £13.13.0.

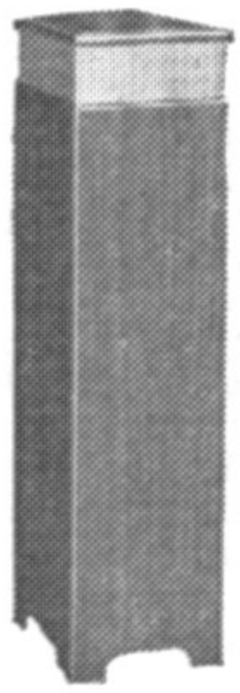


Tweeter Units from 35/- to £12.12.0.

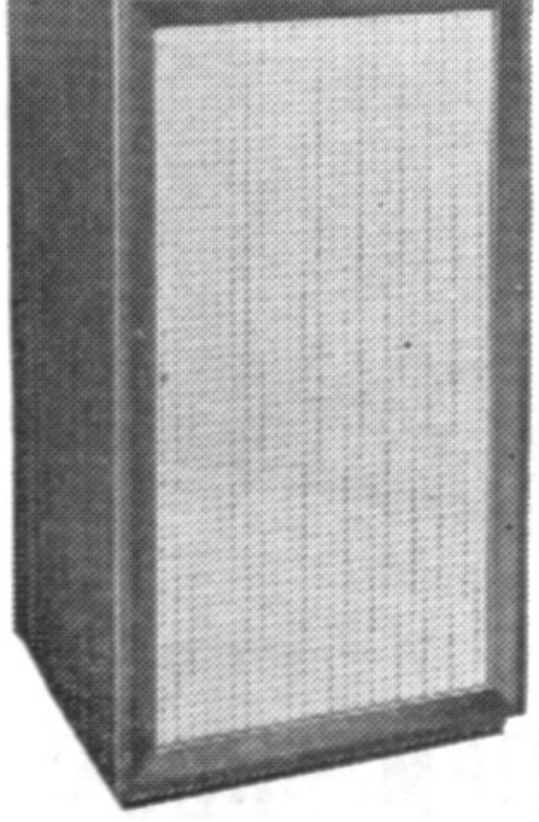
Prelude Horn-Loaded Cabinet £19.10.0.

HF. 817 Speaker £11.17.6.





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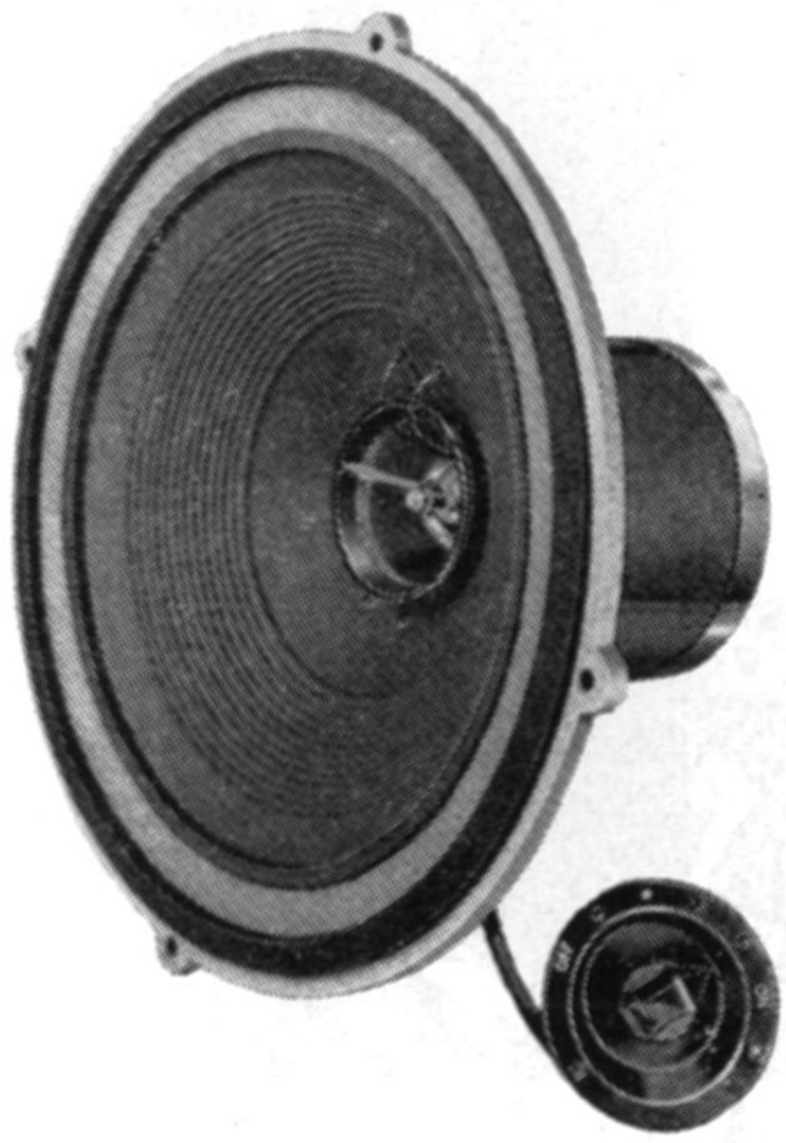
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TWEETER VOLUME CONTROL



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SPECIFICATION

MAIN CONE

Magnet gap diameter	1⅜in.
Flux density	14,000 gauss
Total flux	155,000 maxwells
Foam surround	
Copper voice coil	
Fundamental resonance	25—30 c/s

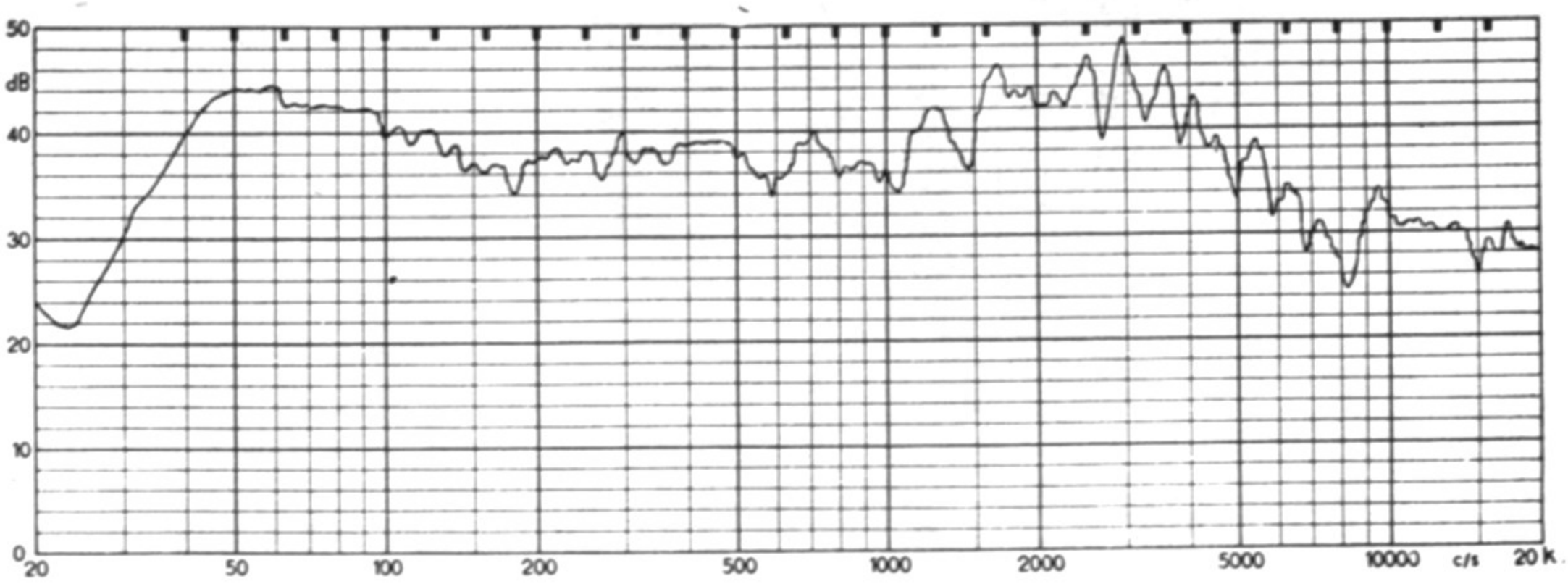
TWEETER ASSEMBLY

Magnet gap diameter	1in.
Flux density	13,200 gauss
Total flux	44,000 maxwells
Foam surround	
Aluminium voice coil and centre dome	

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Weight (including volume control) 18½lb



Axial frequency response of Coaxial 12 unit

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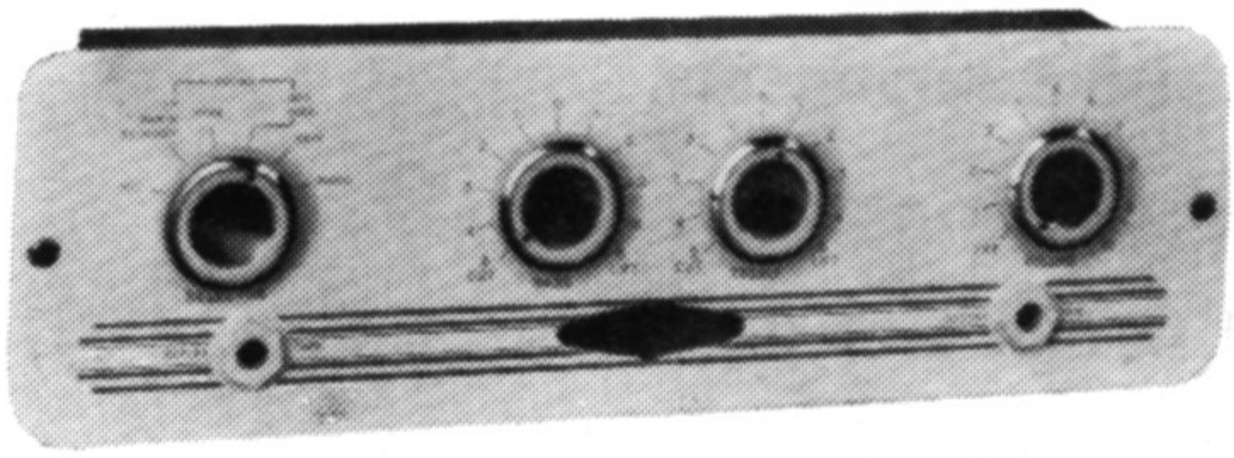
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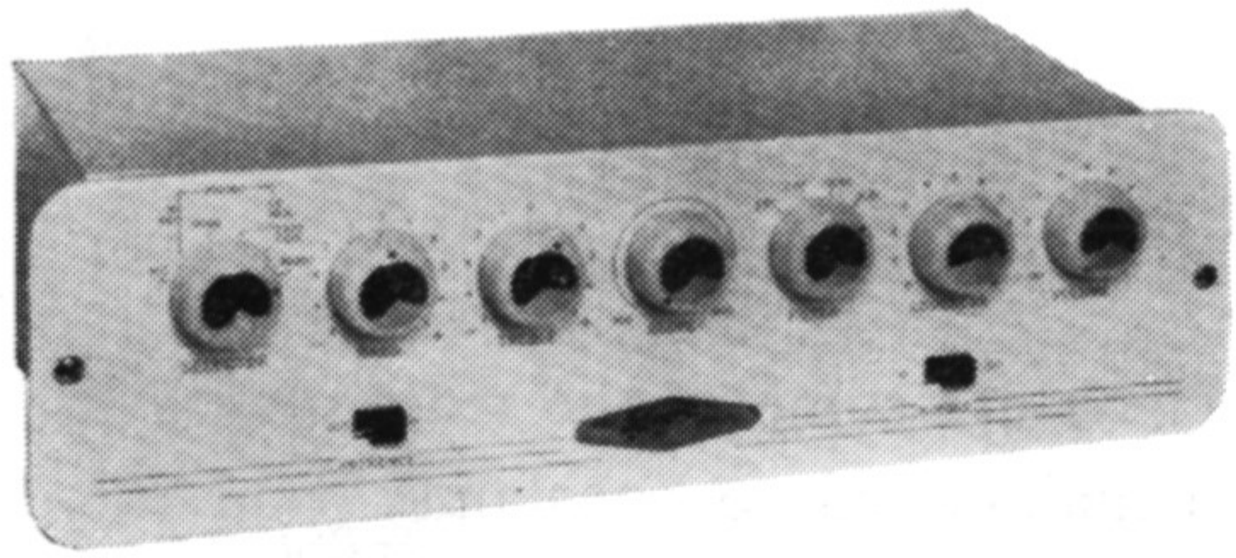
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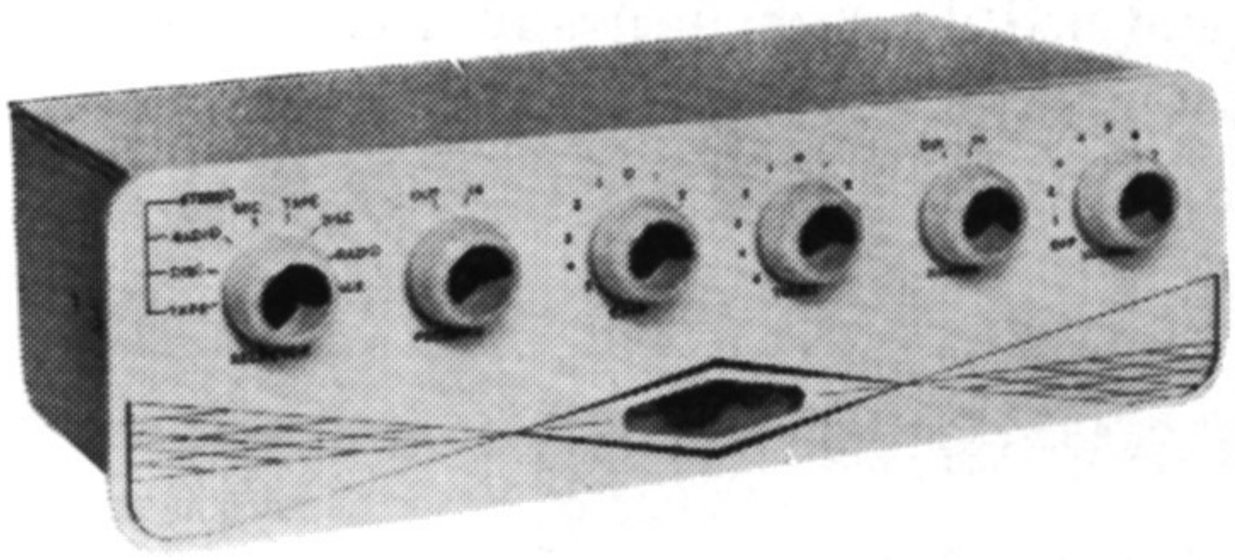
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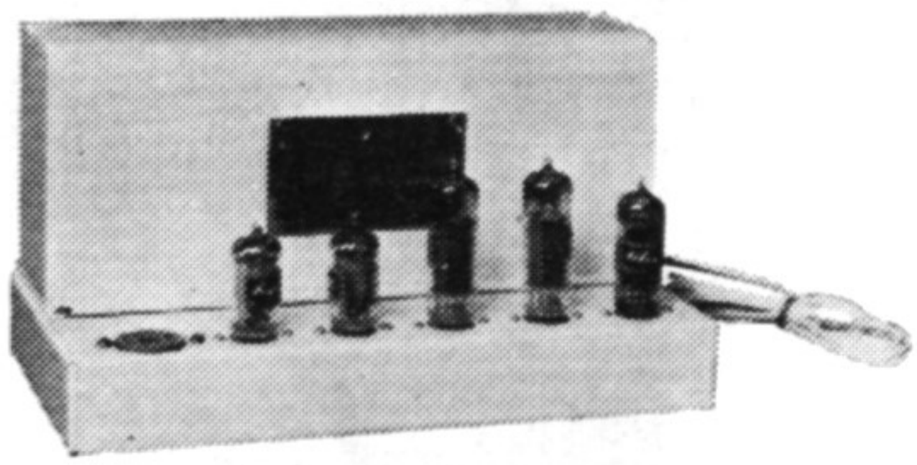
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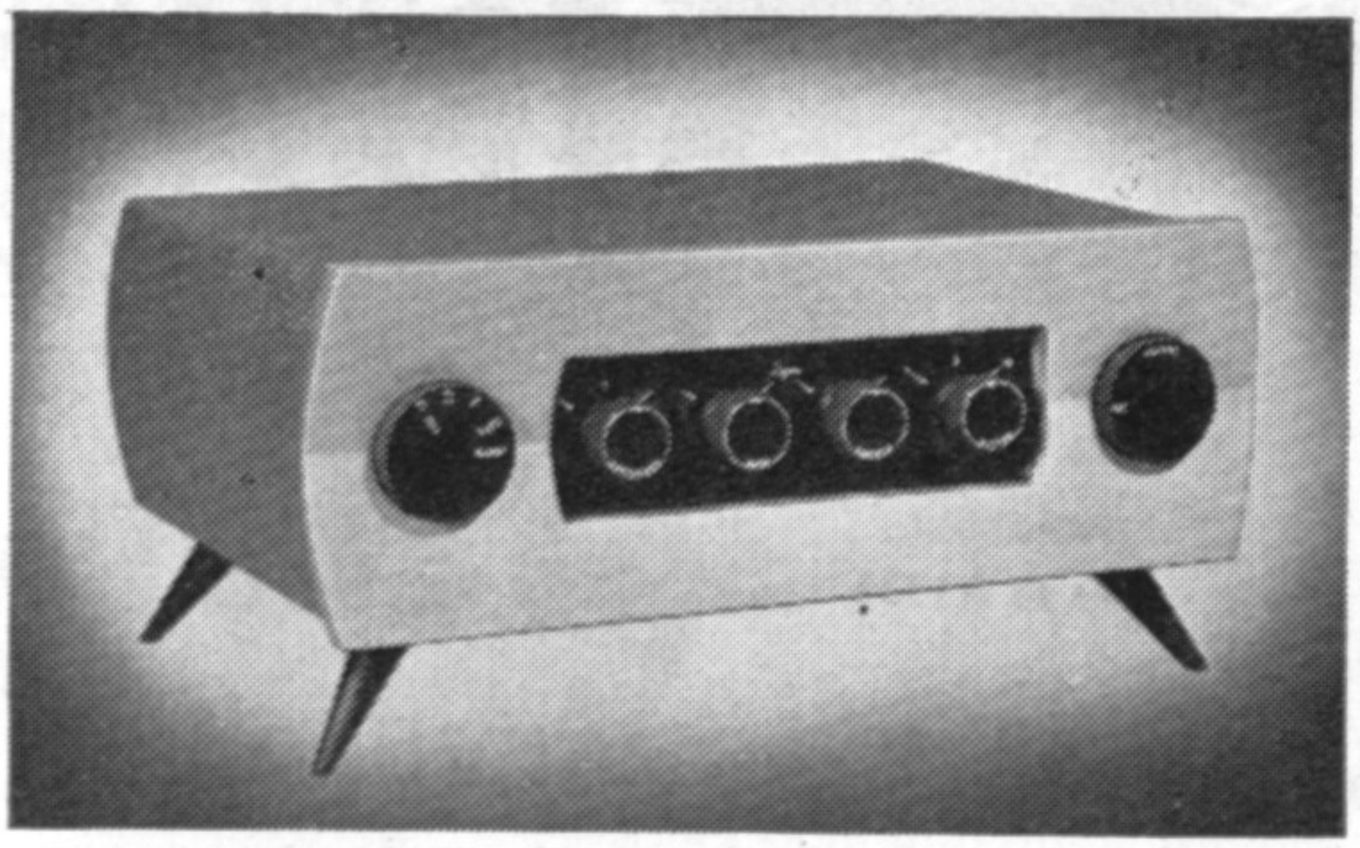
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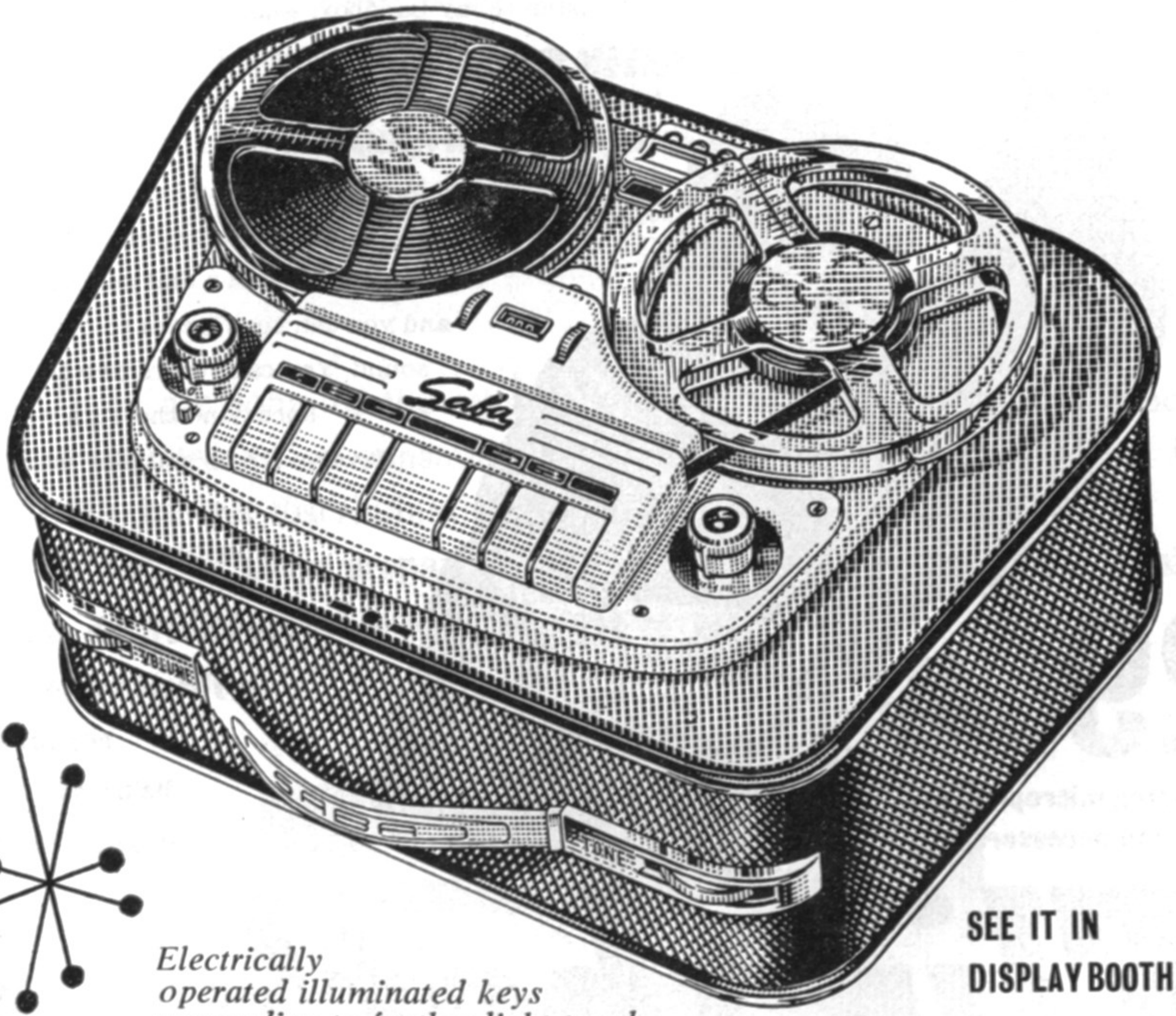
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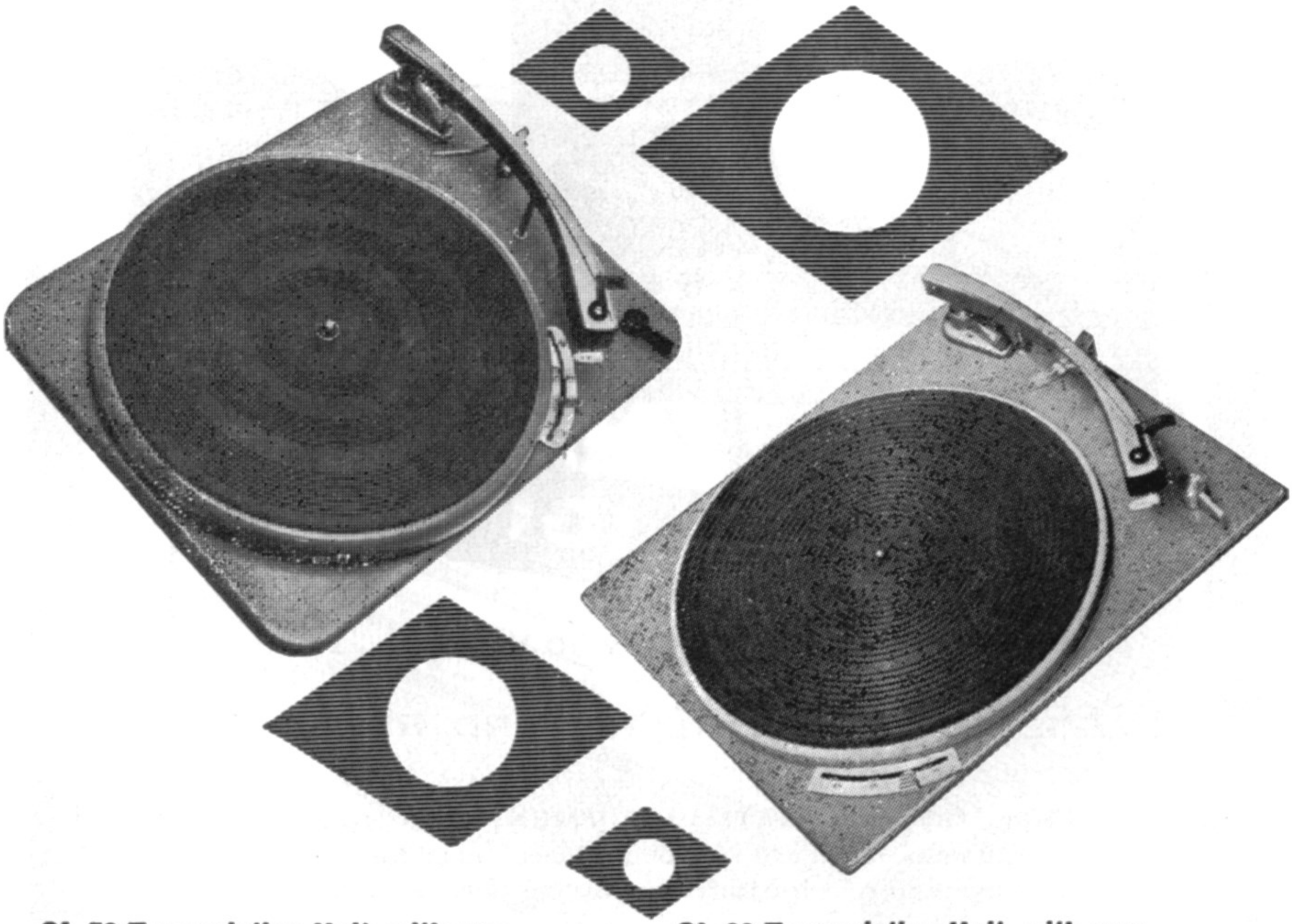
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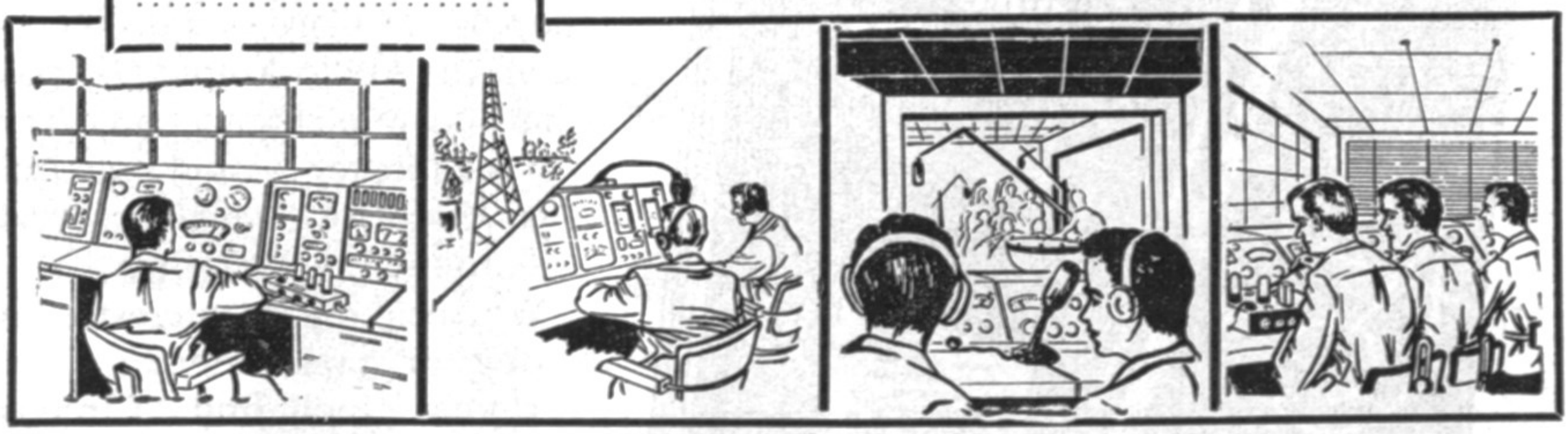
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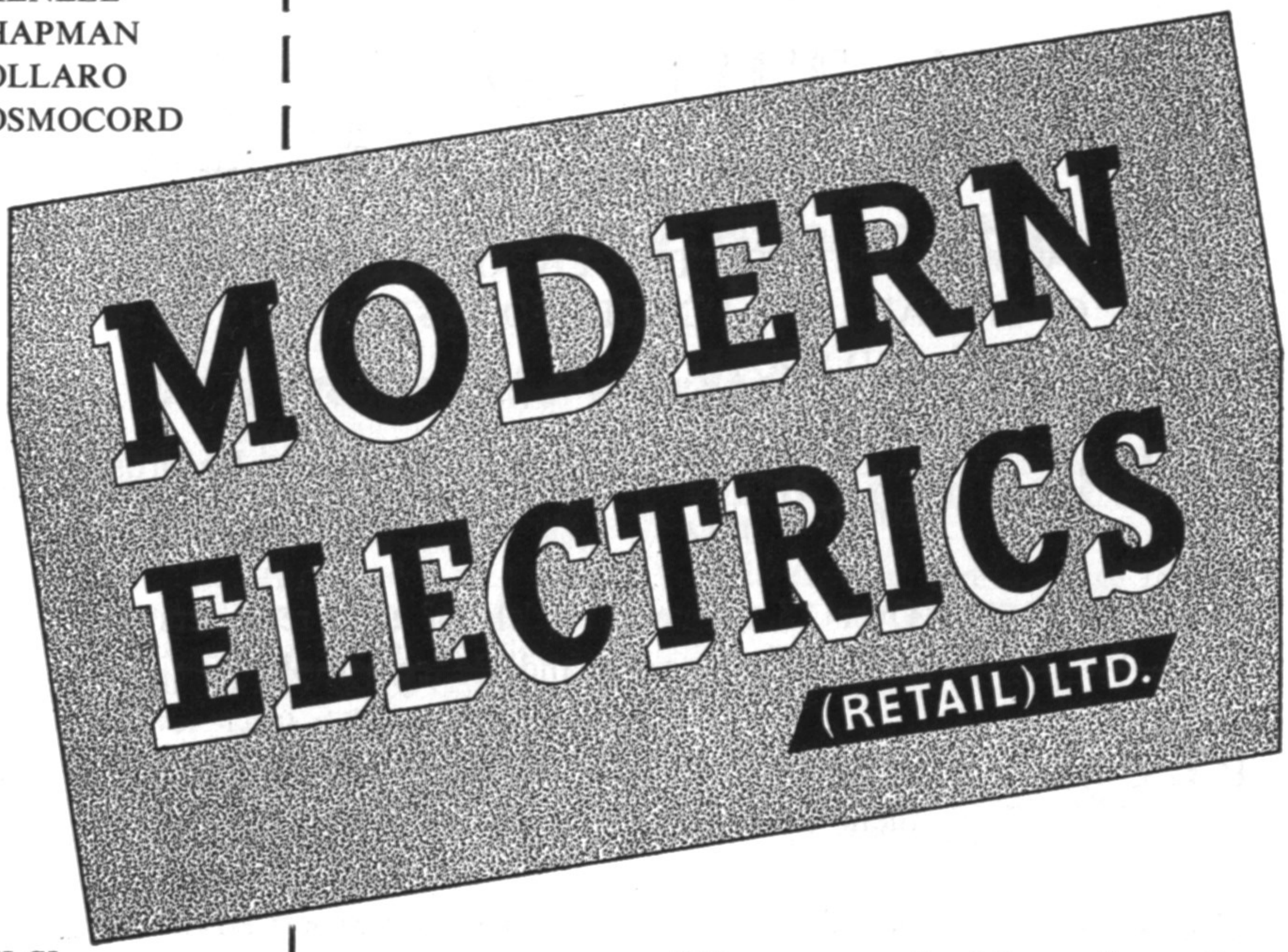
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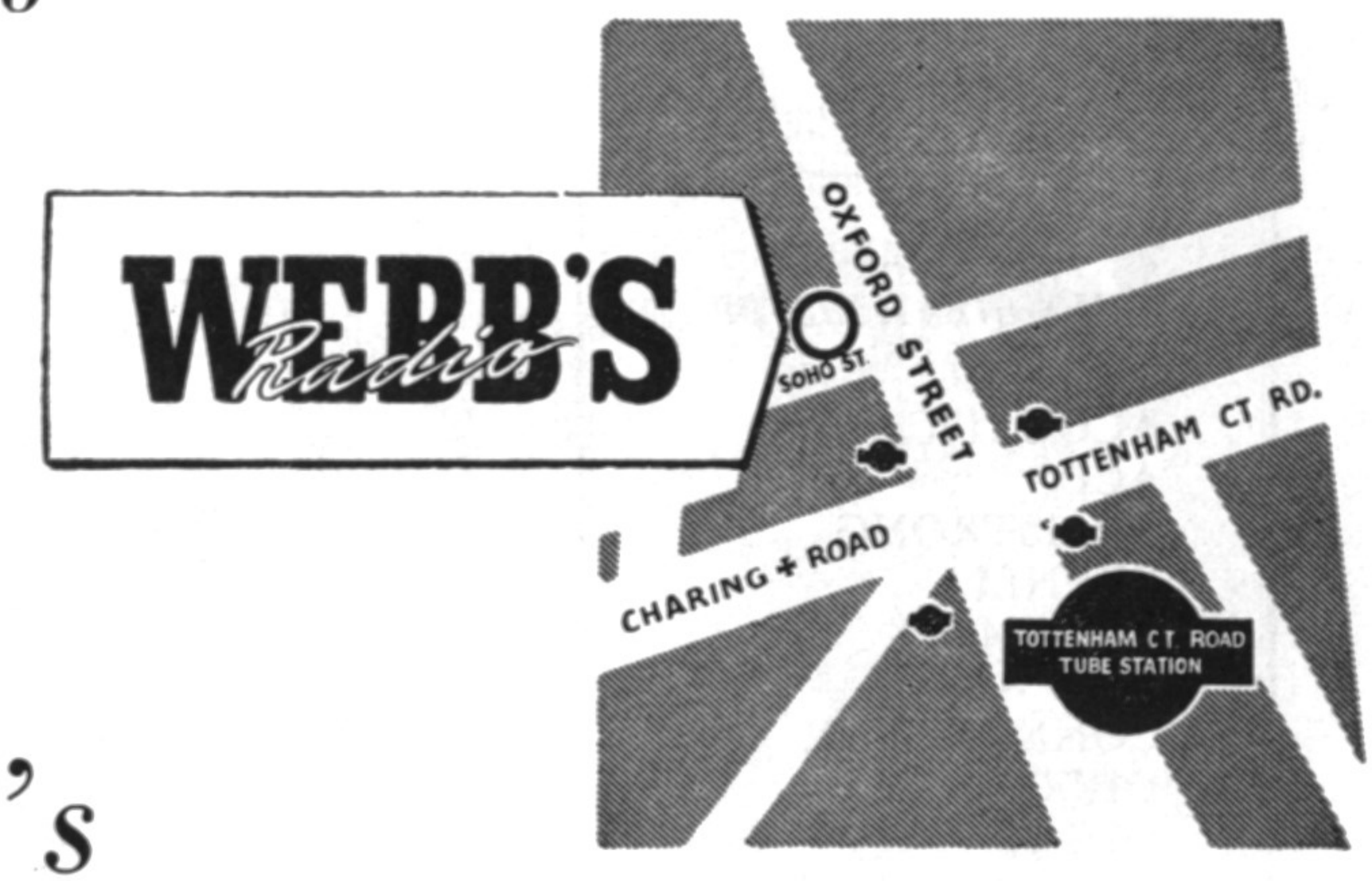
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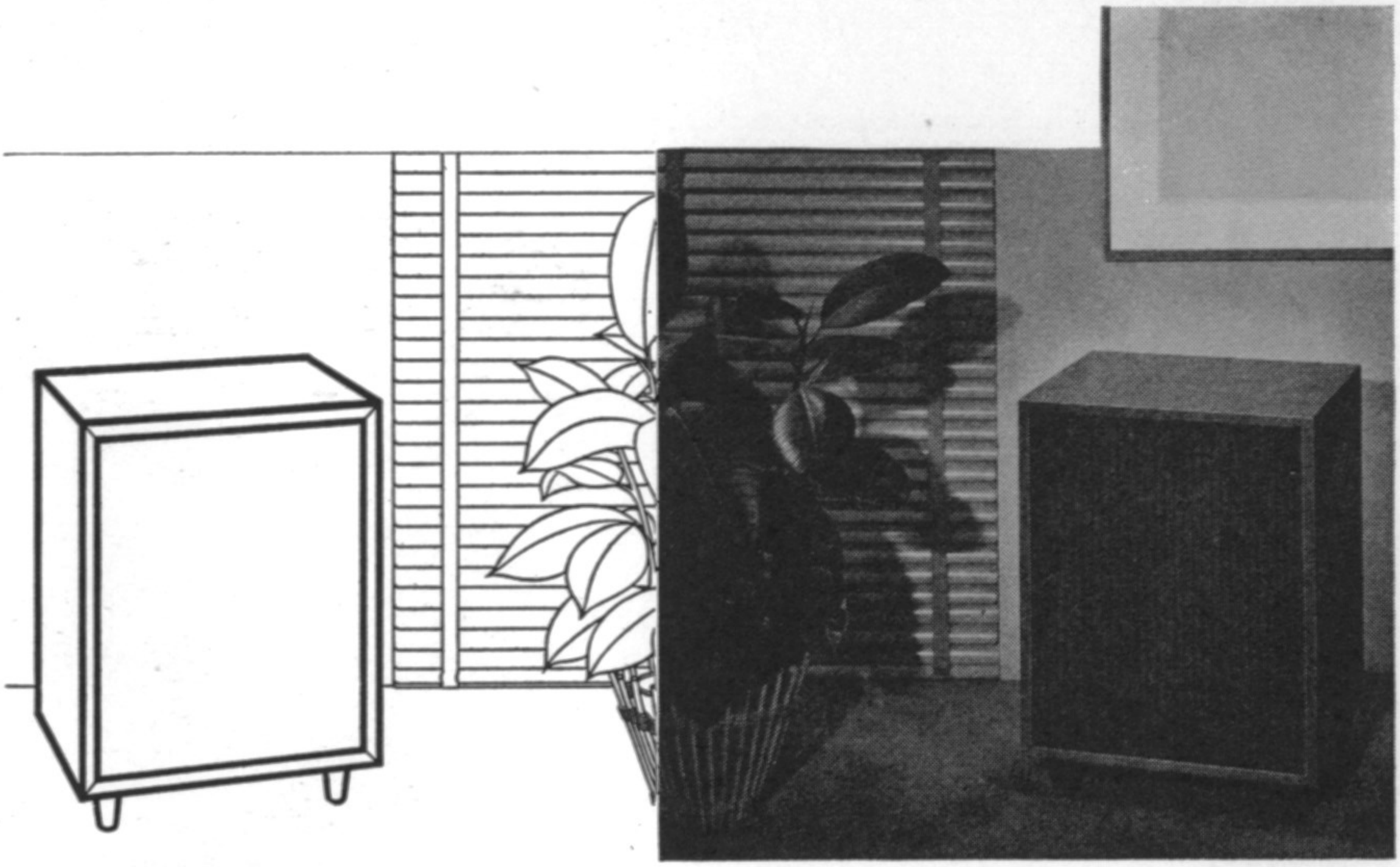


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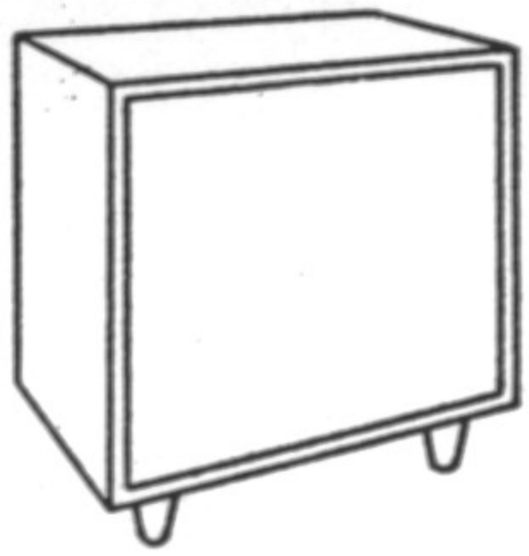


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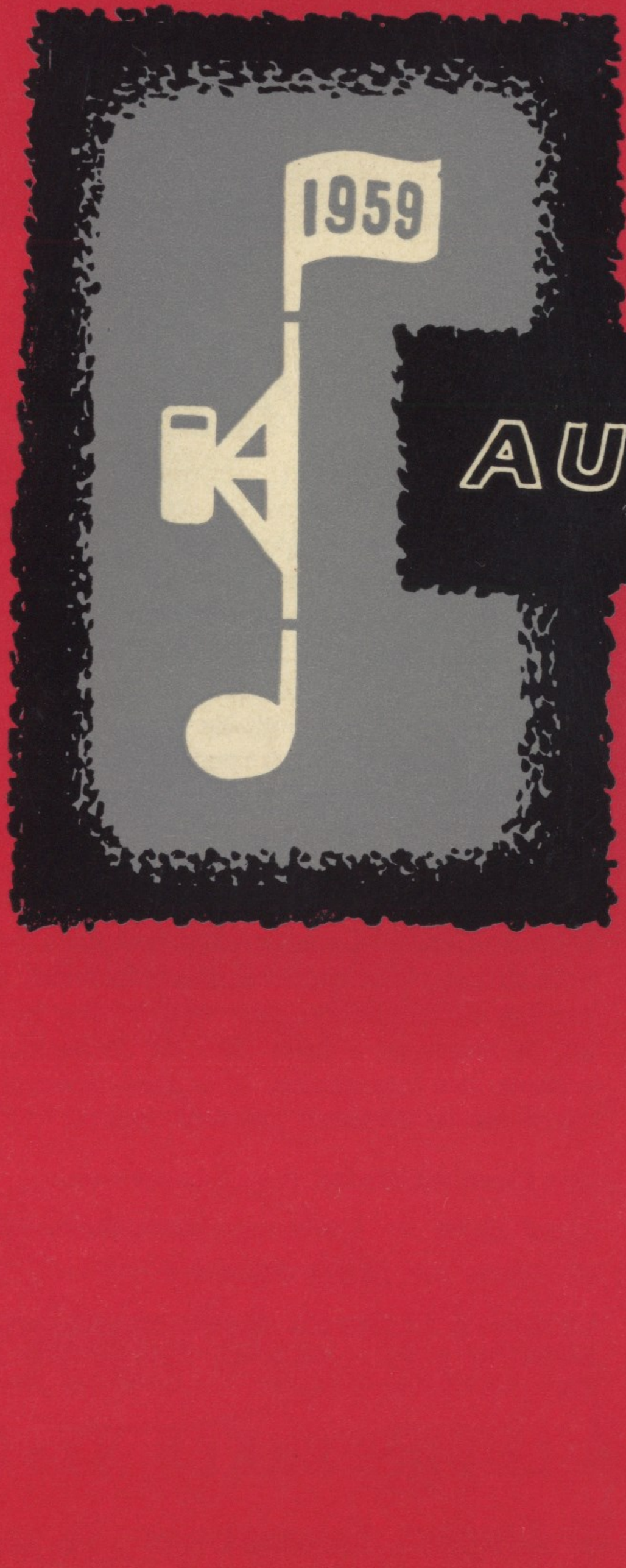
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