

FEBRUARY 1966

TAPE

RECORDING MAGAZINE



**IN THIS ISSUE
WIN A PHILIPS
BATTERY
RECORDER**

**SPECIAL SCRIPT
EDITING CONTEST**

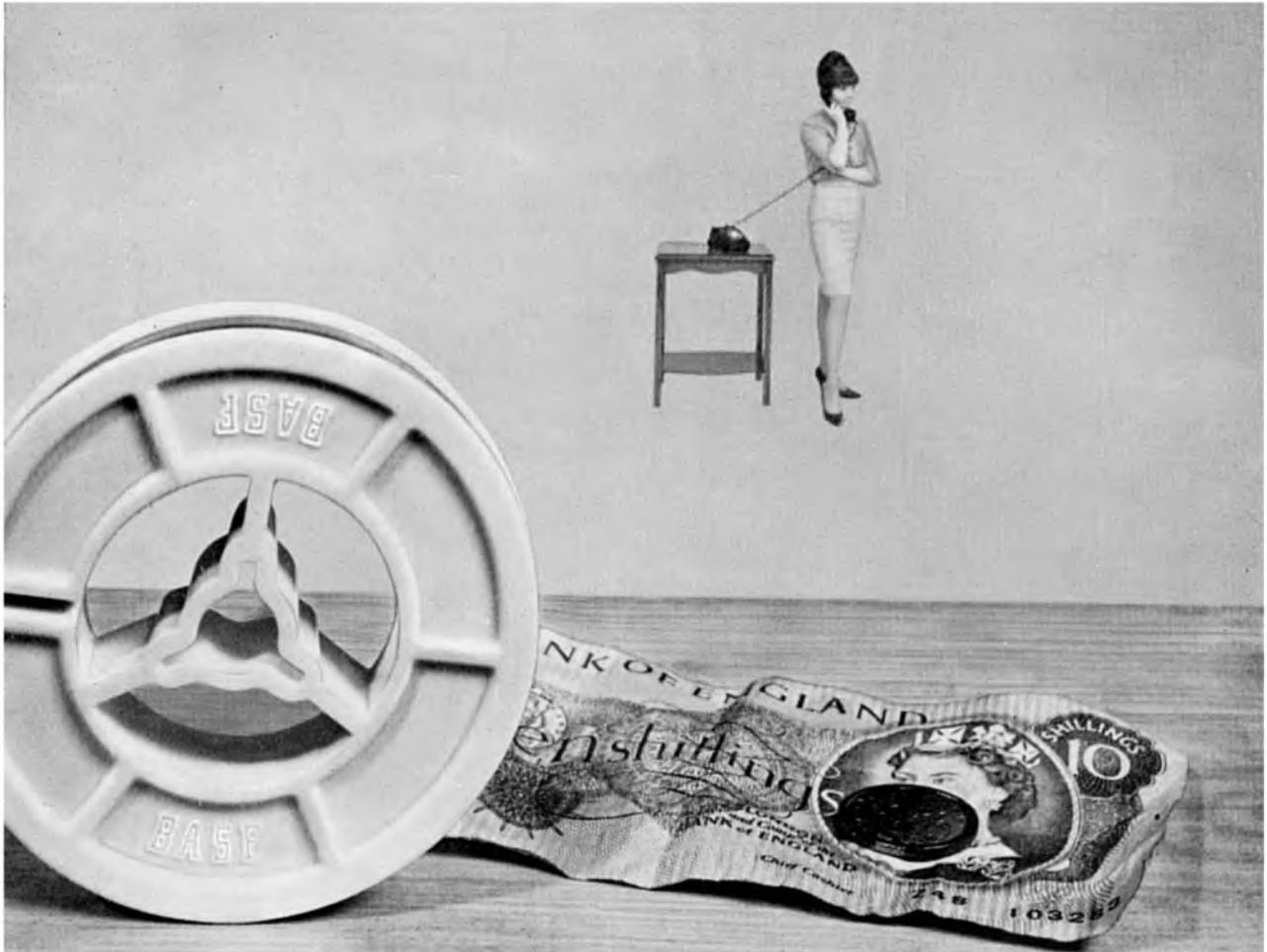
ALSO

- **How to record
the sounds of
nature**
- **EQUIPMENT on
the test bench;
tape record
reviews**

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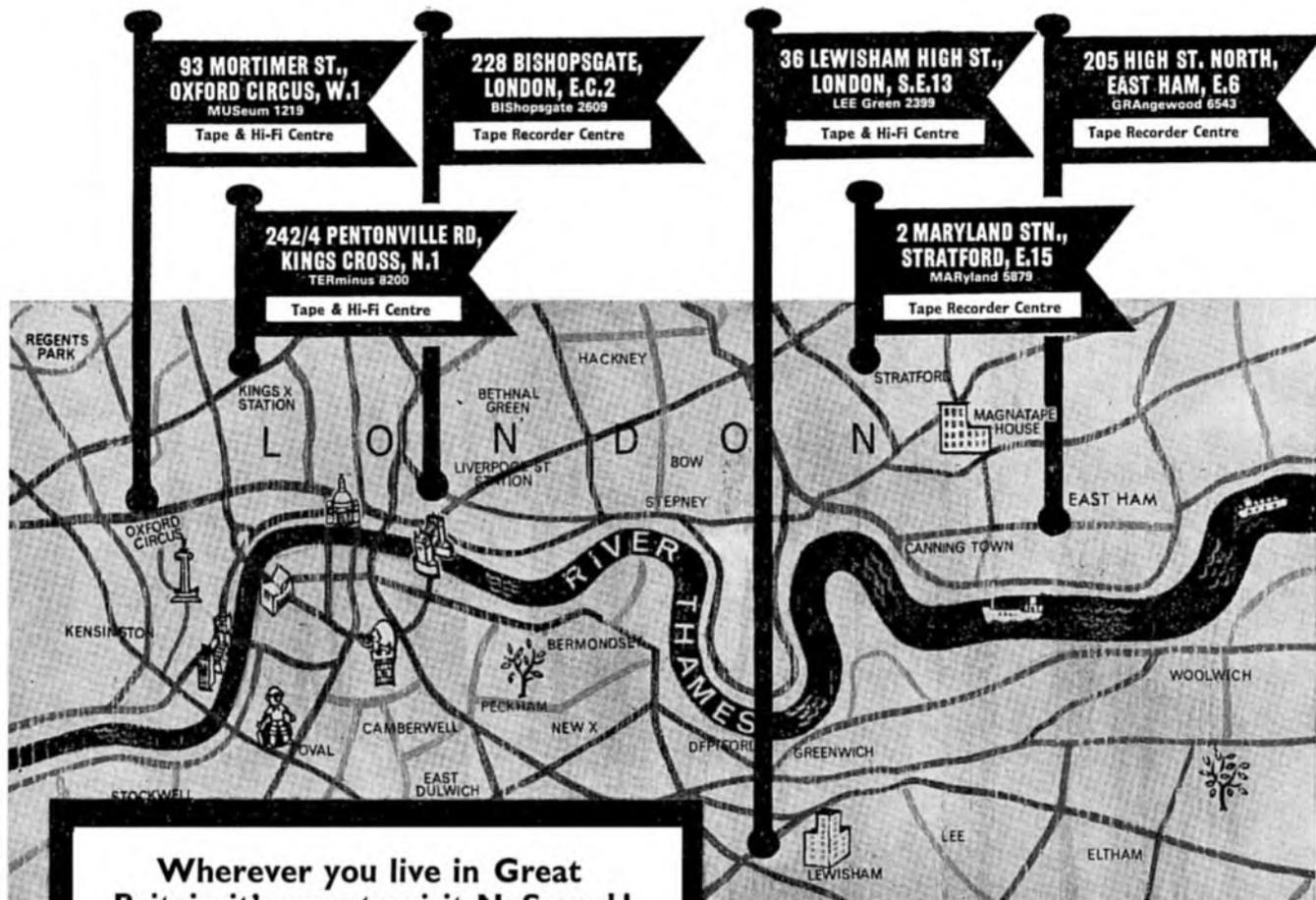
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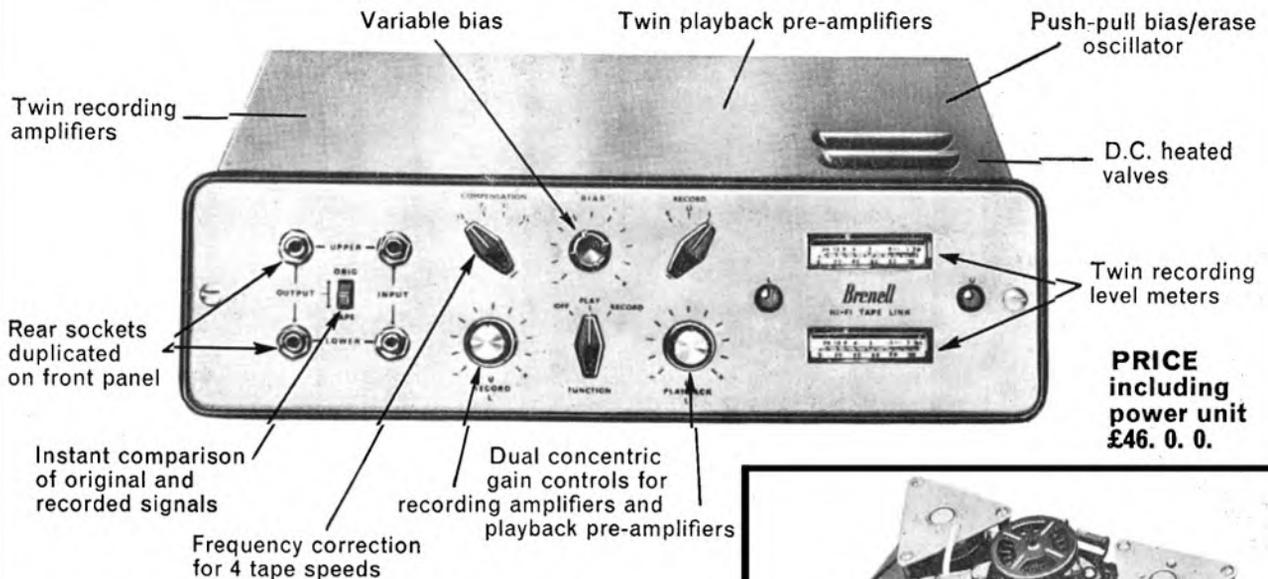
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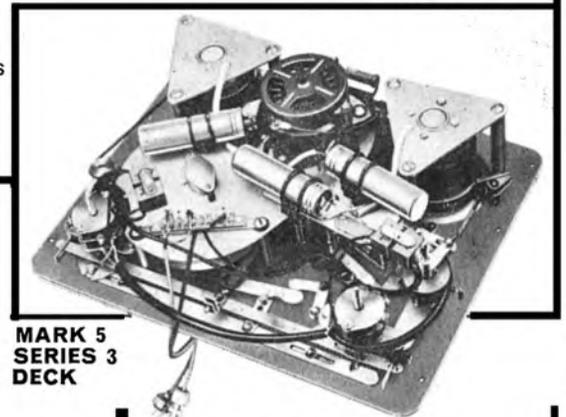
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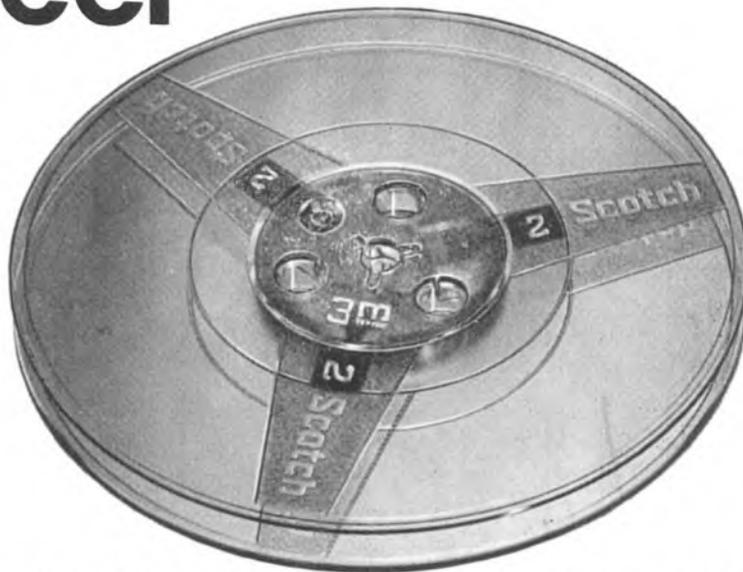
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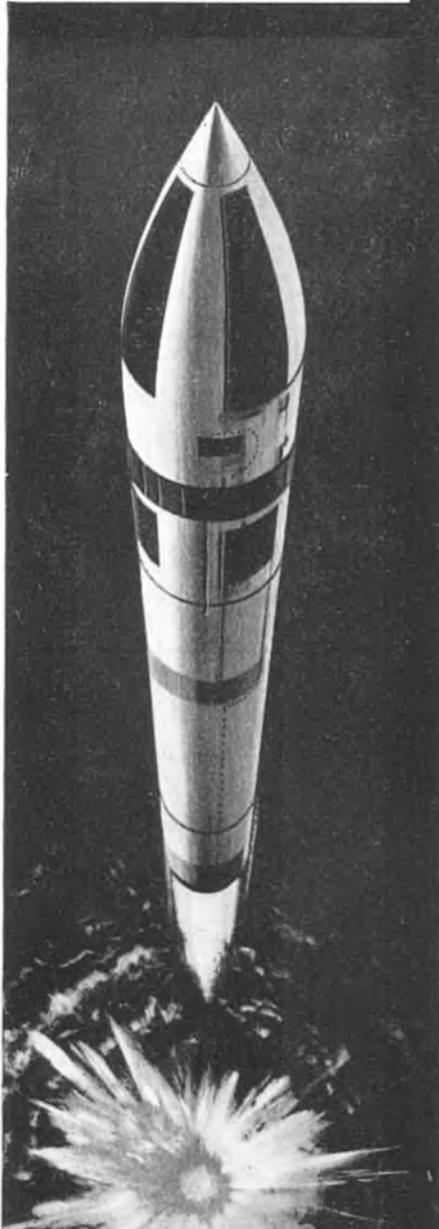
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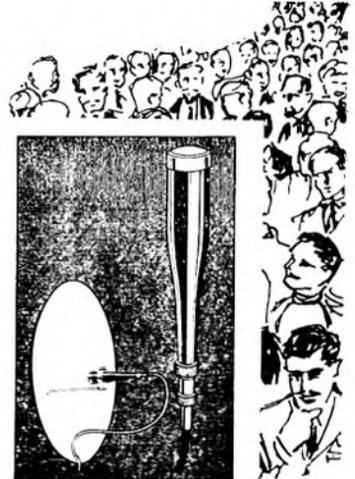
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Sony TC200	11 7 0	5 7 1	72
Beocord 1500	14 0 6	6 12 5	89
Philips EL3534	14 10 0	6 16 10	92
Tandberg 74	14 13 0	6 18 4	93
Sony TC500	16 10 9	7 16 3	105
Grundig TK46	16 17 1	7 19 2	107
Beocord 2000TM	18 19 0	8 16 8	119
Beocord 2000SC	19 8 0	9 2 11	123
Akai M8	23 0 0	10 17 2	146
MAINS 2-TRACK			
Ferguson 3210	3 15 9	1 15 9	24
Fidelity Playmatic 2	4 8 3	2 1 8	28
Wyndors 707 II	5 1 0	2 7 7	32
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Tandberg 823	8 10 3	4 0 4	54
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Tandberg 92	10 17 6	5 2 8	69
Brenell V Series 3	11 13 6	5 10 1	74
Reps R102	11 19 6	5 13 1	76
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Ferroglyph 632 2-T	18 18 0	8 18 6	120
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Elizabethan LZ34	5 1 0	2 7 7	32
Ferguson 3212	5 4 0	2 9 1	33
Philips EL3558 Teak	6 13 0	3 2 5	42
Grundig TK17L	6 15 6	3 4 0	43
Ferguson 3214	6 19 0	3 5 5	44
Grundig TK400	7 9 0	3 9 10	47
Grundig TK23L	7 14 6	3 12 11	49
Tandberg 843	9 6 0	4 7 9	59
Philips EL3556 Teak	9 15 6	4 12 3	62
Reps R10 Mk. II	10 17 6	5 2 8	69
Truvox R 104	12 9 0	5 17 6	79
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Optacord 408 Bat/Mns.	6 3 0	2 15 6	39
Telefunken 300 2-Track	7 14 6	3 12 11	49
Telefunken 301 4-Track	8 10 3	4 0 4	54
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SONY Model TC-357-4 is a 4-track monaural multi-purpose portable tape recorder with **SONY-O-MATIC** control, enabling speeches, lectures and interviews to be recorded without manual adjustment. Loud or soft, it automatically adjusts the recording level.

Other outstanding features include
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 ■Public address facility
 ■High performance SONY dynamic stick microphone
 ■Instant stop lever with lock facilities, speaker on-off switch, tape index counter, record lock button, professional levelmeter, individual recording and playback control, voltage selector.

Other tape recorders in the SONY range featuring the SONY-O-MATIC recording level control include

MODEL TC-900, a mains/battery portable with two track monaural recording and playback system at 32 gns. and

MODEL TC-135—an easy to carry two speed, two track extra lightweight portable with 5" reel capacity. Complete with highly sensitive SONY microphone. 28 gns.

Studio models also available—Send for details.

SONY

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A division of Debenhams Electrical and Radio Distribution Co. Ltd.

NAME

ADDRESS

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TRM I

SPECIFICATION TC-357-4

Power requirement: 100, 110, 117, 125, 220 or 240 volts, 60 watts, 50/60 cps
 Tape speeds: Instantaneous selection 7½ ips, 3¾ ips or 1¾ ips (19, 9.5 or 4.75 cm/s)
 Tracks: 4 tracks, monophonic
 Recording time: 45 minutes per track, 3 hours in total at 7½ ips (With SONY Tape Super 7) 1.5 hours per track, 6 hours in total at 3¾ ips 3 hours per track, 12 hours in total at 1¾ ips
 Reels: 7 inches or smaller
 Frequency response: 40–15,000 cps at 7½ ips 40–12,000 cps at 3¾ ips 40– 6,000 cps at 1¾ ips
 Flutter and wow: Less than 0.12% RMS at 7½ ips Less than 0.2% RMS at 3¾ ips
 Record/Playback head: In-line quarter track (2 channel)
 Erase head: In-line quarter track (2 channel)
 Bias frequency: Approx. 55 Kc
 Inputs: High impedance microphone input (1) High impedance auxiliary input (1)
 Outputs: High impedance line output (1) 8 ohm external speaker output (1)
 Speaker: 4 x 6" (10 x 15 cm) dynamic
 Power output: Max. 2 watts
 Tube complement: 6267 (x 1), 6AN8 (x 1), 6BM8 (x 1)
 Diodes: 1T22 (x 1), SE-05D (x 1)
 Weight: Approx. 22 lbs. (10 kgs.) (without accessories)
 Dimensions: 14.8"W x 7.9"H x 12.2"D (375 x 200 x 310 mm)

SONY®-O-MATIC

The tape recorder with completely automatic recording level control*.



**MODEL TC-357-4:
62 gns.**

*Can also be manually adjusted

Brand	Levels relative to Kodak P.200 tape			Absolute measurement levels		
	Low frequency sensitivity	High frequency sensitivity	Output at 2% distortion	H/F response at 12,000 c/s against a 400 c/s reference	Erase level	Modulation noise
Kodak P.200 Tape	0	0	0	+ 7.1	77.5	55
Brand 'A'	- 3.5	- 5.1	- 3.8	+ 5.5	75	52
Brand 'B'	- 0.3	- 5.0	- 2.3	+ 2.4	74	55
Brand 'C'	- 1.0	- 5.7	- 1.7	+ 2.4	74	54.5
Brand 'D'	- 2.8	- 10.9	- 3.5	- 1	72.5	55
Brand 'E'	- 1.9	- 4.7	- 5.0	+ 4.3	76	51.5
Brand 'F'	- 0.5	- 5.0	- 2.9	+ 2.6	78	54.5
Brand 'G'	- 2.3	- 4.8	- 3.0	+ 4.6	75.5	55
Brand 'H'	- 3.8	- 7.5	- 1.7	+ 3.4	72.5	55

See how Kodak P.200 Tape compares with other leading brands

Random samples of premium-quality Double Play Magnetic tapes on sale in Britain have recently been tested and compared.

The results demonstrate clearly that Kodak P.200 Tape is the *only* tape to provide both a better high-frequency response and a higher output level *without sacrificing other characteristics*. The advantages of this unique combination of features are obvious—whatever your recording need.

Study the chart above carefully, then try Kodak Tape on your own recorder and hear the improvement for yourself.

Kodak Tapes—Standard, Long, Double, Triple and Quadruple Play—are available through Kodak Photo Dealers everywhere.

To **Kodak** Ltd., Department 70, Kodak House, Kingsway, London, W.C.2.

Please send full details of the range of Kodak Sound Recording Tapes.

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Kodak sound recording tapes . . . the best tapes in the world



WHO SAID BEAUTY AND BRAINS DON'T GO TOGETHER?

This great new tape recorder is best in its price range for performance and looks!

Philips 'High Performance' Tape Recorder with Furniture Look Model EL3556 62 gns.

Whoever said beauty and brains don't go together was wrong! For Philips brilliant new High Performance tape recorder is more than a leader in its price range for performance, reliability and technical excellence. It also has Philips breakaway Furniture Look—it's a handsome, contemporary piece of furniture that's *designed to look right in your home*. Judge for yourself. Its technical features include four tracks, four speeds, separate treble and bass controls, powerful four-watt output through the 7" x 5" loudspeaker, a frequency response of 60-18,000 c/s at 7½ ips, a signal to noise ratio that's better than 47dB and Duoplay, Multiplay and Stereo playback facilities. In styling, too, it's way ahead. Rich teak combines with dark grey polystyrene to form the sleek cabinet. All controls are sensibly grouped, clearly marked for utmost operating ease. Supplied complete with moving coil microphone, L.P. tape, empty spool, and direct recording/playback lead.

Philips Family de luxe Model EL3558 42 gns.

Rich teak cabinet. Automatic recording control regulates recording level for you—manual control provided. Four tracks, two speeds. Mixing, monitoring and parallel track replay. Supplied with moving coil microphone, LP tape, empty spool and direct recording/playback lead.



Remember — PHILIPS Tape Recorders make ideal Christmas gifts!

To: Philips Electrical Ltd. (Dept. TM1), Century House, Shaftesbury Ave., London WC2
Please send details of Furniture Look recorders & free booklet 'All about Tape Recording'

Name.....

Address.....

PHILIPS—THE FRIEND OF THE FAMILY

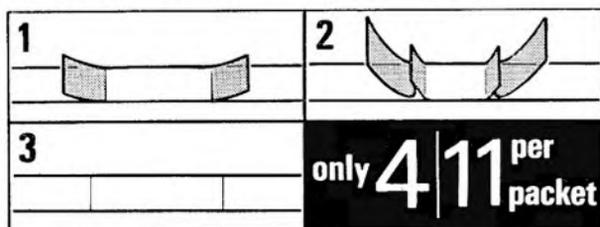
(PTRO129)

It's as easy
to edit a tape
as cover a cut—
when you

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TAPE

RECORDING
MAGAZINE

Vol. 10 No. 2 February 1966

IN THIS ISSUE

Tape trends and tape talk	48
<i>By the Editor</i>	
Win a Philips battery recorder	49
<i>Script editing contest</i>	
Editing and the use of sound in TV	50
<i>Alec Nisbett</i>	
Recording the sounds of nature	54
<i>Richard Margoschios</i>	
Dramatape Miscellany	57
<i>By Perspective</i>	
Crosstalk	59
<i>By Audios</i>	
Letters to the Editor	59
Test Bench	61
<i>Akai ST-1</i>	
Tape records reviewed	62
<i>Don Wedge</i>	
Jazz on tape	63
<i>Mike J. Gale</i>	
New Products	64
Tape Bookshop	66
News from the clubs	67
Tape Exchanges	67
Advertisement Inquiries Service	69

COVER PHOTOGRAPH: Since "TAPE Recording Magazine" published an article describing the achievements of the first man to build the necessary equipment for recording television on a domestic tape recorder (December 14, 1960 issue), many attempts have been made to market equipment suitable for an enthusiast's pocket. The realisation of this object is nearer still as our illustration this month shows: Fred Chandler considers an advert which appeared in a recent issue of an American journal introducing the Sony equipment selling at approx. £350. No definite news yet of its U.K. introduction, probably later this year.

"TAPE Recording Magazine" is published on the third Wednesday in the month, by Print and Press Services Ltd., from 7, Tudor Street, London, E.C.4.

"TAPE Recording Magazine" is available by a postal subscription of 25s. per annum (U.S.A. \$3.75) including postage, or it can be obtained at newsagents, bookstalls and radio and music dealers. In the event of difficulty, write to the Publishers at 7, Tudor Street, E.C.4.

Back numbers, if still in print, are available at 2s. 6d. per copy.

Address all communications

7 TUDOR STREET, LONDON, E.C.4

EDITORIAL

ADVERTISING

FLEet Street 1455

LUDgate 9088

Editor,
R. DOUGLAS BROWN

Assistant Editor,
FRED CHANDLER

Tape trends and tape talk

By the Editor

THE ORGANISING COMMITTEE of the British Amateur Tape Recording Contest has now agreed on the main lines of the 1966 Contest and I understand that some changes have been made to take account of points raised by competitors and judges last year and to encourage a bigger entry. There is also likely to be a bigger publicity campaign to arouse interest in the event.

Full information and an entry form will be published in *TAPE Recording Magazine* next month.

Meanwhile, the special Script Editing Contest which we are running in this issue will give our readers an opportunity to sharpen their talent in preparation for the bigger event.

* * *

THIS MONTH'S COVER picture shows the first advertisement for a domestic video recorder in the American popular press. I gather that other firms are hard on the heels of Sony. The 3M Company (Scotch) have promised a low-cost video recorder early this year, but the evidence suggests they think it premature to go for the home market—their emphasis looks like being on the educational field.

Ampex, on the other hand, are galloping ahead to thoughts of colour video in the home. Most interesting point about their talk on the subject is a suggestion that standard speed for home colour video machines will be 9.6 inches per second. I look forward to hearing more. Are we going to have to get used to an entirely new set of standards in the next few years as video invades the field?

The other current American talking-point is the cassette tape player for cars. The motor companies are setting the pace here—Ford with an eight-track tape unit providing stereo music for the motorist, but most other concerns are satisfied to offer four-track.

Even the taxis are stereophonically equipped in American cities. The BBC correspondent in Washington, Gerald Priestland, recently gave us a warning of what to expect when the boom hits Britain.

He called a taxi, "fopped into it with a sigh of relief. We started moving. All of a sudden there was a tremendous blast of trumpets from the shelf at the back. I whipped round in time to receive, on the back of my head, a counterblast from under the dashboard. The taxi, it appeared, was fitted with a stereophonic tape player.

"Not only that, but the driver was a good music lover, and we were in the middle of Berlioz's Requiem Mass, probably the most devastating piece of music ever written, scored for an orchestra of 250, a choir of 500 upwards, at least 40 extra brass, and a minimum of sixteen kettle drums.

"And there I was shut up with them all, inside an air-conditioned stereophonic taxi, right in the middle of the 'Dies Irae'—Day of wrath, oh day of mourning."

"As we came to the 'Tuba Mirum,' the last trump, the driver—a Negro called MacPherson, by the way—switched on a little box labelled 'reverbomatic.' Instantly the taxi became the acoustical equivalent of St. Paul's Cathedral. Cavernous echoes reverberated around us as the sixteen kettle drums went furiously at it. By the time I got home I felt as if I had actually attended the Day of Judgment and been found guilty."

Can you produce a good working script for a documentary tape?

To encourage more careful consideration of the artistic demands made by creative tape recording "TAPE" offers, in conjunction with Philips Electrical Ltd., one of their EL3300 portable recorders in this special Script Editing Contest.

GOOD TAPES ARE recorded and compiled in various ways. Occasionally, with good judgment and good luck, one may go out with a portable, switch to record, and come home with a tape that is complete, coherent and artistically successful without any further work on it. But never count on luck like that.

What is more likely is that you will have a subject in mind, will then collect a series of self-contained sound sequences, in no particular order, and will finally have to select the best passages from them, place them in proper sequence and provide narrative or musical links.

Again with luck, you *may* manage to do this editing by ear, without a working script; but it will not happen often. More probably, you will have to set down on paper a working script and then edit, record and re-record from that.

It is to encourage this artistic (as distinct from the technical) side of the editing process that we announce a special competition for readers.

Imagine you have resolved to make a documentary tape on the passing of the steam locomotive on British Railways. You have been out with a battery portable and you have recorded the interviews and the sound effects set out on the facing page. This is the raw material from which you must shape your finished tape.

Not all of this material may be worth using. Some of it may need to be reduced in length. Possibly, some of it might be suitable for repetition at different points in the programme. Interviews may be improved by deleting the questions and running on the answers one after the other. A musical introduction may be thought desirable. A narrator may be introduced to link the material.

These are the matters competitors are asked to decide. Select from the material on the facing page that which you think would make the best tape, rearrange it in the order you feel desirable, add suggested narrative or ideas for musical background, so that you produce a finished script from which to record the final tape.

You may only *add* to the material provided opposite the linking narrative which you would supply with your own voice or your suggestions for appropriate musical links. You may not add additional interviews or sound effects.

And your finished script should be suitable for recording a tape of eight minutes' duration.

Entries should be sent to *TAPE Recording Magazine* Editing Contest, 7 Tudor Street, London, E.C.4, to arrive not later than March 1. The Editor's decision will be final.

SCRIPT EDITING CONTEST

Win a Philips EL 3300 cassette recorder!

TAKE 1

Interviewer: Good morning. I'm making a tape about the disappearance of the steam locomotive. I wonder if I may ask for your assistance?

Engine-driver: Well, perhaps. Hmm . . . yes, if I can help, mate. What d'you want to know, then?

Interviewer: How long have you been an engine-driver?

E.D.: Oh, nearly thirty years.

Interviewer: So you know all about driving steam locomotives?

E.D.: Know about 'em. Not 'alf. Reckon I've handled about . . . hmm, let me see . . . well, about a score of different engines altogether—everything from pannier tanks in the yard to the old King class locomotives on the Devon expresses. They were the ones, the Kings: marvellous machines—give 'em their head and they'd ride down through Theale cutting at 85 miles an hour and you felt like a king yourself, standing on the footplate. And for anyone watching on the station platforms as we flew past, well, there was the gleaming copper and brass, shining green paint, and power . . . ah, yes, power packed into one of the most beautiful machines you ever set eyes on.

Interviewer: So you regret their disappearance, do you?

E.D.: In a way, in a way . . . but, of course, it's much more comfortable now in the cab of a diesel. Nice seat, all enclosed, you're not exposed to the weather in the same way; and, of course, no shovelling coal for the fireman. Oh, it's much better, really. But the glamour's gone . . . you know?

Interviewer: Thank you very much.

TAKE 2

Sound effects: total running time of two minutes, comprising noise of escaping steam from locomotive cylinders, rhythmic beat of pistons in cylinders, exhaust belch of steam from locomotive chimney, metallic clank of coupling rods as wheels turn as locomotive moves slowly forward at the locomotive running sheds.

TAKE 3

Sound effects: total running time of one minute thirty seconds as train is heard approaching from distance (thirty seconds), loco passes (three seconds), carriages pass with rhythmic clatter of bogies on rail joints (17 seconds), train recedes into distance (forty seconds).

TAKE 4

Interviewer: Good morning. I'm looking for an ordinary railway traveller to have a word with, for a programme I'm producing—a documentary programme on tape about travel by train. Would you mind if I recorded a short interview with you?

Lady Traveller: Well, I don't suppose I can help you very much. I don't really know much about it, I'm afraid.

Interviewer: Do you travel by train very frequently?

L.T.: Oh, about three times a year, I suppose: only when I go to visit my mother at Gloucester.

Interviewer: Do you ever notice what sort of train it is? Whether the engine pulling it is steam or something more modern?

L.T.: Good gracious, no. Aren't all engines steam? By the time I find a seat in a clean compartment, I've no time to notice much else. As long as the train gets me to my destination at the right time—which it very often doesn't—I couldn't care less what pulls it there. It might be a team of camels, for all the notice I take.

Interviewer: Then it isn't going to worry you very much when the last steam locomotive disappears from British Railways?

L.T.: Well, I don't know. When I was a girl we used to have the main line at the bottom of our garden and we used to go down among the apple trees, a group of youngsters, and sit in the grass and watch the fast trains go by, and it was very exciting, really, and I shall be sorry if my children can't do that any more. Yes, of course, I *used* to notice that the engines were steam, when I a child. What are they now, then, electric?

Interviewer: Well, there are some electric, but not on this line. Mainly diesel now.

L.T.: Oh, I wouldn't know anything about diesel. Sounds very messy to me.

TAKE 5

Interviewer: Are there any steam locomotives at all coming into this station now?

Station Master: The last one was here in December, and there won't be any more. We had a ceremonial send-off. No, they're all diesel locomotives now.

Interviewer: Are you pleased about that?

S.M.: *Very* pleased. Much cleaner, of course. This station used to need fresh paint every two or three years and it was very difficult to keep it smart. It's much better with diesel locomotives. Then, of course, we get better time-keeping, fewer trains late, so fewer complaints from the customers. *That's* the most important point; it's better for the customers in every way: cleaner and faster.

Interviewer: You've no regrets about the disappearance of the steam loco?

S.M.: None at all. It was a part of history, but we've got to move with the times. Our job is to give efficient service, and you can only do it with modern equipment. Sometimes I think there's been too much nostalgia among railwaymen.

TAKE 6

Sound effect: three shrill blasts on the whistle of a steam locomotive with background of escaping steam—suggestive of a train about to leave. Duration: six seconds.

TAKE 7

Interviewer: Hey, sonny, you a train spotter?

Small boy: That's right. Why?

Interviewer: Seen any steam locomotives today?

S.B.: No, of course not. There ain't any, any longer.

Interviewer: What you watching for, then?

S.B.: Oh, anything. They're all diesels now. I take their numbers. Some of 'em have got names, too. But it's not like the others. They nearly all had names. Good names, too. Did you ever see Clun Castle? She was the last steamer that came in here: looked smashing, she did. They'd cleaned her all up.

Interviewer: Do you come train watching as much, now they're all diesels?

S.B.: S'pose so, but I never wait long enough to see the 8.3 come in now. Used to have rows with me Mum over that before, 'cos I was supposed to be in by eight. But that's how I collected all the Castles—I wouldn't have seen 'em otherwise, Mister. But I'm not getting into rows for diesels.

TAKE 8

Passenger: What time does this train get to Paddington?

Porter: 4.30, sir.

Passenger: Oh, I thought it wasn't until five something.

Porter: Used to be, sir, but they've speeded it up now . . . since they had the diesels, you know.

AS the guy carving tape on the cover of last September's *TAPE*, I'll certainly—in fact, predictably—offer a hearty “hear, hear” to Paul Beard's article on tape editing. But I'll take issue with him on a couple of minor points.

First, that practice of copying before cutting. As a professional BBC producer I used to do that once in a hundred times. I did it when I had an hour and a quarter of interview with Dr. Barnes Wallis and thought BBC archives should have it. And for a series of scientific interviews which several services were going to use, but cut in different ways. Even in these cases I cut out a few false starts, major fluffs and irrelevant stoppages. Keep the master tape whole . . . when? For plays? No . . . the original would be cut. Music? . . . perhaps.

In certain circumstances, where there is a spare recorder, a duplicate recording is made, primarily to save the embarrassment and waste of time that a technical fault in the recording could cause. And for, say, royal events and important public occasions this would be retained as a cover.

Apart from such material, which really is unrepeatable, it's up to the producer concerned, whether a programme is copied or not—and he would have to

CREATIVE RECORDING

Editing, and the use of sound in television

By ALEC NISBETT

bear in mind the cost. My own tape usage was high—because I always made a lot of recordings for a lot of programmes. Copying would not only cost more for tape, it would also use a recording engineer's time and equipment in addition to cost of storage and documentation. Also it would be a potential source of confusion, as others could get mixed up as to which to use for what

purpose if the paperwork didn't make it clear.

In a place like Bush House, where there are umpteen different external services, quite a few of which are in English and all of which could use actuality recordings, paperwork envisaging all possible future uses would be impossible. Often, too, the unedited original would not be a tape I would play to another potential user—why should they hear all my coughs and irrelevancies? If I had a reputation for having good material, at least part of it lay in my editing.

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So, I *always* edited originals. I'm not sure if that's what it said in the book of rules, but the way I worked, it seemed the best for getting good programmes and a lot of them. The book of rules certainly did say that producers don't edit tapes—finally, that is. He is permitted to make rough cuts and then present them to a trained editor. The final tape and any transmission tape must be edited by the specialist. He would do the job on a very expensive tape recorder—though with the same single blade and block as I use.

I, in my office, would edit on an ancient Ferroglyph which was in continual communal use for sixty hours a week and was in constant danger of being run into the ground. The heads were worn down by years of abrasion and the automatic stop generally (and mercifully) broken by rough use. (It gets in the way and the sharpened edges at the gap tear open the joints.) But I worked very fast—on original tapes.

They were *insert* tapes. That is to say, they were the constituent parts of a magazine programme or feature which would be "played in" and re-recorded as the narration was added. There might be a hundred cuts in the insert tapes for a fifteen-minute programme. After the final recording a few more cuts would be made by a recording engineer, under my supervision, to adjust the duration "to time," to cut narrator fluffs, miscues, or retakes. After that the "master" tape was copied to perfect tapes, perhaps fifty times for despatch to the fifty broadcasting organisations all over the world that wanted topical material from us.

Recording companies presumably work the "careful" way more than we could. But they, like us, and the amateur as well, would be keeping in mind the final cost if anything went wrong. And if the major investment is in artists and expensive recording sessions it may be cheaper to waste a bit of tape.

Of course, editing originals means you have to edit right most of the time. This is a matter of experience. Even so, I'd sometimes take a chance in cutting into a word and then find it didn't work—it would be an inflection which the speaker wouldn't have used, perhaps. Then you simply put the bit back. Making mistakes is time-consuming but not fatal.

Incidentally, you must always edit towards what the speaker might really have said in the context in which you place him. I don't think a speaker has ever felt aggrieved at the way I've edited him—other than perhaps to wish that more time could have been given to his subject. But you can't find time for speakers who treat the microphone as a cue to express platitudes—and I include amongst platitudes, *expected* lip-service opinions from interested parties (of which we get plenty in all media of communications). The opinion of the Secretary of the Campaign for the Suppression of Bad Smells is only of interest to the public when he says that *this* smell is marginally acceptable. (Or of course when he is providing new technical and olfactory evidence.) But that's a digression.

The point I started out to make was that you can nearly always repair editing mistakes—unless you go in for dumping all the bits on the floor before you've checked the edit. Or unless—and this is a way of doing it I don't like—you don't trust your mark and shave bits off, a tenth of an inch at a time until it comes right. If you're trying to cut in between two words that have run together it may never come right, and then you've had it.

There's one other point I take issue with in Paul Beard's otherwise excellent and concise account of editing—and this is purely a personal thing on which many readers will



David Hicks, the interior decorator in "All sorts to make a world" on BBC-1, Summer 1964; On the right, Alec Nisbett doing a "Hitchcock." This illustration was one of a series of stills used with separately recorded dialogue, effects and radio-phonetic music for a special 2½-minute sequence.

BBC photograph

have views which will be different again. I don't think editing at 15 ips is in fact easier than 7½ ips. (I think I once wrote in these pages that in principle it should be, but if so I've changed my mind.) Unless you have the large ten-inch spools of the professional recorder, it's too much fag pulling the tape backwards and forwards at 15 ips. And with increasing experience I found that you don't need the extra space that it gives you to get the blade in. 7½ ips is my speed.

Readers who edit at 3½ ips will probably tell me that 3½ ips is fine as well. I've never used the speed so I can't tell. Perhaps it just depends on the speed you're used to.

The astute reader will have noticed a certain use of the past tense in the above account—plus, perhaps an occasional tone of nostalgia. Alas, the truth is, I'm no longer a BBC sound radio producer—a fact which does make me a little sad in my weaker moments. For when BBC-2 came over the horizon the call went out for new TV production staff—and I added my bit of paper to the roomful they got in reply. After a few interviews in which I was uncharacteristically, distinctly aggressive I found myself working for "Tonight"—and since then directing film and outside broadcasts. So far, as a new boy all over again, I've made plenty of mistakes. And I was surprised to find how many of them were on the sound side.

I never knew sound was so important until I hit television. Well, maybe I did in theory, but after a few of my new betters had looked me accusingly in the eye and said: "The sound supervisor should never have accepted that!"* I found that practice was the same as theory, only more complicated.

* This is a polite way of saying "You may not have been able to hear the sound, but if you're directing you're responsible for the show just the same, so next time bring it back good, boy."

The theory is that when you watch television—"watch" is the operative word: vision takes precedence over sound as a medium of communication. What happens in the picture claims our conscious attention; what happens in the sound does not—unless the impact of the sound is exceptionally great, or the picture remarkably dull.

So, eye takes precedence over ear. This is the basic rule of television, and it leads to a lot of subsidiary rules about the communication of ideas which are widely quoted by the pundits and widely observed by the practitioners—especially in places like TV commercials, there they are playing for keeps.

So, they tell you, express your ideas in pictures—if you can. But if you have to use words which have no simple direct pictorial image, you can use pictures which support and amplify the words—though this is dangerous, as the picture will tend to appear as the main line of the argument and sound a mere embellishment upon it. Or you can allow picture interest to exhaust itself temporarily. This is fine if used at the same time in a sort of picture-music, with a deliberate variation in pace and style. (You won't see much of this in commercials though—there's no time for it.) The danger here comes from distracting detail—the clock on the mantelpiece behind the talking head may cause the audience to miss a vital point. Or disqualification may be self-inflicted by a director who just can't take the picture going dull—even temporarily—so he works his interview in front of, say, a fascinating herbaceous background.

But by and large the safest and quickest way to acceptable (and, indeed, good) television is to make up a series of eye-catching moving pictures and to use sound to support and strengthen the effect.

A by-product of this precedence of eye over ear is a concentration of effort and attention on picture both by director and by critical members of the audience. Taken as a separate element of production, picture

(Continued on page 53)

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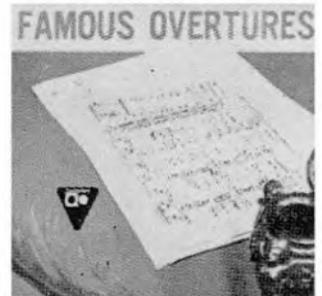
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Editing and the use of sound in television

(Continued from page 51)

can be either praised or blamed. But sound will only be blamed, because if it is doing its job well it will not be noticed.

Disgruntled readers who don't think that, so far, I've made much of a case for sound, stay tuned, your time has now come. Because this is where I declare sound to be the secret magic super-ingredient of television.

"Magic," in the show-business sense, is a trick which achieves an object while concealing the means. Such, for all but, perhaps, the reader of this magazine, is good sound. And as with many of the best "magic" tricks its success depends on how the attention, the eye of the audience, is held and used. If the success or failure of a programme is allowed to rest primarily on picture there is a fair chance that the audience will know why it is good or bad. But if sound is used well (but not flashily) the programme may be a great deal better than its more obvious qualities would suggest.

So far, so good. But when you get into television from sound radio, as I did, you can make mistakes of over-compensation. You want to get all those fussy microphones out of the picture. You have to in drama, of course, but that's not my line of country.

the ties were exceptionally thick or the microphones were, but we returned with distinctly woolly sound. I didn't know at the time, and it wasn't my direct responsibility but just the same it was my film; my reputation as a director rested upon it. I learned—or should have—that you don't take chances on things you haven't had a personal opportunity of checking. People can stand seeing the microphone. Nevertheless, I went right on and made another very similar mistake.

It was on Shepherd's Bush Green; the item was a light vox-pop Fyfe Robertson and "It's February the twenty-ninth—if you wanted to propose to me how would you do it?" The results were very funny, but again I very nearly wrecked it on sound. In the interests of not having too long a walk for my interviewee-collecting assistants I'd set up shop too close to the edge of the green. Even with a stick microphone held fairly well up, the traffic background was wearing, and it took all the skill of the dubbing boys to correct it and make it bearable.

And so, I found time and time again, sound is terribly vulnerable. In filming you can rarely hear it under adequate conditions until you get back to the studio and even

Because noise was an intractable problem it, too, had been smoothed over, and as often as not replaced by busy industrial mood music.

Instead of this we went in with four electronic cameras and a range of effects and interview microphones and recorded in chunks of three or four minutes at a time. For interviews we used two omnidirectional microphones, and told interviewer and interviewee to hold them just away from the lower lip. At times they couldn't hear each other, but we could always hear them, clearly. The effect was tremendously exciting. It conveyed the atmosphere, in sound, better than any film treatment—and also the danger, which was real: at one place a film crew had been killed trying to do what we were doing; at two places there were accidents to workers (not through anything to do with us, I'm happy to say).

This again was a lesson in the use of sound; the deliberately unorthodox use of sound. If it hadn't come off it would have been just too bad, because the essence of electronic TV is that what you put on the tape is the final product, fully mixed. There are ways of getting sound and pictures apart, uneconomically—but you can't unmix the sound.

The most satisfying bit of sound work I've done (or rather, arranged) since coming to television, was in a "Tonight" summer replacement in 1964. It was about the interior decorator David Hicks. With the exception of two scenes filmed in a client's house the whole thing was set in his offices, an unusually constricted space for a "built" outside broadcast. For one scene we wanted to make an "out-and-about" sequence of visits to an upholsterer, a metal-worker, an antique shop and a Sotheby's auction. Instead of filming, as we could have done, we used a technique which is not so popular with the public—stills.

We took a lot of stills. At the same time we recorded fragments of sound, stylised bits of conversation and background sound; in the case of Sotheby's we made up a little auction for a chair that sold at thirty pounds. As soon as I'd seen the photographs, I edited the voices. Each of our four auctions was in two parts: a looking around part, and a "scene" with voices. The tape had "spacers" in, calculated to the second for how I was going to use the pictures.

I then handed it over with the sound effects to the Radiophonics Workshop, indicating how the semi-realistic backgrounds had to be used—three bangs on an anvil here, a sewing machine there (again timed to the second). Radiophonics, in the person of John Baker—there was an absurd no-credits rule which prevented us naming him—did a superb job using a bubbling base line and a jolly harpsichord top that came and went between the dialogue.

The pictures were all blown up to 12 x 9 inches except for the ones where we were going to use camera movement or zooms; these were mostly 20 x 15 inches. Then we took the whole lot out on the outside broadcast and with four cameras "shot" it to music. It took five attempts to get it just right, with four stage managers "pulling" the photographs on their easels. It all moved very fast, fifty-two pictures in two and a half minutes—with movement on many of them. With the most economical use of film you couldn't have got the same effects in under four minutes, and certainly not achieved the formalised quality which was so appropriate to its subject.

Afterwards we studied the public reaction. As I had expected, some viewers felt that we were doing things a bit on the cheap, using stills and that. You can't win 'em all.



At Richard Thomas and Baldwins, Newport, Idris Jones, "the L.D.", has his microphone half-an-inch from his lips and was clearly audible in conditions where Jack Ashley, interviewing (right) could hardly hear him. A lip microphone would have cut out even more of the background sound but this is undesirable for in-vision work; and in any case the sound of the converter was wanted for "atmosphere." This was the first of a series of outside broadcasts called "Steel" for BBC-2.

BBC photograph

On "Tonight" they wanted an interview with the very distinguished aeronautical engineer, Dr. Barnes Wallis. Knowing him from my sound radio days, I was sent off to direct the film, which was to be made in his own office at Weybridge. The crew had brought, and recommended, a boom microphone. I turned it down because (a) it doesn't help the lighting, especially when you're working in limited space, and (b) I envisaged a few fairly long takes. (On location, booms are hand-held, and kindly directors don't ask boom swingers to collapse for the sake of art.) Instead I used lanyard microphones, hidden behind the tie. Either

in O.B. work the conditions in the "scanner" (the place where the director sits and pushes the buttons, and does a great deal more talking than listening) make it difficult.

The worst sound problems I've ever had were in a series of programmes called "Steel," somewhat unpromisingly placed in Tuesday Term on BBC-2. The problem we set ourselves was to do the main part of each half-hour as an outside broadcast from a steelworks. In the films we'd seen about steelmaking and working the techniques used had, it seemed to me, helped to smooth over the essential roughness of steelworks and grandeur of scale of these remarkable places.

RECORDING THE SOUNDS OF NATURE

RICHARD MARGOSCHIS, past winner in the British Amateur Tape Recording Contest, and a keen enthusiast of bird-song recording, relates his experiences in the field, describing his approach, methods and equipment used. Next month, he describes the construction of a parabolic reflector and advises regarding the choice of microphones.

DURING the winter months I had spent most of my spare time building a portable recorder powered by a clockwork motor (described in *TAPE* February 24, March 9 and 23 and April 6, 1960). In the following April I took the completed machine into woods near our home, woods which are on the highest spot in Warwickshire and within view of the Sutton Coldfield TV transmitter. The recorder was placed on the damp earth and the high impedance crystal microphone suspended in a tree some ten feet above it. This was my first attempt at recording nature—nature in the form of bird song.

Back home the tape was put on the mains recorder and replayed. Yes, there was bird song on the tape, of a sort, but also a very passable recording of a BBC television broadcast—sound only of course!

All that happened over six years ago and for some time I made no further attempt to record nature. I realised that changes were necessary in the available equipment and my knowledge of birds and beasts was very limited. Today, writing this in our touring caravan nicely situated in the middle of a field with views of the Cotswold hills before me, I can hear, and recognise, the songs and calls of many birds.

Two lessons had been learned on that first outing. Firstly, for *real mobility* my home-made recorder was much too big and heavy, and of course my choice of microphone was not the best. And

for this reason I wish to discuss methods of approach and knowledge gained at first hand from other people with similar interests.

The first consideration is obviously the most important piece of equipment—the recorder. What then, are the points to consider when purchasing an instrument specifically for the purpose under discussion?

WEIGHT AND SIZE are, to me, of prime importance and linked with them is the arrangement for carrying. When recording the sounds of nature you will generally be travelling on foot and often it will be necessary to carry equipment for considerable distances. Under such circumstances a weighty machine which has to be carried by an uncomfortable handle can be quite depressing and, without setting it down, requires two hands to operate. The answer is a small machine hanging on a good strap and resting comfortably at the side.

QUALITY of recordings obtained is another prime importance factor and linked with this is tape speed. Although many of the recorders which operate at $3\frac{1}{2}$ ips, and slower, give quite satisfactory results, a tape speed of $7\frac{1}{2}$ ips is most desirable for the original recording. At this speed quality is

improved, and copying and editing made very much easier. Whatever the final choice of speed it must at least be a constant and standard speed.

RECORD LEVEL is now being indicated by tiny meters on some battery portables. My experience of meter indicators is slight and so I cannot comment on their efficiency. In some ways they might have the edge on a magic eye, but whatever the indicator it must be used in the light of experience. A magic eye is sometimes difficult to see in bright sunlight unless screened by the hand, but can always be seen in the dark!

EASE OF OPERATION is all important. As the recorder is hanging at your side the controls must be handy for operation with one hand, and the record level indicator visible at a quick glance. If the spools are not actually visible then a means of indicating how much tape is left should be provided.

SPOOL SIZE depends not only on the size of the recorder but also on its shape or the way in which the spools are mounted on it. Some quite large machines take only three-inch spools because of the way they are mounted. The spool size and tape speed together govern the duration of any one recording. When waiting for an infrequent sound this can be of prime importance, but modern double-play tapes can provide up to fifteen minutes per track on a $3\frac{1}{4}$ -inch spool at $7\frac{1}{2}$ ips, and with the new triple-play and quadruple-play tapes the time can be further extended. Consequently, to me, the large spool is not an absolute necessity but what is very important is the ease with which spools can be changed and re-threaded. In this, of course, practice makes perfect.

BATTERIES can add a lot of weight, especially when carrying a spare set; a point which has to be accepted. Separate battery supplies should be provided for the motor and the amplifier to prevent motor noise being recorded. An important point is the type of battery used. These should be easily obtainable to prevent difficulty when in out-of-the-way places. Most recorders provide some means of checking the state of the batteries, but it is worth doing a test to see that tape speed is constant and standard when the batteries are nearing the end of their useful life. Watch re-chargeable cells. My experience is that the time comes when charging, and consequently the power stored, becomes erratic and virtually useless. Because they are not easily obtainable I have provided myself with an emergency power pack using dry cells which can be purchased anywhere.

A MONITORING point to enable the amplifier to be used for listening is of great assistance, but to be of greatest use it should be useable with the tape stationary, and provision made for quick starting of the tape when required.

There are a number of other facilities regarded as standard on mains-operated

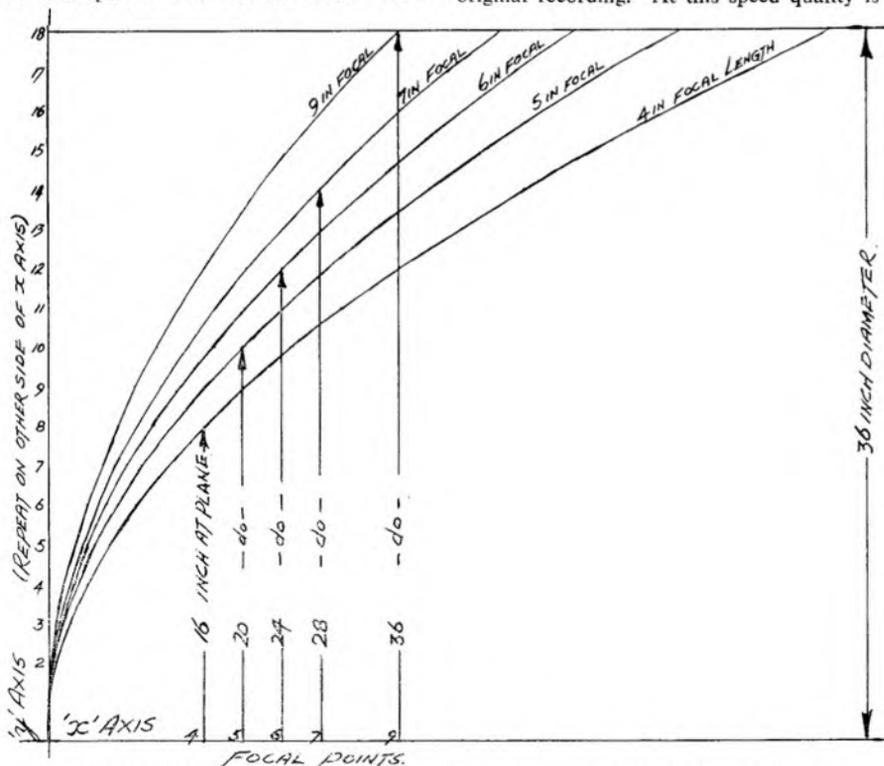


Fig. 2. Parabolic curves, showing the relative measurements of the angles of acceptance, and focal lengths

RECORDING THE SOUNDS OF NATURE

machines which are now being fitted on battery recorders. Tape position indicators, fast forward and back winding, and facilities for monitoring off the tape can all be provided. However the two latter features considerably reduce battery life and increase the size of the machine. Are they really essential for the job? If one machine is used for work in the field and at home then the answer to that question might well be—Yes. I prefer a separate machine for use in the field, and whilst it can be of considerable use for various purposes at home it does not need to have all the trimmings.

A final point about the recorder, but a very vital one, is its reliability, and perhaps a "do-it-yourself" enthusiast might consider the possibility of being able to rectify faults or even do modifications.

Five years ago my own choice for field work was the Fi-Cord 1a, and after carrying out certain modifications to it (described in the June 1965 issue of *TAPE Recording Magazine*) I consider my choice was absolutely correct. In fact I am considering the purchase of a second machine for this work and again I will obtain a Fi-Cord 1a, although this machine is now discontinued in favour of the larger Fi-Cord 202a.

Having given fairly detailed consideration to the recording end of the equipment it seems logical to now consider the end which produces the electrical signal which is to be recorded. This is essentially the microphone, but this instrument can be assisted in its work by means of a collector, or parabolic reflector as it is more generally named.

If a microphone is pointed at a sound source, such as a bird, the beam of sound collected will be roughly equal to the diameter of the instrument—generally about one or two inches. Now mount that same microphone correctly in a reflector and direct the reflector towards the sound source; the microphone will now receive a beam of sound equal to the diameter of the reflector, which might be anything from eighteen to thirty inches. The curve of the reflector is so arranged that sound waves falling on any part of its surface are all reflected to a focal point. Providing the microphone is placed on this focal point it will receive the full benefit of the reflector's diameter with a resulting lift in the strength of the signal by some 10 to 14 decibels. (See Fig. 1.) This is of great assistance when recording nature and it is difficult to get near to the subject.

The amount of lift given to a signal by a reflector of a convenient size will not be equal in all parts of the sound spectrum. It will, in fact, be greater to the higher frequencies than to the low ones, and will vary according to the diameter of the reflector, due to the wavelength of the sound. The greater the diameter of the reflector the longer the wavelength, and so the lower the frequency, which it will collect.

For satisfactory collection of a human voice a reflector some eight feet in diameter is required, but fortunately most of the sounds in nature, and bird song in particular, is in the higher range and so reflectors from eighteen to thirty inches are normally used satisfactorily. Nevertheless, there are some sounds of nature, and some bird calls, which are of such a low frequency that the normal reflector cannot handle them properly. The effect of this is that the high frequencies are accentuated, and whilst this could be troublesome if recording a sound containing a wide range of frequencies it can be a help when recording bird song if extraneous low frequency noises exist at a low level. I think that the advantages of a reflector for recording bird song far outweigh its disadvantages.

Another effect, and benefit, of the reflector is that it makes an omni-directional microphone directional but, from what has been said in the previous paragraph, it will be more directional to high frequencies than



The author seen with his home-built parabolic reflector

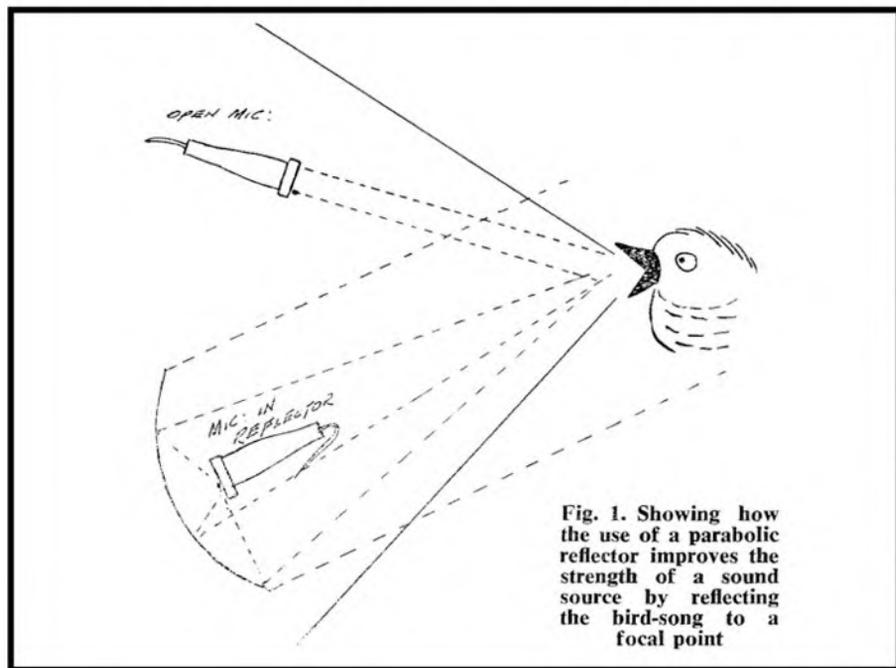
to low ones. The degree to which the microphone becomes directional also appears to be affected by the actual shape of the reflector, this can vary within certain limits as will be mentioned later. From a rough experiment I found that my twenty-inch reflector falls off at about 45 degrees on either side of its axis, but the 24-inch Grampian has a wider angle of acceptance and is therefore not so directional.

There are advantages and disadvantages in each curve for a reflector. A shallow curve may have its focal point in front of the plane of the reflector and whilst it covers a larger collection area it is more susceptible to trouble from wind blowing across the microphone. A deeper reflector, with the focal point inside its plane, will give some protection from the wind. My own favourite is a compromise, it has its focal point on the plane.

If you wish to set yourself up with a reflector there are several courses open. So far as purchasing one ready made is concerned there appears to be little choice, the only one regularly advertised is the Grampian. This reflector has a focal length of about seven inches, the focal point being some two inches in front of the plane. (See Fig. 2.) I can highly recommend it as a ready made job.

It is possible to purchase reflectors constructed for photographic and other lighting purposes. Providing that they are parabolic they can be fairly easily adapted by the addition of a microphone mount and sighting arrangement.

The other alternative is to construct the reflector yourself and so have complete freedom of choice on the question of diameter and focal length. Next month I shall describe the construction of my own reflector, seen above in use, and also discuss the merits and otherwise of specific microphone designs.



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Miscellany

By PERSPECTIVE

WHY are battery tape recorders so often associated only with summer? Many outdoor sound-effects are recordable in the depths of winter—and at night.

Frequently, conditions in winter are better for recording than in summer; there is less noise and individual sounds are better defined. Nocturnal sounds are particularly sharp.

You can, for example, record a passing train from an almost incredible distance—and still have plenty of gain in hand. In daylight, however, the middle-distance would be cluttered with unwanted noises; in getting close to the train (to avoid the noises) you tend to introduce distortion.

The listener, of course, won't realise that your clear-cut train-effect was recorded in the suburbs at midnight. Depending on the play, it can represent a train rattling across a sunlit pasture. Sheep and birdsong, mixed in from another recording, would readily assist the illusion.

COMPOSITE EFFECTS

But don't imagine that composite effects are necessarily achieved by mixing. Sometimes, it is technically preferable to produce them by operating effects-gadgets *in conjunction* with "real" sound. This can be a splendidly complicated procedure—complete with an outdoor loudspeaker. But simpler

(possibly cruder) methods are often just as good.

Recently, for example, I produced a sketch in which a warder's footsteps approach a cell-door at the end of a stone passage. The door is briefly opened and a line of dialogue spoken: *At dawn you die!* The door is then slammed shut and the footsteps depart.

The structure of this effect falls into two natural units. There is a pause between the opening and closing of the door. Always record your effects in a similar fashion: *unit-by-unit*. Subsequently, of course, the pauses between each unit are snipped out—the recording then appears to have been made "all in one go." Apart from giving you a valuable breathing-space between the takes, a pause is frequently essential for the simple insertion, later, of the dialogue—or even other sound effects.

To return to my example. Late at night I positioned the microphone (on a tripod) on the concrete foundation of a building-site. My assistant producer then approached the microphone in a pair of hiking shoes. The isolated "ringing" of his heels suggested a sinister and desolate passage—although the site was quite open on all sides.

He halted at the imaginary door. I then jingled some keys and (for the opening hinge) turned the squeaky wheel of an inverted wheel-barrow. We then allowed a pause—for the splicing in, later, of the speech—and then proceeded with the second half of the effect. I simply plonked a flat bar across an open water-tank. The resonant clang suggested, very aptly, the closure of the heavy door. My assistant then turned and stalked off into the distance—having forgotten, of course, to lock up his prisoner! A jingle of keys

(preceding the departing footsteps) was therefore not included.

CREATIVE ACOUSTICS

An outdoor acoustic is often referred to as being "dead"—there is little sound reverberation. This "dead" condition can be created in your sitting-room by drawing the curtains and hanging up rugs, etc.

Dialogue recorded in a "dead" studio can later be superimposed over an outdoor recording to create the impression that the entire scene was recorded outdoors.

For the cell-door incident, however, I recorded the voice in the very opposite of a "dead" studio—a "live" studio. This studio was almost devoid of furnishings, and the words reverberated as if spoken in a bathroom. This acoustic, together with the particular quality of the outdoor footsteps, helped to suggest a sepulchral and dramatic interior.

MOTOR CARS

Early evening is very useful for recording car-effects, and, as a rule, results are superior if you arrange to record a cornering vehicle. The sound is particularly dramatic if the vehicle corners at speed—as a visit to a race-track will tell you. But a recording of normal cornering is often more preferable to a "straight-pass."

The reason is that there is less distortion at the moment of passing the microphone, and the cornering gives the sound more variation of perspective.

Record on a right-angle corner, if this is possible. The vehicle then approaches you at speed—but is obliged to slow down at the microphone. It then turns and pulls away into the distance.

The same principle applies to horses' hooves and human footsteps. An approach-plus-turn gives you more sound to work with. That's why, in the sketch I alluded to, my assistant turned off at right-angles to the microphone before halting at the imaginary door. Also, it placed the door at a logical microphone-distance to allow for the slam. A too-near slam would incur severe distortion. So remember that when you're recording late-night car doors!

Two-minute tape sketch by David Haines

A monthly exercise in perspective, acoustics and sound-effects.

USE one gain-control setting for both voice-positions in this extract. Try including a distant background of gulls and groaning timbers. Prepare this background beforehand; later, superimpose the dialogue over it.

IN THE NAVY

CAPTAIN (*close-microphone*): And have you any further complaints?

MIDSHIPMAN (*close-microphone*): Yes, Captain—there is one more thing. I am a midshipman. And I dislike being referred to as "the snotty." I think the nickname is disgusting—and so does my mother.

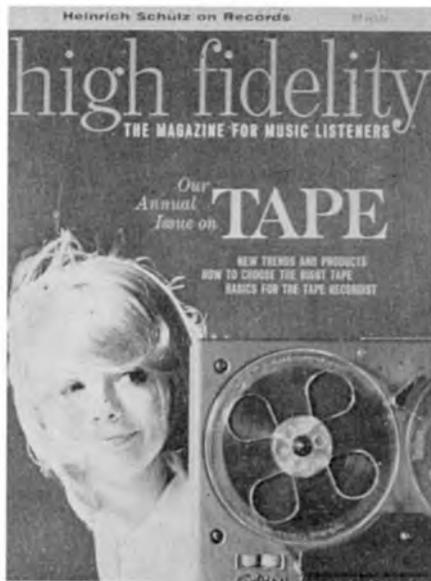
CAPTAIN: I'll bear the complaint in mind. Meanwhile, I want you to climb this nice tall mast—as quick as you can.

MIDDIE (*smartly*): Aye, aye sir!

CAPTAIN (*after a pause, shouting*): How are you getting on, Mr. Midshipman?

MIDDIE (*proudly, from the distance*): Sir, I've reached the crow's nest! What shall I do now?

CAPTAIN: Bring me down an egg—and tell me how to suck it you little perisher!



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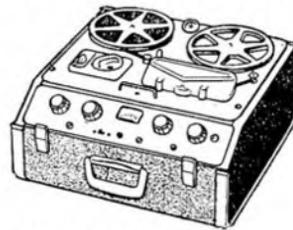
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CROSS

TALK

By Audios

AMATEUR versus professional; in all spheres of activity the pros and cons of being either one or the other are debated. In the realm of sport the word "professional" used to have a rather unpleasant ring to it, epitomised by the "Gentlemen versus Players" cricket matches. It's odd the way words tend to change their meanings over long periods of time. In many fields, photography and recording in particular, "professional" when used as an adjective now means properly done, whereas "amateur" as a description indicates poorly or sloppily executed.

Letter to the Editor Advice on buying a tape recorder

ONE always hesitates to attack a useful magazine article such as "A tape recorder in your stocking" (*December issue*). It is more pleasurable to praise Mr. Reid for coming to the aid of the novice who badly needs good advice before investing cash in his first tape recorder.

Experience and familiarity with available equipment guides one in the purchase of subsequent machines, and here the enthusiast turns to *TAPE* for information regarding new developments. In this respect I have to protest that Mr. Reid's advice in some instances is outdated. His warning for example against four-track, moderate speed models.

According to reports in *TAPE* there are many different recorders currently available providing excellent signal-to-noise ratios on four-track recordings, some also provide wide frequency ranges and stable speed at $1\frac{3}{4}$ and 15/16 ips. Accepting, as he does, 50-10,000 cps as a satisfactory specification, Mr. Reid will have no difficulty finding four-track models offering this range at $1\frac{3}{4}$ ips: there is even one cross-field head portable providing 30-5,500 cps at 15/16 ips.

Who cares? Well, anyone who proposes to play or make stereo recordings had better choose the four-track machines, because two-track stereo is rapidly disappearing from the scene. Four-track also, of course, allows greater tape economy, ideal for the tape exchange enthusiasts.

The author's assertion that "fall-out" problems occur with four-track machines

The reason is obvious. A professional is paid to do a job and we expect him to do it well to justify the fee he is going to collect. On the other hand the amateur works in his spare time, possibly with inadequate equipment, and so is expected to turn out inferior work. This column objects strongly to the words amateur and professional being used to define standards of work, rather than the status of the workman. Me? I like to think I'm an amateur doing professional work. . . .

Who reads this magazine, anyway? "Enthusiasts," so I'm told. Good. Here's the best definition of enthusiasm I've ever come across—"enthusiasm is knowledge set on fire." How true that is! The divine fire is not a bit of good without the basic know-how.

* * *

INTEREST in sound coupled with cine is growing rapidly, and I was pleased to note an article devoted to that subject in these pages last month. The first magnetic stripe projectors for 8mm film have been available for twelve months or more, at a price of about £100 in round figures. Some of our friends of the cine world seem to be under the impression that the purchase of one of these will solve all the problems connected with making a soundtrack.

Let no one underestimate the difficulty of recording sound for cine, whatever equipment is used.

can be answered by quoting previous articles referring to the improved coating on the new thinner tapes.

J. L. BEST.

Brussels, Belgium.

I believed my article clarified the problem of choosing a tape recorder. This is purely a matter for the individual: a "box-camera" type for everyday use around the family, or something corresponding to an expensive camera for top quality music recording. Mr. Best protests because I favour two-track operation and higher speeds, but this is a matter of personal preference. My article referred to manufacturers who have "worked wonders . . . to obtain improved quality at slower speeds and with four-track operation," my own Uher Report 4000S has surprisingly good quality at 15/16 ips.

As far as "fall-out" is concerned, I merely pointed out that four-track machines are "more at the mercy of the tape," which is quite true. In spite of quality production, an occasional faulty tape can be encountered and naturally the narrower the track being used, the more this fault shows up. The fact that the BBC makes so much use of single-track operation and higher speeds is surely sufficient answer to this.

Much depends on the listener's "ear" for music. If one is satisfied with four-track (and I admit it can be quite good) and the slower speeds then go ahead and use them. I tried only to set forth the pros and cons.

Other readers who have written were interested in the name of the recorder which would meet the requirements of my theoretical specification. The machine I had in mind was the Vortexion WVB (£115 10s.: stereo version £172) which has an almost identical specification. Equally good, but lacking monitoring direct from tape is the WVA model (£96 7s.) and in the same price range, the Ferrograph (an excellent PPM) and Brenell models. These differ in detail, but offer a similar high quality of reproduction.—J. REID.

I recently had the opportunity of comparing two films, both on the same subject. One was the work of an enthusiast, the other had been produced commercially. As a film the amateur version was definitely the better of the two, but its enjoyment was marred by an inadequate soundtrack. The other used Johnny Morris as the commentator. His brilliant script and inimitable style held together some very poor continuity on the photographic side in a simply wonderful way.

The shoving of a few sounds on the magnetic stripe of an 8mm film is not the production of a sound film, which calls for as much specialisation on the sound side as it does behind the camera as Alec Nisbett points out on page 50 of this issue. If you spread this gospel around you might prevent a less enlightened cine friend from squandering a hundred quid, or alternatively you might interest him in real recording. One of the problems of sound recording is finding an audience—coupling sound with cine is not only satisfying in itself but will also provide a great deal of pleasure for other people.

* * *

HAVE you ever recorded a wedding? If so, how did the clergyman concerned react to your suggestion that a recording should be taken? Have you ever been refused permission to record a wedding? Having been given permission, were you restricted in the placing of microphones or equipment?

Having a simple mind, this column firmly believes that a sound picture of the wedding ceremony should be of very much more value to the happy couple as a very personal reminder of their vows than the conventional collection of posed photographs in an ornate wedding album. But such a recording cannot be taken without the permission, and indeed the co-operation, of the officiating clergyman. Some refuse out of hand, others offer a grudging consent and then insist that the microphone should be in an impossible position. Fortunately many other church authorities welcome the suggestion of recording with pleasure, take a real interest in the preparations and do all they can to assist the recordist.

Surely there is a need to educate the clergy into appreciating the advantages of recording such an important event in the lives of the bride and groom? The day will undoubtedly dawn when the wedding recording will be taken for granted in the same way as the wedding photograph.

* * *

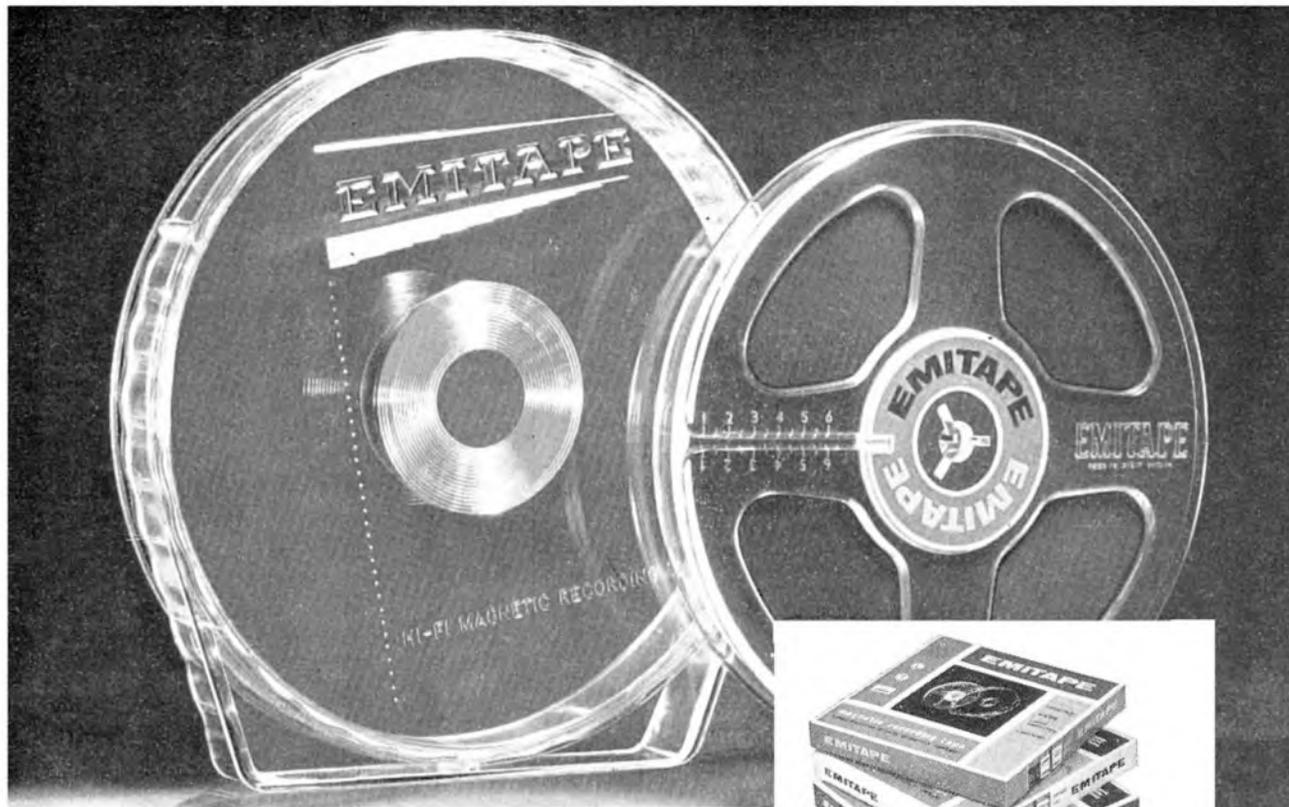
IF you can answer any of the questions above or have any views on this subject, do drop me a line and tell me about it. Address your letter to "Cross-talk," care of the magazine. We cannot offer personal replies to all who write, but we will certainly publish an analysis of your experiences and opinions. As this will be of the greatest interest to readers who may be contemplating such a recording in the near future, do please be sure to write and add your two cents' worth.

* * *

According to a news report in the *Daily Telegraph* the business of the Second Vatican Council which recently ended in Rome was recorded on tape. Apparently more than 135 miles of tape was used to record over 6,000 speeches. If the recording was at $3\frac{3}{4}$ ips, as is likely, I make this 633½ hours recording time on 594 seven-inch spools of standard-play tape. Well, well! What do you know!

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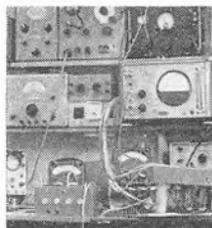
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TEST BENCH

AKAI ST-1

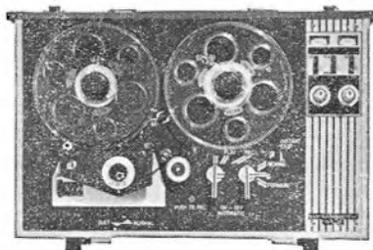
By H. B. Hadden

THE AKAI ST-1 is a portable mains-operated stereophonic tape recorder, operating on the four-track system. It will accommodate spools up to seven inches in diameter, and has two available tape speeds, $7\frac{1}{2}$ and $3\frac{3}{4}$ ips. The equipment is housed in a wooden case, covered in imitation leathercloth, finished in a pleasing two-tone grey. The machine follows the standard Akai design and is intended to operate with the tape reels in the vertical, rather than the usual horizontal, plane. Rubber caps prevent the reels from falling off. Stereophonic monitoring facilities are provided, by means of two 7 x 5-inch elliptical loudspeakers, one mounted in each end of the cabinet, and facing sideways. This, of course, will only provide a vague stereophonic picture, but this can be somewhat improved if suitable reflecting surfaces can be placed so as to direct the sound towards the listener. The machine can also be used as a normal four-track monophonic recorder, and in this condition, "sound-on-sound" facilities are provided. The fast forward and rewind facilities give a good even wind, and the rewind time of the machine supplied was 2 min. 45 sec. for 1,200 ft. of tape.

All the controls on the machine are on the front panel, the tape transport controls being mounted on the deck plate. The deck, incidentally, is the one that the Akai company have used several times in the past, and is a very well-proved design. There are two main tape controls. The first gives the play condition, and used in conjunction with a record button, the record condition also. This record button operates a mechanical

interlock which prevents the machine being accidentally switched to "record." The second switch controls the fast forward and rewind, and can only be operated when the tape is stationary.

There are three other controls on the deck plate. There is a "pause," or instant-stop control, a switch to operate the automatic stop device, and the switch to give the "sound-on-sound" facility in the monophonic condition. Mounted on the head block is the selector for stereo or individual tracks



for mono. This control actually moves the tape heads into the appropriate positions.

The amplifier controls are situated on a panel at the side of the deck, and are very simple to operate. Two concentric controls, one for each channel, give volume and tone variation on replay, and record gain control. In addition there are three switches, one for mains on/off, one giving bass lift to the internal loudspeakers, and the third switching these loudspeakers off when required. Record level indication is by means of two VU type meters. An interesting feature is that the change of tape speed is not accomplished by means of a switch in the usual way, but by changing the capstan diameter. This is accomplished by a detachable sleeve which is removed when the lower tape speed is required. A small pillar is provided to receive this so that it shall not be lost.

All the input and output sockets are

on the sides of the machine. On the left hand side are the input sockets which accommodate four "tip and sleeve" jacks for left and right hand connection of microphone and line inputs. The microphone input impedance is from 10 to 50 kilohms but the line impedance is not quoted. It would, however, appear to be high, since the instruction manual, incidentally printed in Japanese as well as English, says that a crystal or ceramic pick-up can be connected directly to it, an input of between 0.5 and 1 volt being required. Also on the left hand side of the machine is an IN socket for the connection of suitably equipped external apparatus. On the right hand side of the machine there are four sockets, one for the mains input, two being jacks for extension loudspeakers, and the third a socket for stereo headphones. Various loudspeakers systems are available as accessories.

The machine is supplied with a reel of tape which has some very good demonstration material recorded on it.

On test, this machine performed very well. The demonstration tape was well reproduced, and recordings of music and speech played back well, except for some lack of bass. Wow and flutter were negligible at $7\frac{1}{2}$ ips, and scarcely detectable at the slower speed. The measured frequency response is as shown in the accompanying diagram, where it can be seen that the machine falls short of the maker's specification below about 150 cps. This is more than sufficient to account for the lack of bass on the aural test. Both channels were the same in this respect. The $3\frac{3}{4}$ ips speed does not have any separate equaliser so this will explain the rather poor response at this speed. The signal-to-noise ratio was 46 dB, a very good figure.

It is a pity that this machine fell short on its bass response, because otherwise it is a very good instrument. It could be, of course, that the fault only occurred on this particular specimen, but the fact that both stereo tracks were similar rather tends to suggest that this may not be the case. If this fault could be remedied, I would have no hesitation in recommending this machine as a good buy at its price of £98 14s.

MANUFACTURER'S SPECIFICATION

Frequency response: 40-15,000 cps \pm 3 dB at $7\frac{1}{2}$ ips.

Wow and flutter: Less than 0.17 per cent at $7\frac{1}{2}$ ips.

Motor: Four-pole hysteresis synchronous motor, dynamically balanced.

Maximum spool size: Seven inches.

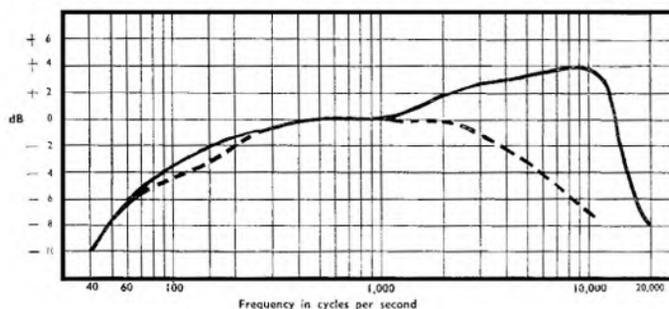
Power output: Three watts maximum, 1.5 watt undistorted (each channel).

Dimensions: 21 x 13 $\frac{1}{2}$ x 9 inches deep.

Weight: 41 $\frac{1}{2}$ lb. without accessories.

Price: 94 guineas. Accessory kit (microphones and stands, recording leads), 11 guineas extra.

U.K. Agent: Pullin Photographic Limited, 11, Aintree Road, Perivale, Greenford, Middlesex.



Record/replay characteristics of the Akai ST-1 at $7\frac{1}{2}$ ips ———; and $3\frac{3}{4}$ ips - - - - -.



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Tape records reviewed

This is an album to treasure



By Don Wedge

BING SINGS WHILST BREGMAN SWINGS. Bing Crosby with Buddy Bregman and his Orchestra. WRC (TT 482), 3½ ips, mono, 29s. 6d.

The finest album Bing Crosby ever made. I said so when this record was first issued by HMV eight years ago and it still holds good.

Made under the auspices of Norman Granz—alas now retired from the record business—this features Crosby with the orchestra of the same Buddy Bregman who produced notable television programmes for BBC-2 last year and is now head of Rediffusion-TV's light entertainment department.

So often in his memorable career Crosby has been cocooned in corn. He has sung some pretty poor, slushy ballads, as well as the best pop composers could give him. But he made the worst acceptable by seemingly not believing a word of it.

He takes things more sincerely on this record without overdoing it and the lift comes from Bregman's bouncy, if not always swingy, arrangements.

In a record to treasure, it is hard to pick best tracks. Those giving the most enjoyment this time around were, *The Song Is You, Have You Met Miss Jones?* and the slightly nonsensical *Jeepers Creepers*.

SWINGING PRETTY. Keely Smith with accompaniment arranged and conducted by Nelson Riddle. WRC (TT 465), 3½ ips, mono, 29s. 6d.

Since EMI admitted part ownership of WRC last summer, there has been a great improvement in the club's pop repertoire. This follows the subsequent move of drawing on EMI's vast album resources. Such as this one which was recorded by Capitol.

Good to have in any collection is Keely Smith. She must go through life regretting her partnership with Louis Prima. It was such a magnificent teaming, one seemingly inspired the other, and neither has the same magic apart.

Really Keely Smith is a substantial and distinctive artist on her own. It is hard to overcome the bias created by her early Prima teaming.

With Nelson Riddle's accompaniment it would be hard to turn out a poor record. This is one of his best sessions. It consists of songs such as *It's Magic, Stardust, The Nearness Of You* and *The Man I Love*. But the best moments are her cute treatment of *Indian Love Call*, the humorous ending to *You're Driving Me Crazy* and Riddle's

dynamics on *There Will Never Be Another You*.

LATE RACE. Steve Race and Orchestra. WRC (TT 456), 3½ ips, mono, 29s. 6d.

Something else to look forward to from WRC is the series of albums made specially for the Club by Steve Race. This near-complete man-about-music is constantly looking for fresh arranging techniques and frequently succeeds in finding them.

"Late Race" is certainly very different from the usual end-of-the-evening mood music. It features a small group sometimes backed by a string orchestra. Race's arrangements draw on a wide range of mainly percussion instruments. A musicianly novelty group really.

Despite the inclusion of Lennon and McCartney's *All My Loving*, Race may have gone too far to be different to win wide acceptance as well.

I hope not. An extra inducement to buy this tape is the clever, witty leaflet written by Race to explain why and what it is all about.

THIS YEAR'S LOVERS. Ellen Wade with accompaniment by Bobby Richards and his Orchestra. WRC (TT 457), 3½ ips, mono, 29s. 6d.

A protégée of Cy Grant, Ellen Wade is the girl who stood in with the Seekers when Judy Durham was ill last summer.

Even though an album which contains *I Wish You Love* arouses my attention, Ellen Wade has chosen the wrong kind of songs to fully demonstrate her abilities.

Her rather pure, folksy voice does not suit *A Certain Smile, Bill Bailey* or *I'm Just Wild About Harry*.

MANN MADE. Manfred Mann. HMV (TA-CLP 1911), 3½ ips, mono,

This was the Manfred Mann group's last major project before they added jazz musicians to become a small band. Their jazz interests are very evident throughout.

Five of the fourteen numbers are by Manfred men. Most of the others are by American blues or jazz writers.

The group has developed a glossy showmanship around its music. There is a conflict as to whether this or the jazz feeling wins. On the whole it is the latter.

MISS SHOWBUSINESS. Judy Garland. WRC (TT 461), 3½ ips, mono, 29s. 6d.

It is easy to understand those who do not like the present-day Judy Garland. She is over-adored, too temperamental, but nevertheless retains a compelling star quality.

Her singing arrests wandering attention, creates interest when fatigue is about to take over.

This is very evident in her dramatic treatment of *Carolina In The Morning* and *Life Is Just A Bowl Of Cherries*. Both are the kind of song she features on stage now.

They test her fading voice, but magnificently she fights to stop her croaks becoming a disaster.

This is no record of the girl who enchanted in "The Wizard of Oz." But it is a compelling sample, recorded a year or two back, of Judy Garland, a woman who has been through hell and can still smile and captivate an audience.

SONGS FROM CAT BALLOU AND OTHER MOTION PICTURES. Nat King Cole. Capitol (TA-T 2340), 3½ ips, mono,

"Cat Ballou" was a delightful film and its whimsy was considerably aided by Nat Cole and Stubby Kaye's casting as wandering minstrels. They strolled through the film helping the narrative along. Their

unusual roles in a delightfully off-beat western helped to make it memorable.

This record starts with the songs they sang. Away from the film they seem to lack charm and lose some of the point.

The remaining 85 per cent of the record is given over to other film songs. As a Cole album, it is disappointing.

Though a joy to hear again *Blue Gardenia* and the exciting *Hajji Baba*, most of the rest are deservedly unfamiliar.

BRIEFLY

Tape record output now is wonderfully high and covers a lot of ground in the various pop and popular music fields. This is good, of course, but unfortunately makes it difficult to comment at length on all of them.

Among the 3½ ips mono tapes is *Winter Sunshine* (WRC, TT 458), a swifty, hip version of fifteen Christmas songs by a jazz group containing Bill Le Sage and Ronnie Ross, who are fine, and singers Mark Richardson and Frenesi Watson, who don't quite come up to the same standard. However it is one to consider at the end of the year if you are looking for a cool Yule.

Parlophone's *First and Fourmost* (TA-PMC 1259) features Brian Epstein's comedy group, the Fourmost, in fourteen pop songs, nearly all American. Such pop successes as *Yakety Yak*, *Girls, Girls, Girls*, *The In Crowd*, *The Girl Can't Help It* are good material for the Fourmost to dig up the funny side.

So long after their American success, Capitol bring *The Best Of The Kingston Trio* (TA-T 1705) with their versions of *Where Have All The Flowers Gone?*, *A Worried Man*, and *The Tijuana Jail*, as well as their British hit *Tom Dooley*. Pop folk tastes have changed a lot in the four years since this record was made.

One of the post war jazz giants



By Mike J. Gale

THE SOFT SWING. The Stan Getz Quartet. Stan Getz, ten. Personnel (track 1) Lou Levy, pno; Leroy Vinnegar, bass; Stan Levey, dms. (track 2) Mose Allison, pno; Addison Farmer, bass; Jerry Segal, dms. WRC (TT 467), 3½ ips, mono, 29s. 6d.

Stan Getz has become one of the post war giants in the jazz world, but for a long time recognition was delayed by destructive and uninformed criticism. Like all sensitive people—particularly creative ones—this sort of injustice left its mark. His perhaps sometimes unguarded quotes reveal a trace of bitterness like, for example, when he commented on the night club circuit where audiences usually talk through performances and rarely applaud making it hard on a quartet. "It makes you feel," he said, "sort of apologetic about playing in the first place."

First and foremost Getz is a complete professional with a vast background of experience: Dick Rogers' band at fifteen followed by Jack Teagarden, Stan Kenton,

Jimmy Dorsey, Woody Herman and numerous small bands. Secondly, his musical tolerance is remarkable. "I can appreciate all Dixielanders. Not their jazz ideas—that's out of the question of course," he once remarked before going on to describe the late Jack Teagarden's style in glowing terms.

This album is an extremely fascinating exercise produced in two sessions during the summer of 1957, shortly before Getz migrated to Copenhagen. The two sessions—one in New York the other in Hollywood—each with a different line-up, create an inevitable comparison, and on balance I find the New York track the most satisfying.

Getz is stunning throughout, approaching each number with a tremendous sense of freshness and personality without sacrificing the Quartet's individual and combined expressions. Equal honours unquestionably go to drummer Jerry Segal of the New York date who injects tasteful brilliance into his best—and most interpretative and sympathetic—performance I've yet heard.

Two numbers deserve mention: *This Can't Be Love* and *To The Ends of The Earth*. The former's exhilarating freshness was achieved in one take and the latter gives Jerry Segal a wonderful vehicle to exploit his exceptional performance on this album.

Other items in the set are: *Time After Time*, *Smiles*, *All God's Chillun Got Rhythm*, *All The Things You Are*, *Bye Bye Blues* and *Down Beat*.

JAZZ ULTIMATE. Bobby Hackett and Jack Teagarden. Personnel: Bobby Hackett, tpt; Jack Teagarden, tbn; Michael "Peanuts" Hucko, clt and ten; Ernie Caceres, clt and bar; Gene Schroeder, pno; Billy Bauer, gtr; Jack Lesberg, bass; Buzzy Drootin, dms. WRC (TT 463), 3½ ips, mono, 29s. 6d.

Bobby "Boston Style" Hackett, born in 1915, is a trumpet player who, at times, strikes a remarkable quality of calculated emotion while retaining a dominant melodic drive. Moreover Armstrong's influence is unconsciously shown for a lot of the time but never to Hackett's discredit. His co-leader here is the late Jack Teagarden another musician who can claim Armstrong's contribution to jazz added to his development. Teagarden's life was littered with the great names: Red Nichols, Sam Lanin, Ben Pollack and Roger Wolfe Kahn included but his attempts to succeed with his own orchestras were only limited in success, unbelievably.

The set is a good example of Hackett's best work, polished, inventive and dimensional with an exceptional solo on *'S Wonderful* rich in tone and melody. Teagarden's past, perhaps, influences a present assessment but with exceptions, naturally, his reputation seems greater than his performance here. Or it could be that my personal preferences lie elsewhere and hearing the album directly after the Getz gem that my acknowledgment of both men's creative stature was not strong enough to entuse about their direction.

The collection covers: *Indiana (Back Home Again In Indiana)*, *Oh Baby, I Found a New Baby*, *Sunday, Baby, Won't You Please Come Again*, *Everybody Loves My Baby*, *Mama's Gone*, *Good Bye*, *Way Down Yonder In New Orleans*, *55th And Broadway* and *'S Wonderful*.

The tapes reviewed this month are issued by the following companies: "Capitol," "H.M.V." and "Parlophone"; E.M.I. Records Ltd., 20, Manchester Square, London, W.1. "W.R.C.": World Record Club, Box 11, Park-bridge House, The Little Green, Richmond, Surrey.

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(SEE PAGES 6 & 7)

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NEW PRODUCTS

GRUNDIG INTRODUCE THEIR LATEST MODEL

A SINGLE speed recorder selling at 29½ guineas is the latest addition to the Grundig range of recorders.

Their new model, illustrated below, is the 3½ ips TK120, a two-track model with a quoted frequency response of 40-12,500 cps. Wow and flutter are given as less than 0.2 per cent, and the signal-to-noise ratio as better than 48 dB. Accommodation is available for 5¼-inch spools, providing a playing time of 45 minutes per track using standard-play tape (850 ft.); rewind being achieved within three minutes.

Among the features are magic eye recording level indicator, single control for start, stop, pause, fast forward and rewind, inputs for microphone/radio/pick-up (2mV-100 mV/1.5 M ohms) outputs for external amplifier (500 mV/15 K ohms) and extension loudspeaker (5 ohms), and a built-in 6 x 4 inch elliptical loudspeaker handling the power output of three watts.

The power supply required is 115 and 230 volts, 50 cycles only AC; consumption



rated at 45 watts approx. Valve line-up includes an ECC83, ECL86, EM84 plus two selenium rectifiers.

The TK120 measures 15½ x 11½ x 6½ inches, and weighs 17½ lb, approx.

Included in the price is a moving coil microphone, recording lead and 900 ft. of long-play tape contained in a library cassette.

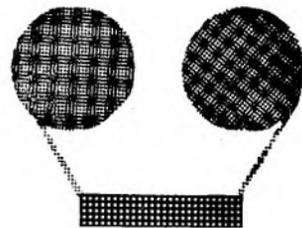
Grundig (Great Britain) Limited, Newlands Park, Sydenham, London, S.E.26.

NEW COMPANY SHOWS FIRST MODEL

RECENTLY shown in London was a tape recorder by the newly-formed company H. O. Thomas Electronics Ltd.

The new machine, illustrated above right, is the VR4, a three-speed, four-track transistorised recorder incorporating an Italian-manufactured single-motor tape deck.

The quoted frequency response ± 3dB in each case is 40-15,000 cps at 7½ ips, 40-



10,000 cps at 3½ ips and 60-5,000 cps at 1½ ips. Wow and flutter is given as better than 0.15, 0.25 and 0.35 per cent respectively, and the signal-to-noise ratio as better than 40dB.

The VR4 will accommodate seven-inch spools, providing a playing time of 96 minutes per track using long-play tape (1,800 ft.) at 3½ ips. Rewind being accomplished within three minutes.



Designed for vertical operation, the VR4 features an eight-inch round loudspeaker with a one-inch coil, which faces to the rear of the machine. Other features include facilities for mixing, meter recording level indicator, parallel track playback, monitoring on track one whilst recording on track three, superimposition, and straight-through amplification, three-digit rev. counter, and separate bass and treble tone controls.

Inputs are provided for microphone (2mV at 50 K ohms); pick-up or tuner (30mV at 1 M ohm), and mixing (200mV at 100 K ohms). Outputs include external amplifier or headset (2-4 volts r.m.s. at 10 K), extension speaker (8 ohms), and alternative head output (average 2mV at 1,000 cps).

The valve line-up includes one BC108, two OC44, two AC128, an OA79, OC81, AD161, AD162 and a VA1077. Mains supply required is 200-250 volts, 50 cycles, and the power consumption is approx. 50 watts.

The VR4 measures 15¼ x 12¼ x 7¼ and weighs 16 lb.

Included in the price of 59 guineas is an 1,800 ft. reel of long-play tape, moving coil microphone, and a recording lead.

H. O. Thomas Electronics Limited, 68-69, Avenue Chambers, 4, Vernon Place, London, W.C.1.

CORRECTION

WE would like to apologise for a mistake in the Index for 1965 issue, published in the January issue, where in some instances we incorrectly credited the production of "Pisa Baptistry Echo" to Peter Bastin. Philip P. Towel was of course the producer of this award-winning tape in the British Amateur Tape Recording Contest.

NEW LANGUAGE TEACHER BY TANDBERG

A SPECIAL educational tape recorder has been introduced by Elstone Electronics Ltd., who also announce a change of address.

The new recorder, illustrated below, is an adaptation of the existing Tandberg Stereo model 72B. Featuring three speeds, $7\frac{1}{2}$, $3\frac{1}{2}$, $1\frac{7}{8}$ ips, and two power amplifiers and speakers, it is designated the Mini-Lab.

The Mini-Lab is designed so that the tutor can record a lesson on the top track of the tape. The lesson thus recorded is protected by a safety lock preventing accidental erasure. The student plays back the top lesson track through headphones, and records his responses on the bottom track. After rewinding, both tracks can be played simultaneously and heard either through the two internal speakers or via headphones.

Separate jack socket inputs are available for microphone, radio and record player, and an extra jack socket headphone outlet is fitted for use by teacher, visitor, or second student, etc. With the output switch



in "translation" position, the material to be translated is heard in one earpiece and the student's translation in the other.

The Mini-Lab is supplied complete with Tandberg microphone and headphones which can be stored in a special compartment. Housed in a light oak case designed to withstand hard school use, it has a detachable lid fitted with lock and key.

Elstone Electronics Limited, 81, Kirkstall Road, Leeds 3, Yorkshire.

HAMMOND ANNOUNCE CONDENSER MICROPHONE UNITS

A COMPLETELY restyled and re-designed version of the "Microkit" condenser microphone is being manufactured by C. E. Hammond and Co. Ltd.

The microphone, earlier sold as a kit of parts, is now available completely assembled complete with a power unit.

Designated the M-100, the microphone has an omnidirectional polar characteristic, 60 ohms source impedance and can be efficiently matched to almost any tape recorder with or without the special matching transformer which is available as an accessory. Sensitivity is given as 2mV/u-

Bar, and the frequency response is described as being substantially linear over the entire audible spectrum. It features a specially designed extreme bass-frequency attenuator, and further bass cut may be applied using a simple device in the power-supply unit.

The power units SU-1 and SU-2 for use with one or two M-100's are suitable for operation on 110, 135, 220 or 245 volts AC, 50/60 cycles: consumption 12 watts. The low source-impedance and a voltage compensating device enables the use of up to 200 ft. of cable.

The M-100 is four inches long and has a $\frac{7}{8}$ -inch diameter; the power unit measures 12 x 4 x 4 inches. It costs 29 guineas complete with SU-1, or 49 guineas for two microphones and the SU-2 power unit for stereo operation. The battery version, M-100 plus SU-3B costs 19 guineas (battery unit only, 4 guineas), and the special transformer (UBT-200H, costs 3 guineas.

C. E. Hammond and Company Limited, 90, High Street, Windsor, Berkshire.

TRAIN SOUNDS ON TAPE RECORDS

SIXTEEN tape records with the accent on train recordings is announced by Audiocord, a specialist recording company, whose initial issue was reviewed in the October issue of *Tape*.

In the Label series are ten issues, MP1 to MP10 with respective titles of *Knights of Steam*, *Preserved Locomotives*, *Narrow Gauge*, *Mallard A4*, *Against the Grade*, *On the L.N.E.R.*, *Locomotives of the L.M.S.*, *Great Western Splendour*, *Southern Steam* and *Evening Star*. These $3\frac{1}{2}$ ips records are available at 10s. 9d. each.

At 14s. 6d., Audiocord issue their Motive Power long-play series, MLP1 to MLP6 with the following titles: *Double heading*, *Steam on the Isle of Wight*, *Cromford and High Peak*, *Passengers no more*, *Dawn over the Pennines* and *The Waverley Route*.

Educational and Dramatic Tapes, Windermere Crescent, Eastbourne, Sussex.

MOOD MUSIC AND SOUND EFFECTS ON LP DISC

A N effective programme of sound to add to slide and cine shows is provided in a recently introduced lp, disc "Custom Music for 8mm."

Selling at 49s. 6d. and recorded by E.M.I. Ltd., the disc comprises 38 tracks on 28 bands providing musical and sound sequences for free use by amateurs only.

Among the tracks are ceremonial, soft, mellow, drama, and mystery themes and moods. Also featured are fourteen themes depicting gay and light-hearted occasions, holidays in the sun, travel, parties, pomp and circumstance, plus sound effects including a train, traffic, ships, rain, dog barking, baby crying. Each track is timed to the second and can be swiftly located using the track selector device provided. The total running time is forty minutes.

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3. **A to Z in Audio** by Gilbert A. Briggs (1960). 224 pages, 160 illustrations. **15s. 6d.**
A first-class book of reference for the subject.
4. **Audio and Acoustics** by Gilbert A. Briggs (1963). 168 pages, 140 illustrations. **12s. 6d.**
Acoustical Consultant James Moir as sub-editor. A revised but basically original work from the well known "Sound Reproduction."
5. **Audio Biographies** by Gilbert A. Briggs and 64 collaborations (1961). 344 pages, 112 photographs and illustrations. **19s. 6d.**
7. **Cabinet Handbook** by Gilbert A. Briggs (1963). 112 pages, 90 illustrations. **7s. 6d.**
Intended for the do-it-yourself man, and contains vital information on design and acoustic principles particularly in relation to compact enclosures which are now so popular for stereo.
8. **Direct Current and Magnetism.** Edited by Edgar J. Black (1964). 120 pages, 92 illustrations. **10s. 6d.**
Gives a very simple account of basic electrical theory.
10. **High Fidelity Pocket Book** by W. E. Pannett. 304 pages. **40s.**
Clear explanations of each item in the chain of a high fidelity installation are accompanied by practical hints for the enthusiast.
11. **High Fidelity Sound Engineering** by Norman Crowhurst. 336 pages, 262 illustrations. **50s.**
Comprehensive coverage on the engineering of modern single-channel and stereophonic sound equipment.
27. **Stereo and Hi-Fi as a Pastime** by Douglas Gardner (1959). 148 pages. **15s.**
15. **Loudspeakers (Fifth edition)** by Gilbert A. Briggs (1963). 336 pages, 230 illustrations. **25s.**
All aspects of the design and performance of loudspeakers and enclosures are dealt with in non-technical terms.
20. **More About Loudspeakers** by Gilbert A. Briggs (1963). 136 pages, 112 illustrations. **8s. 6d.**
Deals with the latest trends in non-technical terms, and takes a new look at questions such as response and impedance, load matching, adding a speaker, listening tests, stereo.
36. **The Grundig Book** by Frederick Purves. Comprehensive 1964 edition. **15s. 6d.**
Includes working instructions and data sheets for individual Grundig models.
37. **Tape Recording for Pleasure** by Wallace Sharps. 128 pages. **3s. 6d.**
38. **Ribbons of Sound** by Karl Barleben. A U.S.A. publication and guide. **8s. 6d.**
40. **Simple Radio Circuits** by A. T. Collins, editor of Practical Wireless. **3s. 6d.**
41. **Hi-Fi and Audio** by A. T. Collins. Useful introductory paperback. **3s. 6d.**
29. **Tape Recording and Hi-Fi** by Douglas Brown (1961). 160 pages. **5s.**
Now as a paperback this interesting book by the Editor of "TAPE Recording Magazine" is very good value.
33. **You and Your Tape Recorder** by Norman Paul (1962). **4s.**
Very good value by a past winner of the British Amateur Tape Recording Contest.
12. **High Fidelity Sound Reproduction (Second edition).** Edited by E. Molloy. 212 pages. **20s.**
Contains a mass of valuable data for the serious amateur, and the maintenance engineer, and covers the expensive and complex equipment now on the market. Chapters on amplifiers and preamplifiers, dynamic loudspeakers.
25. **Sound Recording Works Like This** by Clement Brown. Illustrated. **10s. 6d.**
Part of "Science Works Like This" Series the book is intended for the younger members of the family.
39. **Tape Recorder Manual** by Wallace Sharps. (New cheap edition). **10s. 6d.**
Sections on its uses in business, education and pleasure, how it works, etc.
2. **Alternating Current and Acoustics.** Edited by Edgar J. Black (1964). 116 pages, 86 illustrations. **10s. 6d.**
Deals in simple terms with the origin and generation of alternating current, construction of coils and capacitors. The second part deals with the nature of acoustics and construction and operation of devices used for sound recording and reproduction.
21. **Practical Hi-Fi Handbook** by Gordon J. King. 224 pages. **25s.**
A guide to choice, installation and servicing of equipment, for dealer, engineer, and amateur enthusiast.
22. **Practical Stereophony** by H. Burrell Hadden (1964). 159 pages. **37s. 6d.**
The author, an instructor at the BBC, has been actively engaged for many years in research in this field, as a result the book is mainly directed towards those who make this art their profession, but there is much for the amateur enthusiast.
35. **Tape Recording Yearbook 1965.** **7s. 6d.**
The 1965 edition contains all the well-known facts and figures of earlier editions, revised to date, as well as important contents vital to all interested in this field. Compiled by the staff of "TAPE Recording Magazine" this Yearbook is a must.

TAPE HANDBOOKS

no newcomer to the hobby, or enthusiast, should be without!

Advice on Buying a Tape Recorder by J. F. Ling.

2s. 6d. (U.S.A. \$0.65) post free.

Chapters on preliminary considerations, tape deck, amplifier, etc.

Introduction to the Tape Recorder by C. Langton.

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Sound Effects on Tape by Alan Edward Beeby.

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Tape and Cine by John Aldred.

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How to Record Weddings by Paul Addinsell.

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COTSWOLD

The first meeting of the new year for members of the Cotswold tape society was given over to a replay of members' recordings. As usual, these were widely varied and included excerpts from the "Messiah" for solo voice and organ, folk duets to guitar accompaniment, interviews with a clairvoyant and a boy with a tawny owl for a pet.

Peter Duddridge was in command of the programme, using the society's latest acquisition a Series Six Ferragraph. This was operated in conjunction with a portable baffle-mounted speaker incorporating a Wharfedale dual-concentric unit constructed by Colin Woods and Eric Jones.

The January issue of "Cotswold Roundabout" is devoted to a "Pick of the Year" series of some of the most popular excerpts from the eleven previous editions.

Secretary: Peter D. Turner, Pike Cottage, Frampton Mansell, Stroud, Gloucestershire.

COVENTRY

A surplus equipment auction was the main item at one of the most recently reported meetings of the Coventry tape club. Some 26 items were brought under the hammer of auctioneer Stan Day who knocked down two speakers for five shillings each and then proceeded to fetch the same price for a tape splicer. Also sold were two motor-drive belts for a shilling and several second-hand discs for 10s. Stan's only disappointment was his failure to sell two items (one his own) the other an old steel needle gramophone belonging to Harry Elcock. Harry now intends to convert same into a tool box.

On November 4, the club was invited to provide a stereo demonstration for the Coventry Radiator tape and cine club. Ken Preston obliged and he was followed by Stan Day who presented his Italia holiday tape/slide show. The day before members had seen a similar tape/slide show presented by Ron Atkin when the three members of the Atkin family provided the evening's entertainment. Freda introduced a quiz tape, and was later joined by Ron and Phillips to present a comedy tape programme.

A fortnight later, the Coventry members were joined by enthusiasts from the Hinckley club to hear a talk and some of the tapes produced by Richard Margoschis. Included in the programme was "Songster's Fantasia" with which he won first prize in the Technical Experiment section of the 1964 British and International Contests. Some indication of his manipulative skill was provided during his demonstration with a six-second run of tape which contained no less than 96 splices. He also demonstrated his Fi-Cord IA battery portable recorder and showed the modifications he had carried out and described in *TAPE* (June 1965 issue). Mr. Margoschis writes on bird-song recording on page 54 of this issue.

On December 29 members invited the Coventry Film Production Unit along to judge tapes for their annual "ten-minute" tape competition.

Secretary: Roy V. Reynolds, 17 Thurlstone Road, Coventry, Warwickshire.

FERROGRAPH OWNERS

Members of the British Ferragraph Owners' Club have started work on the make-up of the first Home Con-

structional Kits to be issued by the club. Details are not yet available of the items to be included in the list of kits, but great interest is being shown by the members to whom they will be available.

The latest edition of "Ferro-sound," the club's sound magazine contains a talk on the production of Electronic Music. It is reported a number of members are already trying their hand at this fascinating form of recording.

Plans are now being made to arrange a meeting place during the forthcoming Audio Fair.

Secretary: R. D. Littler, "Kingswood," Silverne Drive, Ellesmere Port, Cheshire.

GLASGOW

Visits to BBC studios are a common occurrence for most tape clubs, but a recent excursion for the Tape Section of the Radio Club of Scotland was slightly different for it involved a trip of 300 miles. This was the distance members had to travel when they left their Glasgow headquarters to visit the Beechgrove Studios in Aberdeen. During their tour they saw the tape editing and recording rooms and examined various scripts for feature programmes.

The club held its AGM at the beginning of December. Recording a turn-out of 75 per cent of the membership, the retiring officials reported on the past year. During the election of new officials J. A. Douglas relinquished the role he has held during the past year in favour of John Wood. Gordon Calder is the new chairman.

One of the early meetings in December saw the playback of a tape received from the Cotswold club members and a demonstration, by John Knowles, of the new Philips cleaning outfit for recorders.

In the previous month, the members attempted to film and record the festivities of November 5. The success or otherwise of their venture has not yet been determined. Other activities have included the production of a further edition of a tape outlining the club's history. Produced by chairman John Wood, the tape is entitled "The story that never ends." Another taped programme, this time by John Knowles who described a recent holiday in Skye, and recordings of a local choir by John and Peter Douglas were also played. The twins also recently presented a variety show produced by themselves.

The club's monthly sound magazine "Spotlight" has reached its 18th edition. The printed journal "G.M. Magazine," also issued monthly, now features a series called "My hardest recording" written by members. In the October edition James Chaplin described one hilarious episode as he interviewed a poet with microphone in one hand, and a cup of tea in the other.

Secretary: John Wood, 62 Kingarth Street, Glasgow, S.2.

NATIONAL FEDERATION

Details of their Contest Tape Library and a reduced subscription scheme for new members is announced in the Winter Bulletin of the Federation of British Tape Recording Clubs.

Copies of the winning tapes in the British Amateur Tape Recording Contest have been made available to the Federation over the years, and they now have a substantial collection of recordings. Following their AGM, also reported in the Bulletin, the Federation has established an effective tape copying service, and through this they are now able to supply programmes of the winning tapes to member clubs and Associates without charge, on receipt of adequate tape to accommodate the required programme. Non-members are also invited to use the service on the same basis plus a nominal fee of

five shillings per seven-inch reel to cover copying expenses. Alternatively, the Federation will supply the raw tape at normal retail price for the tape used. Dubbing will be done on a half-track machine, and preferably at 7½ ips. Further details, including a list of the available tapes are available from The Librarian, FBTRC., 33 Fairlawns, Maldon Road, Wallington, Surrey.

The reduced subscription scheme for club membership is a bid to increase membership from among the 150-odd tape clubs currently in existence. The low fee, as yet unfixed, will permit full membership privileges—apart from the special Copyright licence terms—for the first twelve months after which the club would be required to take up full membership or withdraw. Details are available from the secretary.

The current subscription rates are as follows: Clubs, two guineas, MCPS Licence 30 shillings; Associate members (individuals) 15 shillings, MCPS Licence, 5s.

Secretary: Arnold Highcayon, 101 Roseville Road, Hayes, Middlesex.

NEWCASTLE

Confusion arose in the last issue regarding the Newcastle tape club, whose report appeared under the heading of "Gateshead." The error resulted from a misunderstanding arising from the secretary's report.

NORTH MANCHESTER

A change of venue and date for meetings is announced by the North Manchester Soundtrackers. In November they shifted headquarters to St. Andrew's Church Hall at Higher Blackley where they will now meet on Mondays.

Members recently invited to their meeting members of the Northern Tape Club who acted as judges to the host club's tape contest. First prize went to Mrs. F. Robson for her tape entitled "Victoriana"; second prize to Mr. I. Rogers for "Fruits of the Sea"; and third place to Keith Robson with "Trawler Race."

An extension of their activities is planned. Prime addition will be the inclusion of cine photography in future ventures involving feature tapes and documentaries. Meanwhile the secretary has introduced a news tape in addition to their current magazine "Concord." It is also planned to launch another regular magazine produced entirely by the society's "distant" members. Typical of the programmes to be included would be the recordings of Maori music regularly received from New Zealand associate member Ken Teebon. Ken intends to provide the society with recordings of typical "down-under" sounds with commentary.

Secretary: A. Lomas, 2 Hamer Hill, Chapel Lane, Blackley, Manchester 9, Lancashire.

STOCKTON

An interesting point is raised in a recent report from the nine-month-old Elmwood tape club in Stockton. With their headquarters situated in the local Community Centre, and part of their annual subscription being paid to the Centre, the club believes it will be able to claim a grant from the Durham County Council. The proviso is that they can prove their club is beneficial to the Centre as a whole.

Taking steps to prove this, the members provided music for the annual "Christmas Fayre" and again helped at the Centre's Annual Garden Party.

The members are currently active soundproofing their headquarters, helped in this by a local acoustics engineer who has given his advice without charge. Further assistance came from local traders who have provided the necessary materials with a substantial discount.

If we had a league, Stockton would probably head the list for initiative!

Secretary: Fred J. Hay, 27 Crayke Road, Harburn, Stockton-on-Tees, Co. Durham.

TAPE EXCHANGES

TAPE recorder owners who wish to contact others with similar interests, to exchange news and views by tape are invited to fill in and return the form on page 68 giving their name, age, address, special hobby or interest for this free service.

Details given here also include speeds and spool size to be used, name of recorder, and special area to be contacted.

Mulcahy, Kevin (21). 3, Wolfs Castle Avenue, Llanishen, Cardiff, Glamorgan, South Wales. Printing, sport, classical music. 7½, 3½ ips. 8½-inch spool. Ferragraph 5A/N. USA, Australia, Canada, New Zealand. O'Connell, Barry W. (21). 8, Clay Lane, Caravan Park, Little Stoke, Bristol, Somerset. 35mm photography, motor-cycles. 3½, 1½ ips. Three-inch spool. Stuzzi and Standard Unicorder. Eire, America, Continent, UK.

O'Reilly, Dermot (22). 190, Comeragh Road, Drimnagh, Dublin, Eire. Guitar playing, most music. 3½, 1½ ips. 5½-inch spool. Ferguson 3202. Ireland, Scotland. Letters not required.

Parry, N. W. (29). 98, Lexham Gardens, London, W.8. Languages, travel, opera music. 7½, 3½, 1½ ips. Seven-inch spool. National recorder and Truvox, four-track. Overseas only.

Pate, Miss Lorna (20). Nurses' Home, Staincliffe General Hospital, Dewsbury, Yorkshire. Travel, medicine, walking poetry, art, pop music. 3½, 1½ ips. Seven-inch spool. Cossor CR1604/00. four-track.

Pepperell, Eric (?). 11, Plumtree Avenue, Bewsey, Warrington, Lancashire. 8mm and 16mm cine photography, revues, most music. 15, 7½, 3½, 1½, 15/16 ips. 10½-inch spool. Brenell Telefunken stereo recorders, Philips, two- and four-track. England only.

Percy, John (24). 30, Ivy Crescent, Chiswick, London, W.4. Cinema, theatre, pop music. 7½, 3½ ips. Seven-inch spool. Sony stereo, four-track. Male contacts preferred.

Peirce, Robert James (49). 4, Upper Cavehill Road, Belfast 15, Northern Ireland. Sports, philately, films. 3½ ips. Five-inch spool. Grundig TK20.

Proctor, Ken (23). 134, North Marine Road, Scarborough, Yorkshire. All music. 3½ ips. 5½-inch spool. Walter, Fidelity recorders.

Pugh, Michael (22). 32, Methuen Road, Edgware, Middlesex. Photography, angling, motoring. 3½ ips. Seven-inch spool. Philips EL3541.

TEENAGE READERS

Bedford, Miss Susan (8½). 50, Commercial Road, London, E.1. 3½ ips. 5½-inch spool Grundig TK18. Wishes to contact a young lady of similar age in another English-speaking country.

Chu, Yat Kam (16). 140, Firth Park Road, Sheffield 5, Yorkshire. Electronics, guitar playing, pop music. 3½ ips. Seven-inch spool. Walter 101 and Philips recorders. Female contacts in U.K., Germany, Sweden. Letters first please.

Cox, Graham E. (18). 40, Ashmore Grove, Welling, Kent. Sound effects, photography, electronics, hi-fi, pop and light classical music. 7½, 3½, 1½ ips. Seven-inch spool. Fidelity, four-track and Grundig.

(Continued on page 68)

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(Continued from page 67)

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Pattman, Malcolm R. (16). 11, Carnell Terrace, Prestwick, Ayrshire. Reading, swimming, pop and folk music. 3 1/2 ips. Seven-inch spool. Philips EL 3541H, four-track. Female contacts (14-17) preferred in New Zealand, Australia, Canada, Europe.
Penny, Simon (16). 14, Ravensfield Gardens, Ewell, Surrey. Audio, travel. 7 1/2, 3 1/2, 1 1/2 ips. Seven-inch spool. Martin Recordakit. Overseas only.
Smith, Robert Gordon (18). 84, Victoria Road, Aston, Birmingham 6, Warwickshire. Chemistry, reading, chess, folk and modern jazz music. 3 1/2 ips. 5 1/2-inch spool. Fidelity recorder. Overseas female contacts preferred (not U.S.A.).
Prosser-Roberts, David (17). "Harddfan," Brecon, South Wales. Photography, electronics, pop music. 3 1/2 ips. 5 1/2-inch spool. Grundig TK23L, four-track. U.K. only.
Stutely, Michael R. (15). 64, Severn Road, Weston-super-Mare, Somerset. Electronics. 3 1/2 ips. Three-inch spool. Fuji Cherry recorder. U.K. only.
Vanbeck, Gordon (16). 32, Brooke Street, Dumfries, Scotland. Travel, cycling, reading, most music. 7 1/2, 3 1/2, 1 1/2 ips. Seven-inch spool. Baird Varsity 101. France, Germany, Austria.

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Friday, Rodney (18). 115, Anleno Road, Montclair, Durban, Natal, South Africa. Philately, tennis, pop music. 3 1/2 ips. 5 1/2-inch spool. Sierra SA 9110V/00. U.K., U.S.A., Europe, Australia.
Hoyama, Mamoru (30). Hitachi-Maxell 200, Ushitora, Ibaraki, Osaka, Japan. Photography, natural science, foreign affairs, sports, most music. 7 1/2, 3 1/2 ips. Seven-inch spool. Hitachi 722 recorder.

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INDEX TO ADVERTISERS

A. Brown & Son Ltd.	42
A. C. Farnell Ltd.	52
Agfa Ltd.	Back cover
Berean Forward Movement	50
BASF (Chemicals) Ltd.	38
Brenell Engineering Co. Ltd.	40
Brockley Trading Co.	50
Cussins & Light Ltd.	65
Daystrom Ltd.	56
Elstone Electronics Ltd.	71
E.M.I. Tape Ltd.	60
Francis of Streatham	56
Global Products	69
Gramplan Reproducers Ltd.	42
Green & Cooper Ltd.	62
"High Fidelity" Magazine	58
Howard Tape Recorders	43
Kodak Ltd.	45
K.J. Enterprises	52
Leda Tapes	69
Lee Electronics	62
Lustraphone Ltd.	50
Lennard Developments Ltd.	47
Magnograph	62
Massey's Centre of Sound	63
Minnesota, Mining & Manufacturing Co. Ltd.	41
NuSound	39 and 63
Philips Electrical Ltd.	46
Psychology Tapes Ltd.	69
Rapid Recording Service	65
Recording Machines Ltd.	64 and 65
R.E.W. (Earlsfield) Ltd.	58
Sheen Tape Recorder Centre Ltd.	63
Sony U.K. Sales Division	44
Tape Recorder Centre (Halifax)	65
Tel-Lee-Radio	63
The Recorder Co.	42
Tom Molland Ltd.	64
Worthing Tape Recorder Centre	64

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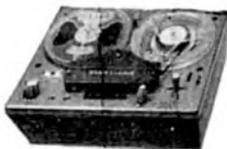
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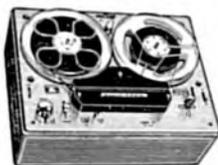


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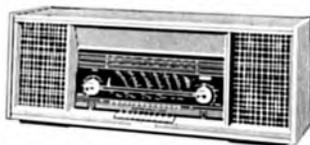
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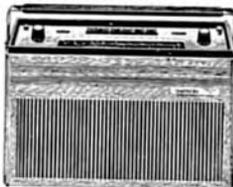
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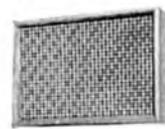
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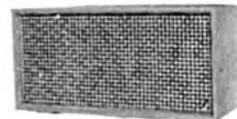
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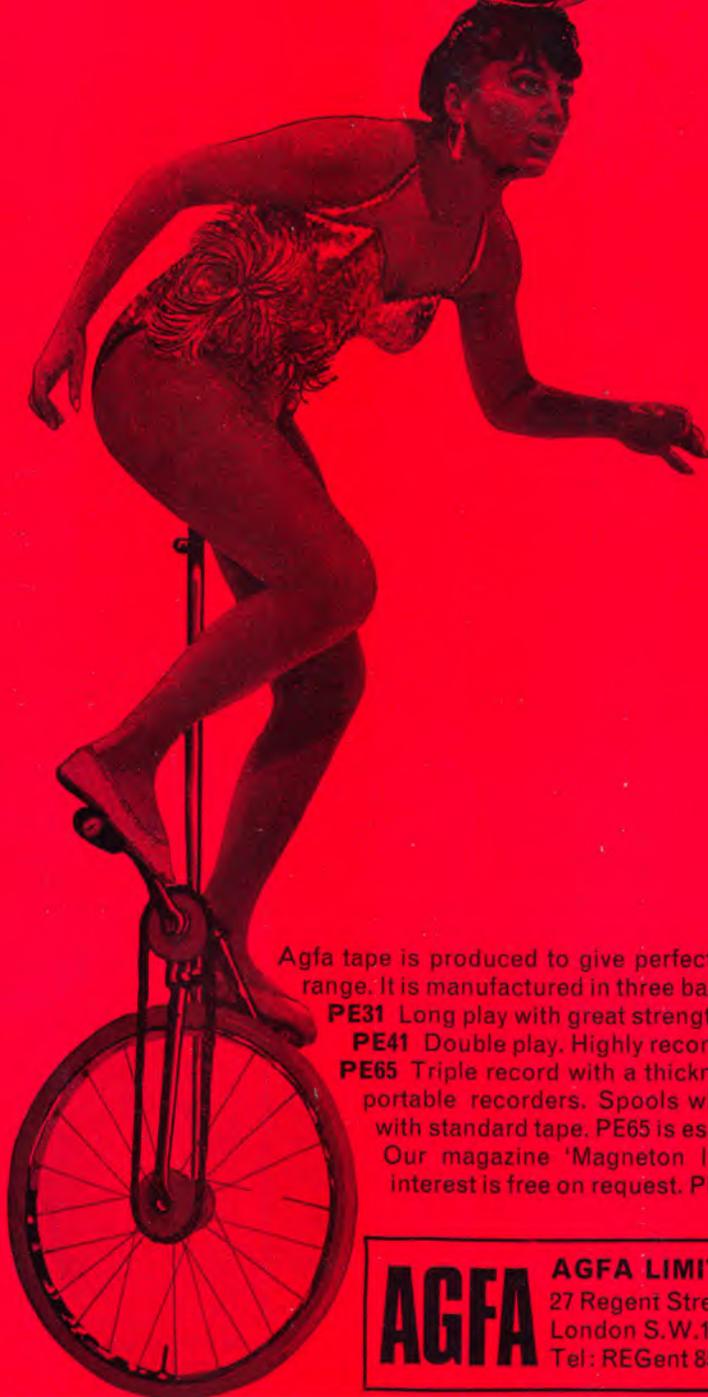
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