

THE MODERN MICROPHONE A survey of the latest microphones revealing their amazing variety in style, range and price. A MINIATURE RECORDER MUST BE WON IN ATR'S EASY TO ENTER CONTEST PART TWO of THE MIXER YOU CAN MAKE and all the intelligent sound enthusiast needs for the enjoyment of his equipment INSIDE !!

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MICROPHONES

THE tape recorder's ear, the microphone, is featured in this edition of your magazine. It is the recorder's most important accessory and comes in even more varied forms than the recorder itself as our survey herein shows. It ranges in price from £2 to £200 and has as many different applications as the difference

VOL. 3 No. 4 NOVEMBER, 1961

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between a crystal and a ribbon suggests. If you have been thinking of buying that adventurous second microphone, here is all the information you need. If you haven't yet thought of such a purchase, why not consider it now. For as little as five or six pounds you can add a microphone and a simple mixer to your tape armoury and get to grips with the real art of tape recording.

For the home handyman, our current 'Three Channel Microphone Mixer' construction series is a must. We shall be happy to advise anyone tackling this accessory on any problems they encounter, and we look forward to receiving news and photographs of completed mixers. The final article in this series appears in next month's edition of the magazine.

Have you heard about the experimental microphone which can be made in a couple of hours from material to be found in any home workshop ? We shall be publishing details shortly.

NEW EDITORIAL OFFICES

The Editorial section of 'Amateur Tape Recording & Hi-Fi Magazine' has moved to Room 530, Ulster Chambers, 168 Regent Street, London, W.1, and all editorial correspondence and competition entries should be sent to this new address. Club correspondence should still be addressed to The Secretary, British Recording Club, Archer Street, London, W.1.

JOHN LEYTON

Anyone who tops the hit parade as John Leyton has just done with 'Johnny Remember Me', becomes a person of interest to the audio world, and so when John visited the Centre of Sound recently he was cornered in the Recording Studio by our interviewer to discover how it came about. We learnt that his career has followed a similar pattern to Anthony Newley's. John was also an actor first, and was persuaded to sing on records by viewers who liked him in the Biggles T.V. programme. One difference is that records came before films for John, but shooting has now started on his first film. It is called 'Angel On My Shoulder' and tells the story of a singer who wants to be a champion motorwelist.

to be a champion motorcyclist — hence the black jacket John is wearing in our picture. John is an active owner of a tape recorder, pre-cutting all his records on it and rehearsing all his shows. He plans to add a hi-fi set-up to this in the near future. His latest disc release is 'Wild Wind' backed with 'You Took My Love For Granted', Top Rank JAR585.



Armstrong Quality Tuners



Armstrong tuners are designed to operate with any amplifier or tape recorder. The T4B VHF tuner is fitted into a maroon vinyl-hide covered case and is equally suitable for mounting in a cabinet or to be used free-standing on a shelf : ideal for those enthusiasts who need a separate high quality tuner for tape recording. The ST.3 Mk. 2 AM/FM Tuner is designed for cabinet mounting.

Although these tuners will operate with any amplifier, where a complete hi-fi system is required we recommend the match-ing Armstrong PCU25 Amplifier and A20 Power Amplifier.

T4B FM TUNER (illustrated) £23:0:0

Self powered Full VHF band (87-108 m/cs) Automatic frequency control • Cathode follower output Variable output 0-500 mV • Multiplex output for stereo radio adapter • Separate 75 ohm and 300 ohm aerial inputs

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The

World of Sound

RECOGNITION BY THE L.C.C.

 $W_{\rm of\ the\ introduction\ of\ tape\ recording\ courses\ at\ the}^{\rm ITH\ the\ start\ of\ the\ 1961-62\ evening\ classes\ comes\ news}$ Eltham L.C.C. Institute, and also at the Henry Thornton School, Clapham,

The Eltham Course is entitled 'The Art and Technique of Tape Recording' and is by J. G. Jones, a name which will be familiar to many readers.

We are especially delighted to hear of these classes, as we recently provided the L.C.C. with suggestions for a Tape Class syllabus, for use in connection with their investigation into the possible inclusion of such classes in their Adult Education programmes. May these two soon multiply.

STUDENTS WILL MAKE TAPES FOR THE BLIND

Tape recording fans in South London will be invited to take part in a project to establish a regular service of news and entertainment on tape for blind and other disabled people.

The project is likely to stem from the new L.C.C. evening class in tape recording technique. Clapham, mentioned above.

"This is an entirely new departure," said the Principal, Mr. E. Auerbach. "The class is intended to benefit those who want to learn the art and technique of tape recording, and how to make the best use of their equipment and their own special aptitudes."

In charge of the class is Mr. Walter Gillings, of Ilford (Essex), whom readers will know for his production of sound news bulletins for the blind.

"There's a great deal of useful work to be done along these lines by people who realise the true potentialities of the tape recorder," said Mr. Gillings. "We hope to show them how to go about it, and to enlist local talent in making recordings for presentation to old folk's clubs, the blind and disabled."

CHURCHGOERS ONLY

A Devon newspaper reporting on the new tape recorders unveiled at the recent Radio Show discovered a corner of the Show that we obviously missed, for it mentions manufacturers offering "both four-tract and twin-tract types" of recorder. We know that many recorder owners are using their machines to bring church services to old-age pensioners, but we never suspected special recorders.

P.C. TAPE

The tape recorder is still trying to battle its way into the Law Courts of the Country. The police already use recorders regularly-in the A6 murder case, Valerie Storie, the gunman's second victim, had her story taped from her hospital bed in a five-hour interview with Detective-Superintendent Bob Acott of Scotland Yard's Murder Squad, A vital clue is said to have been obtained as a result.

But despite police acceptance, courts remain wary. Malling Magistrates Bench ruled that a tape made of a man and wife using obscene language towards their neighbours need not be heard. This was after counsel for the defence had objected to what he called such "carnival procedure".

It is doubtful if the two mothers who last month made a tape recording for the benefit of the Luton Corporation, were aware of the "carnival" aspect of their efforts. The recording, which they made on Friday and Saturday nights and have called "Night noises in Wigmore Lane: or Life Among the Gipsies", was of swearing, bangings on house doors, abuse, noise of bricks and bottles hitting houses, drunken singing

ANT

night school for tapists

blind get student help

recorders-in-law

and brawling. Not, we gather, a documentary so much as a criticism.

No one follows the proceedings of Justice as closely as the Bill Sykes of the community, and so it is not surprising to see that tape recorders are now frequent victims of the dishonest. One tape recorder, stolen from a school, was found on a river bank and detectives kept watch until a man came along in a car to collect it. He said, when charged "It's a fair cop" and added that he had done it to raise money for a solicitor because he was in trouble for a motoring offence !

ORGAN CLUBS LICENSED

Stan White, our regular Tape and Disc reviewer, sends news that both the Theatre Organ Club and The Cinema Organ Society are now licensed for members to take tape recordings at the meetings organised in the cinemas for organ recitals.



Don Fisher of Harrow, Middlesex, is seen holding the Golden Microphone won by him in the voicespondence competition reported in last month's 'World of Sound'.





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November, 1961

in the World

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and 205 HIGH STREET NORTH, EAST HAM, E.6. GRA 6543 and 2 MARYLAND STATION, STRATFORD, E.15. MAR 5879

A.T.R's report on Modern Microphones

Most of our previews and reviews have been concerned with complete tape recorders and accessories with an occasional review of some outstanding microphone. The microphone is of course, the most important accessory to a tape recorder and alone can make or mar a recording irrespective of the qualities of the tape recorder.

We have decided to report on currently available microphones ranging from the inexpensive to high grade professional instruments. Some of these microphones have actually been tested by us and this is noted where applicable.

THE ACOS RANGE (Cosmocord Ltd.)

The Acos Mic.45 Crystal Microphone (Fig. 1)

This is a low cost microphone by Acos, and is housed in a handy pistolgrip case. An entirely new method of construction has been employed which makes this microphone robust and inexpensive. The microphone includes a screened lead and has a frequency response which is substantially level from 30 to 6,000 c.p.s.

The Mic.45 is a good general purpose microphone intended for tape recording and public address work. It is ideal for speech and music as well if a limited frequency range can be tolerated. This microphone has been tested to our satisfaction. The price at £2 is reasonable enough for a very robust and attractive little microphone.



Fig. 1. Acos Mic.45 Crystal Microphone





Fig. 2. Acos Microphone 28/2 Lapel Microphone. The Acos Mic.28/2 Lapel Microphone

Another Acos microphone, which they do not seem to advertise very widely, is the Mic.28/2, a 'lapel' type in a small

rubber case. We have tested this microphone for a number of applications where the ordinary type of microphone

is a handicap. The Mic.28/2 will clip

into a coat button hole or to the coat

lapel, leaves both hands free to operate the recorder, and is therefore an ideal microphone for interviews and similar purposes. Frequency response is 30 to 8,000 c.p.s. Price £2.10.6 and well worth

The Acos Mic.44 Stereo Microphone

Another fairly new Acos microphone is the Mic.44 which is a stereo instrument and is supplied complete with table stand and lead. Crosstalk is -20dB at 2,000 c.p.s. and the microphone has an overall frequency response of

(Fig. 2)

it.

(Fig. 3)

ings made with this microphone were really excellent considering its low price of 6 gns. It is an attractive design and consists of a number of pressure units so placed as to give the proper two channel stereo recording response.



Fig. 3. Acos Mic.44 Stereo Microphone.

Finish is black and gold and the microphone is robustly constructed. Further details of all Acos microphones from Cosmocord Ltd., Waltham Cross, Herts.



MAKE	Model No.	Туре	Frequency Range c/s	Impedance	Directivity	Price
A.K.G. (Politechna, London)	D9	Moving Coil	80-10,000	200 & 50K	Omni	£4.19.0
(Fonteenna, London)	DIIN		80-12,000	Dual	Cardioid	£6.10.0
::	D19B D88 (stereo)	**	40-16.000 80-15,000	Low Low or High	Cardioid Dual	£17.10.0 £15.10.0
	CONTRACTOR CONTRACTOR CONTRACTOR			1993-940 - 940-940 940 7 674	Cardioid	or £18.10.0
	D12	"	40-12,000	60 ohms or to order	Cardioid	£34.0.0
Bang & Olufsen	BM3	Ribbon	20-14,000	50 ohms	Figure of Eight	£14.10.0
*	BM4		20-14,000	50.250 & 40K	Figure of Eight	£16.0.0
Cosmocord	Acos Mic.39	Crystal	40-15,000	4.7 Meg	Omni	£3.3.0 £2.0.0
	Acos Mic.40 Acos Mic.45		30- 6,000 30- 6,000	2.5 Meg 2.5 Meg	Omni Omni	£2.0.0
	Acos Mic.44 (stereo)		50- 6,000	2.5 Meg	Figure of Eight	£6.0.0
Film Industries	M.7	Moving Coil	60- 9,000	20 ohms	Omni	£6.5.0
	M.8	Ribbon	33-13,000	30 ohms	Figure of Eight	£8.15.0
G.E.C.	BCS2372	Ribbon	50-14,000	30 & 300 ohms	Figure of Eight	£19.19.0
	BCS2378 BCS2384	Moving Coil	50- 8,000 200-10,000	30 ohms 23-50 ohms	Figure of Eight Omni	£10.5.0 £8.18.6
Grampian	DP4/H	Moving Coil	50-15,000	25 ohms	Omni	£7.11.0
	:		50-15,000 50-15,000	600 ohms 50K	Omni Omni	£8.11.0 £8.11.0
Grundig	GCM.3	Condenser	-		Qmni	£6.6.0
"	GDM.111	Moving Coil	-	-	Omni	£8.8.0
Kent (Selmer Ltd.)	DM.21 DM.10	Moving Coil ., (with neck s	support) —	High High	Omni Omni	£5.5.0 £6.6.0
::	DM.17 DM.20	Moving Coil	=	High High	Omni Omni	£6.6.0 £5.5.0 £8.8.0
Lustraphone	LX.55	Crystal	30- 8.000	High	Omni	£2.10.0
	Lustrette LD/61	Moving Coil	70-12,000	High, Line & Low	Omni	£3.7.6 £5.5.0
	Master C.51	**	50- 8,000	Low Line & High	Omni Omni	£5.15.6
	Master C.48 Pencil LVF/H59	::	50- 8,000 150-14,000	20 ohms High, Line & Low	Omni Omni	£6.6.0 £8.8.0
::	Tubular TH59/SB		150-14.000	High, Line & Low	Omni	£8.18.6
.:	LFV/59 Lavalier LV/59	2	150-14,000 150-14,000	High, Line & Low High, Line & Low	Omni Omni	£8.18.6 £8.10.6
	LD/66		70-12,000	Low Line	Omni Omni	£4.2.6 £4.12.6
	C	B.1.L	5 1	High	Omni	£4.12.6
**	Studio VR/53	Ribbon	Flat to 14,000	High, Line & Low	Figure of Eight	£9.19.6
**	Ribbonette VR/64	**	Flat to 13,000	High, Line & Low	Figure of Eight	£7.17.6
	Stereolus VR/65 NS	Dual Ribbon	50-13,000	20 & 300 ohms	Figure of Eight	£15.15.0
100	Lapel LP/62	Moving Coil	Flat to 6,000	30 & 100 ohms	Omni	£3.7.6
Philips	EL6012	Moving Coil	100-10.000	25,000 ohms	Omni	£17.0.0
	EL6021 EL6031	**	60-15.000 70-15.000	Low & High 50 ohms	Omni Hyper-Cardioid	£14.0.0 £19.0.0
::	EL6040		60-20,000	Low, Line & High	Omni	£27.0.0
Restosound	DP	Moving Coil	-	30,600 ohms or High	Omni-Cardioid	£8.15.0
	RB	Ribbon		30,600 ohms	Figure of Eight	£8.15.0
	CR		—	or High 30,600 ohms or High	Cardioid	£8.15.0
Romagna	HMC/1	Crystal	80- 8,000	-2,000 ohms	Omni	£1.5.0
	HMM/1 HMR/1	Moving Coil Ribbon	60-10,000 35-12,000	10K 10K	Omni Figure of Eight	£1.19.6 £2.19.6
Shure	55S Unidyne	Moving Coil	50-15,000	50,250 ohms	Cardioid	£29.1.0
	535 Slendyne		60-13,000	& High Low or High	Omni	£25.7.6
Simon	Cadenza	Ribbon	50-12,000	30 & 80K	Figure of Eight	£8.18.6
		Crystal	30- 8,000	High	Omni	£3.13.6
Standard Telephones & Cables	4021	Moving Coil	30-15,000	30 ohms	Omni	£21.0.0
:	4032 4035		30-10,000 30-10,000	30 ohms 30 ohms	Omni Omni	£18.0.0 £18.10.0
••	4037 4038	Ribbon	30-15,000 30-15,000	30 ohms 30 ohms	Omni Figure of Eight	£20.0.0 £38.10.0
:	4038	Moving Coil	60-10,000	30 ohms	Cardioid	£20.0.0
Tannoy	MR/425/S MC/424/5	Ribbon	60- 7,000	600 ohms	Figure of Eight	£17.0.0

MICROPHONES FOR TAPE RECORDING

DECEMBER SPECIAL.—A TAPE PLAYLET FOR PARENTS, BY THE AUTHORESS OF CHILDREN'S T.V. FAVOURITES TORCHY AND TWIZZLE.

FROM THE A.K.G. RANGE

The D11N Cardioid Microphone (Fig. 4)

The new A.K.G. Dynamic Cardioid Microphone D11N is a high quality low priced instrument with a high impedance output suitable for the majority of



Fig. 4. A.K.G. D11N Cardioid Microphone

domestic type recorders. It has a cardioid pick-up pattern that helps eliminate sounds from the back and is fitted with a built-in stand. A bass attenuation switch is also fitted to cut down excessive rumble and reverberated sound. Frequency range 80 to 13,000 c.p.s. Price £7.10.0. Distributed by Politechna (London) Ltd., 3 Percy Street, London, W.1. (Write for illustrated leaflets and prices of all A.K.G. microphones.)

The A.K.G. D.88 Stereo Microphone (Fig. 5)

This is a dynamic microphone for stereophonic recording obtainable with high or low impedance output (high imp: D.88/Hi) (Low imp: D.88/200). Frequency range is 80 to 15,000 c.p.s. This is an excellent microphone for both stereo and mono recording and is priced at £15.10.0 for the low impedance model and £18.0.0 for the high impedance model, which includes a special matching transformer.



Fig. 5. A.K.G. D88 Stereo Microphone

MAKE	Model No.	Туре	Frequency Range c/s	Impedance	Directivity	Price
Telefunken	C14 D.11B	Condenser Moving Coil			Omni Cardioid	£4.4.0 £8.8.0
T.S.L.	MI	Moving Coil	60-13,000	200 ohms & 50K	Omni	£4.4.0
	S2 (stereo)		50-15,000	200 ohms & 50K	Dual Cardioid	£19.19.0
	MX3	Crystal	50-13,000	High	Omni	£2.5.0
Trix 	G.7871 G.7872	Moving Coil Ribbon	50- 8,000 50-10,000	30 ohms 30 ohms	Omni Figure of Eight	£7.10.0 £2.10.0
Vitavox 	B.51 B.50 B.52	Crystal Moving Coil ''	60- 8,000 60- 8,000 60- 8,000	High 25 ohms 600 ohms & 100K	Omni Omni Omni	£5.10.0 £6.10.0 £7.10.0

MICROPHONE STANDS

MAKE	Model No.	Туре	Price
Lustraphone	SIA	Floor (extending)	£6.16.6
	SIA SIB	Floor (fixed)	£5.5.0
	S2	Table (extending)	£2.12.6
<u>.</u>	S2.XP	Table (extending)	£2.10.0
	\$2.XB	Table (fixed)	£1.15.0
	S2C	Table(base only)	10/6
Lustraphone Ltd. also produce a co	mprehensive range of fittings and adapt		1940
Film Industries Ltd.	\$6 \$7	Desk (base and fitting)	£1.5.0 £3.5.0
EDANGALQUINTENDENNES MAL SABENET.	<u>\$7</u>	Table (extending)	£3.5.0
	S8	Floor (extending)	£5.5.0
Bang and Olufsen	DDS	Desk	£1.8.0
	EFS	Floor	£5.5.0
A.K.G. (Politechna, London)	ST10	Desk	£1.15.0
	ST200	Floor (Studio)	£12.10.0
Shure	\$33.B	Desk	£5.5.0
1.11	5.36A	Desk	£2.5.6
Kent (Selmer Ltd.)	Truvoice	Floor (collapsible)	£3.2.6
"	Slide-grip	Floor (extending)	£4.17.6
Grampian	Desk	base for DP.4	£3.10.0
	SI	Floor (extending)	£3.3.0
	54 58	Table (extending)	£2.12.6
::	58	Floor (heavy extending)	£6,10,0

November, 1961

GRAMPIAN LTD.

The Grampian DP.4 is too well known to need further introduction. We have tested both the high and low impedance models and for the price these microphones are excellent value. The DP.4 has however, usually been shown as a hand microphone and many do not realise that a table stand model is available at £8.19.6. This is known as DP.4/ Pack 1 as shown in Fig. 6. Further details from Grampian Ltd., Hanworth Trading Estate, Feltham, Middlesex.



Fig. 6. Grampian DP4, with Table Stand

FROM THE 'KENT' RANGE Kent Dynamic Microphone Model DM.21

This is a high impedance dynamic microphone suitable for tape recording which can be adapted for table top use or as a halter (neck) microphone. It has a wide frequency range, detachable 20 foot cord and is complete with neck cord and frame, both of which can be concealed. An ideal microphone for lectures, interviews, etc. Price 5 gns. complete.



Further details of this and other types of Kent microphones from Selmer Ltd., 114-116, Charing Cross Road, London, W.C.2.

LUSTRAPHONE LTD. The Lustraphone LD.66 (Fig. 7)

The LD.66 is a new design which has a built-in table stand. It is a moving coil (dynamic) microphone with a frequency response that is substantially flat between 70 and 12,000 c.p.s. It can be supplied with a high, medium or low impedance output and is an ideal microphone for portable work. High or line impedance model £4.12.6, low impedance model £4.2.6. (Tested by 'ATR' technical staff.)

The Lustraphone 'Stereolus'

The VR/65NS 'Stereolus' is a high quality stereophonic instrument, price 15 gns., intended for the discriminating amateur recordist. Frequency response 50 to 13,000 c.p.s. Output impedance 20 ohms (each unit). Sensitivity 90 dB below 1 volt/dyne/cm² Further details available from Lustraphone Ltd., St. George's Works, Regents Park Road, London, N.W.1. The M.8 has a wide frequency response which remains very nearly level from 40 to 13,000 c.p.s. and retails at £8.15.0. It is manufactured by Film Industries Ltd., 90 Belsize Lane, London, N.W.3, and is supplied complete with 12 feet of twin screened cable.



Fig. 7. Lustraphone LD66. FILM INDUSTRIES LTD. Microphone Type M.8 (Fig. 8)

Here is a ribbon microphone that will interest the high quality recording enthusiasts. The M.8 has a built in transformer and a nominal output impedance of 30 ohms at 1,000 c.p.s. (A matching transformer will be required to use this microphone with the high impedance inputs of the majority of tape recorders, although impedances up to 58,000 ohms are available.) We have tested this model which has our recommendation. Fig. 8. Film Industries Ribbon Microphone, type M.8.

SHURE MICROPHONES AND ELECTRONIC COMPONENTS

From the Shure range of high grade microphones we have selected the Model 535 'Slendyne' Dynamic microphone which is a high quality broadcast type instrument suitable for indoor and outdoor use. The microphone is built to withstand hard wear and has a frequency response level from 60 to 13,500 c.p.s. It has a dual impedance switch furnishing a choice of low or high impedance. Price £25.7.6 (Fig. 9).







Fig. 9. Shure Model 535 Slendyne.

STANDARD TELEPHONES & CABLES LTD.

The Stantel Ribbon Microphone Type 4038A (Fig. 10)

In the professional range there is the famous 4038 ribbon instrument which is eminently suitable for studio work. Frequency response 13 to 15,000 c.p.s. Output impedance 30 ohms. The 4038 is used by many broadcast and television authorities and is essentially a studio instrument, suitable for all musical and



orchestral work, because of its wide response and absence of transient distortion. Truly a microphone for the serious recordist. Price £38.10.0. Details of this and other S.T.C. microphones from Standard Telephones & Cables Ltd., Connaught House, Aldwych, London, W.C.2.



Fig. 10 Stantel Ribbon Microphone Type 4038A



THE ROYAL MICROPHONES, USED EXCLUSIVELY BY THE ROYAL FAMILY FROM 1924 TO 1945

WIN A miniature RECORDER in the A.T.R. CHRISTMAS COMPETITION

RULES

- 1. Imagine a miniature recorder being used in each of the six situations illustrated, and then choose the best
- Give the reason for your No. 1 choice, in not more than 25 words. 2
- Send the completed coupon to 'ATR Christmas Competition', Room 530, 3.



Businessman dictating



Stock-taking

Ulster Chambers, 168 Regent Street, London, W.1, not later than 20th November, 1961. If more than one entry is received

with the correct order entered, the tying entries will be judged on the reason given for the first choice. The Editor's decision is final.



Autograph hunter A





SITUATIONS

- A. THE AUTOGRAPH HUNTER
- THE BUSINESSMAN DICTATING WHILST B. TRAVELLING
- THE RESEARCH SCIENTIST NOTING EX-PERIMENT PHENOMENA C STOCK-TAKING D.
- E. REPORTER INTERVIEWING A STAR F. HOUSEWIFE COMPILING HER SHOPPING LIST



Research worker



Reporter interviewing a Star

THE PRIZE

The Stuzzi Memocord is probably the smallest tape recorder in the World. It weighs only 11 ounces, which includes the built-in microphone. A full review of this recorder operations are as a full review. of this recorder appears on page 35 of this issue.



November, 1961

www.americanradiohistory.com

TAPE TEACHERS IN TROUBLE

A.T.R. Educational Division

Teachers engaged in tape recording for school purposes all have problems

S OME of those recently reported to this page arise from the teacher's insufficient knowledge and experience of the apparatus he is using. This can be remedied by joining an adult tape club or by attending one of the short instructional courses arranged by the local education authority — sometimes during school holidays.

An appeal to the senior boys often produces surprising results, sometimes from a boy who has not joined the school tape club. Some of the pupils are possessed of remarkably advanced tape expertise which they willingly place at the disposal of a school project.

Usually, they are lavish with assistance when the teacher confesses that he needs help, and feel pride in the temporary reversal of role when they are appointed to technical control of operations.

Again, if the teacher concerned is the English, History, French or Music master, he can often obtain all the information and assistance he needs by an appeal to his colleagues on the technical side.

This seems obvious, but some secondary schools are very rigidly departmentalised, with workshops in a different block from the general subject classrooms, and in such circumstances the isolation of the technical from the non-technical staff, even to the extent of separate staff-rooms, hampers co-operation.

The Singer Not The Song

Recently, two of our correspondents in a boys' school endeavoured to record part of the school assembly, and ran into trouble over the hymn-singing. The first suggestion was to use three or four microphones with mixer.

These, however, were not available on the morning fixed for the recording session, and the attempt was made with one mike. Result disastrous! On the platform the staff were valiantly coping with the bass and tenor parts. Nearest to the stage were 120 junior boys trained by the music master in the appropriate descant. Behind them stood several hundreds of boys, aged 11 to 17.

Among these were a few tone-deaf growlers who had been earnestly exhorted to give the esteemed assistance of total silence — i.e., to 'keep their traps shut'. The remainder — about 600 — were to sustain the melody. The play-back revealed that the mike, sited near one wing to prevent piano, descant and staff from being drowned by the roaring melody, had achieved that purpose only too successfully. At one point, indeed, the only sound reproduced was the stentorian effort of the staff's strongest baritone who had obligingly agreed to re-inforce the numerically weak tenors.

Hiring Of Equipment

The project referred to above is to be tackled again, either with a special mike supplied by one of the school's technical staff or with mikes and mixer. If such equipment is needed by any teacher whose school does not possess it and who does not know where to hire it, the information will be supplied if he sends a note to the address given at the foot of this page. The hire charge is not prohibitive, and any Headmaster backing a school project can meet it from the school fund.

Tape Surges Ahead

Tape continues to advance on all fronts, and the press of many countries furnishes almost daily examples of the ever-widening range of its uses. Let us note a few taken at random.

The South-West Staffordshire Divisional Education Executive's General Purposes Committee has appointed a special sub-committee to go into the question of spending £1,000 on tape recorders.

In University College, Dublin, a lecture has been delivered on the use of the tape recorder in language teaching.

The Department of Bantu Languages in the University of the Witwatersrand is using tape recorders to teach Zulu, Sotho and Tsonga.

A similar method in the United States is reported to be enjoying 'enormous success'.

Tapes are being used for instructional purposes in schools of dancing. In one of the latest lists of L.P. records issued by a well-known Record Club, more than one third of the listed disc titles appear also in the parallel column of tape recording.

And to make you think we may close with the recording apparatus concealed by the Soviet political police in the beak of the symbolic eagle in the American Embassy in Moscow.

Note.—Letters relating to this page should be addressed to : Dr. C. A. Smith, M.A., Education Division, 'ATR', Room 530, Ulster Chambers, 168 Regent Street, London, W.1.

B.R.C. APPROVED DEALERS

Bath Co-Operative Society Ltd. TELEVISION CORNER, SOUTHGATE STREET, BATH

> CUSSINS & LIGHT LTD KINGS SQUARE YORK

ESSEX TAPE RECORDER CENTRES

2 MARYLAND POINT STATION, LONDON, E.15 (Head Office)

Telephone : MARyland 5879

205 HIGH STREET, EAST HAM, E.6 (Opposite East Ham Station) Telephone : GRA 6543

TAPE RECORDERS! No extra charges for extended credit. Grundig, Ferrograph, Philips. Telefunken, Fi-Cord, Simon, Walter, etc.

JEWKES & CO. LTD.

The Midlands Hi-Fi and Tape Recorder Specialists 285 Broad Street, Birmingham, 1. MID 4829/20

E. C. KINGSLEY & CO.

132 TOTTENHAM COURT ROAD, LONDON, W.1.



Specialist supplier of all good tape recorders, microphones, tapes and accessories. Official Ferrograph Agent. Hire Purchase facilities available. Rapid Postal Service. Personal Export. Well equipped Service Dept. 95 Liverpool Road, Liverpool 23. Phone GREat Crosby 4012.

Good quality equipment welcome in part-exchange

MANCHESTER'S SOUND SPECIALISTS

All makes of Tape Recorders and Accessories

Appointed Ferrograph Stockists

Gramophone Record Library-includes Stereo

LANCASHIRE HI-FI 8 DEANSGATE, MANCHESTER (Next to Grosvenor Hotel)

G. L. MORTON & CO. LTD.

12 OXFORD STREET,

NEWCASTLE-UPON-TYNE 1

NUSOUND RECORDING CO. 3/8 Brigstock Parade. London Rd., Thornton Heath, Surrey Opposite T/Heath & T. Bus Depot. THO 7609 London Showroom : 35 Craven Street, Trafalgar Square, London, W.C.2. Telephone TRA 2080

RAPID RECORDING SERVICE 78s and LPs from your own tapes — Master discs and pressings Recording Studio equipped with Bechstein Grand Mobile Recording Van. "Off the Air" Service 21 Bishops Close, Church Lane, E.17. COP 3889

R.E.W. EARLSFIELD LTD. PART EXCHANGE SPECIALISTS 266 UPPER TOOTING ROAD, LONDON, S.W.17 Telephone : BAL 7710

ST. ALBANS TYPEWRITER CENTRE 31 HATFIELD ROAD,

ST. ALBANS, HERTS

C. SHARP & SON LTD. 4 PREBEND ROW, DARLINGTON, CO. DURHAM

SHEEN TAPE RECORDER CENTRE LTD. Personal Sales and Service by L. G. Francis 8 STATION PARADE, SHEEN LANE, SHEEN, LONDON, S.W.14. Showrooms : PROspect 0985 (Next to Mortlake Station S.R.)

SOUTHERN RECORDER SERVICE 2 ST. GEORGE'S STREET, WINCHESTER, HANTS

CITY SALF	GUARAN	TEED	RECORDE	RS °	O W send cable.)	
	Vortexion C Stereo Ferrograph 808 Stereo	£148.10.0 105 gns.	SECOND HAND Grundig TK8	RECORDERS 42 gns.	N Please inappli	
CHANGE LTD	Ferrograph 4AN Reflectograph A Brenell Mark V	81 gns. 105 gns. 64 gns.	Telefunken 75 Grundig TK35 Korting	39 gns. 62 gns. 34 gns.	UPON the enclosed for :*	
93-94	Grundig TK35 Grundig TK20	75 gns. 42 gns.	Saba Stereo Ferrograph 4AH	49 gns.	for for	
EET ST EC4	Grundig TK14 Robuk RK3	35 gns. 36 gns.	Brenell 3 Star Telefunken 85K	39 gns. 45 gns.	Please quote	Name

November, 1961

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COMPOSITION FOR TAPE RECORDER AND ORCHESTRA

BY AN INTERNATIONAL GATHERING OF SOUND EXPERIMENTERS

THIS was the exercise for student composers at this year's Dartington Summer School of Music; a complete composition for orchestral instruments and electronically created sounds. Under the Directorship of William Glock, Controller of B.B.C. Music, the Dartington Summer School of Music caters each year for students of music and student composers who attend from all over the World. The instructors are leading figures in Music; well known musicians, composers and conductors who, during the four week summer school, give recitals and instruction to students, and enjoy, as much as time will allow, the famous surrounding Devonshire countryside.

This year, as before, our Technical Editor — F. C. Judd — was invited to co-operate with the organisation of the Electronic Music class under Luciano Berio, the Italian Composer and Conductor and founder of the elite Milan Studio of Electronic Music.

Musique Concrete was also featured this year by Olivier Clouzot who gave a recital of Musique Concrete compositions by Shaeffer and other composers of the R.T.F. Paris Studio of Musique Concrete.

The photograph shows L. Berio addressing the students, and the recording equipment. The exercise set by Berio provided the half-a-dozen selected composer students with a full two weeks work entailing the written composition for the orchestral instruments and the stereophonic electronic music parts as well. The students also produced most of the actual material for magnetic tape. The final work was performed in the school Concert Hall before an assembly consisting of almost all the remainder of the Dartington Students.

A point of interest for Electronic Music enthusiasts; the final electronic music part consisted of approximately three minutes of actual recording, but involved the use of some 15,000 feet of tape most of which was cut into pieces varying from three or four feet down to one inch and less in length ! The final performance entailed having loudspeakers set on the stage with the orchestral instruments, cues for playing the taped section of the composition being given in the usual way by the conductor. We hope later to publish exclusive details of new recording techniques used in Electronic Music and Musique Concrete, many of which were employed at Dartington.



Luciano Berio, founder of the Milan Studio of Electronic Music, experiments with sound, on a Ferrograph 808, at the Dartington Summer School of Music.

NOINTER	EST TERM	AS FOR ANY TAPE RECORDER AVAILABLE IN BRITAIN
2 YEARS TO PAY PLUS	WE CANCEL NOT JUST DEFER YOUR PAYMENTS YOUR PAYMENTS	SANDS HUNTER 37, BEDFORD STREET, STRAND, W.C.2 Please quote me for
CHErrywood 4393 7, CROWN HILL, CROYDON, SURREY. CROydon 5425	OR BECONVED A LOW DEPE	Repayments over 8/12/24 months Please send details of
45, HARE STREET, WOOLWICH, S.E.18. WOOlwich 1955 43, MITCHAM ROAD, TOOTING, S.W.17. BALham 2880	SANDS HUNIER 37, BEDFORD STREET, STRAND, W.C.2. TEMPLE Bar 8858	Name Address A.T.R



For ease of reading, particulars of Tapespondents are printed in the following order — name, occupation, address, interests, taste in music, type of machine and area of Tapesponding.

AUSTRALIA

ROSS OLSEN, age 19, Grazier, 'Kyree', Box 32, P.O. Narromine, NSW, Australia. Radio construction and a little of everything. Good, fast rock, vocal and instrumental, country and western. Home made Mullard Amp. with Collaro Studio Deck, 3in. to 7in. $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$.

England, male or female. F. J. THOMPSON, age 22, Mill Operator, c/o P.O. Mary Kathleen, via Cloncurry, NW Queensland, Australia. Shooting, hunting, reloading ammuni-tion, ballistics, music, travelling, tape recording, tapesponding, sound effects— general. Jazz, dixieland, instrumental, pop light orchestra. Grundig TK24 ($\frac{1}{4}$ track), $5\frac{1}{4}$ in. $3\frac{3}{4}$. Any English speaking.

CHANNEL ISLANDS

PAUL PERRIO, age 24 (married), Telephone Engineer, 'Les Jardins', Tor-teval, Guernsey, C.I. Recording, hi-fi equipment. Country, western, trad. jazz. Stella 2 or 4 track, 7in. max. 31. USA only, preferably Tennessee, Mississippi or any state where C & W music is eminent.

NEW ZEALAND

D. H. CASTLEDINE, age 37, Fitter-Mechanic. 339 Kimbolton Road, Field-ing, North Island, New Zealand. Re-cording, photography. Varied music. Truvox, 7in. $7\frac{1}{2}$, $3\frac{3}{4}$. Great Britain, Europe

BARRIE J. DOLAN, age 31, Secre-tarial Asst., 59 Hankey Street, Welling-ton, New Zealand. Canoeing, all sport, world affairs. Varied, mainly opera. Philco, 54in. 34, USA, S. Africa, China, Scandinavia. Also anyone with interest in canoeing in other countries.

BRIAN D. STRONG, age 22, Sales-man, c/o P.O. Box 257, Whangarei, New Zealand. All music, sound effects, docu-mentary recording, 'off beat' interests : hypnosis, night-life, satire, no religion or politics discussed, unusual occupa-tions, light classical music in moderation. MRI, 7in. $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Collaro Studio O. All tapes welcome. Anywhere English, good, broken or Pidgin spoken.

Inter-tape directory

NORWAY

KEN WILLIAMS, age 34, Engineer, Lillestrom, Norway. Postboks, 195 Photography, fishing. Dixieland, pop, Spanish. EAR Bantam, 5¹/₄in. 3¹/₄. Any part of world.

SCOTLAND

J. M. (Jim) BRYSON, age 32, Truck Driver, 51 Glebe Place, Galashiels, Sel-kirkshire, Scotland. Motoring, pipe bands, soccer. Pop and blues. Grundig TK20, up to 5‡in. 3‡. Preferably America, Canada, only English speaking.

U.S.A.

HANK LANFORD, age 35, Elec-tronics Technician. Route one, Wood-ruff, South Carolina, U.S.A. General interests. Classical, pop, Dixieland. Dual track, up to 7in. 3¹/₄, 7¹/₂. United King-dom, Ireland.

STEPHEN G. WEINRACH, age 18, Student, 441 West Durham St., Phila-delphia, 19 Pa, U.S.A., Hi-fi, art, music, literature. Opera, classical, chamber. Viking, 7in. $7\frac{1}{2}$, $3\frac{1}{2}$. Italy, France, England. Israel, some Asian country (Japan).

WALES

RICHARD LL. JONES, age 24, Capstan Operator, 71 Penrhos Avenue, Llandudno Junction, N. Wales. Varied, 8 mm. cine. Light music, jazz. Grundig TK25, up to $5\frac{1}{2}$ in. $1\frac{7}{8}$, $3\frac{1}{2}$. Anywhere English speaking. Either sex.

English speaking. Either sex. ARTHUR S. KELLY, age 35, Sales Manager, 32 Marston Road, Rhos-on-Sea, Colwyn Bay, N. Wales. 35 mm. colour, 8 mm. cine, caravanning, motor sport. Light music, pop. Cossor C1601, 7in. $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Outside G.B. All tapes welcome.

BEDFORD

PHIL, LEPPER, age 48, Hairdresser, 36 Pembroke Street, Bedford, Chess, evangelical, tennis, someone to chat. Light music. Cossor 4 track, $3\frac{1}{4}$. America or English speaking country overseas.

BERKSHIRE

PHILLIP MOLYNEUX, age 25, A/M, 5 Queens Close, Old Windsor, Berks. Shows, records, recordings. Classical, musical shows. Philips EL 3541, 3in. to 7in. 3³/₄. Germany, Austria, anywhere English speaking.

CUMBERLAND

FENWICK KENNEDY, age 27, Machinist, 156 Borland Avenue, Botcherry, Carlisle, Cumberland. General interests. Anything from proms to Presley. Simon SP4 and Robuk, up to 7in. $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Canada, U.S.A., New Zealand, Australia.

ESSEX

MELVYN SACH, age 21, Compositor, 37 Cavendish Avenue, Old Heath, Colchester, Essex. Motoring, photography, humour. All jazz, and Elvis to Ella. Sound 555, up to 7in, $3\frac{1}{4}$, $7\frac{1}{2}$, 15, Eng-Birmingham/Walsall land, preferably Birmingham/Walsall area. Either sex, same age. No need to write first, all tapes answered wherever they come from.

KENT

WILLIAM FREDERICK HUNTER, age 35, Bus Driver. 24 Elham Close, Gillingham, Kent. Sports, soccer, cricket. Swing, light music, jazz. Sound Studio De Luxe, up to 7in. $1\frac{7}{8}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Any English speaking country.

LANCASHIRE

CHARLES FITZGERALD, age 23, Bricklayer, 78 Edge Grove, Fairfield, Liverpool, 7. Tape Recording, Radio, photography, 35 mm. colour. Pops, light classical, big orchestras. Regentone RT51 up to 7in. $1\frac{2}{5}$, $3\frac{1}{2}$, $7\frac{1}{2}$. Australia, New Zealand (particularly W. Australia and Perth).

JEFF MAYNARD, age 17, Math's Student, 2 Anfield Court, Anfield Road, Liverpool 4, Dancing (Latin American), tape recording, maths, anything scienti-fic, photography, tagistology (collecting beer mats). No politics and religion. Pops, Latin American dances. Grundig TK20, up to 54in. 34. Anywhere English speaking except British Isles.

LINCOLN

ERIC H. SNELL, age 45, Railway-man, 217 Lincoln Road, Branston, Lin-coln. Gardening, cacti, amateur photo-graphy. Pop (not too jazzy), some ser-ious. Cossor, 7in. $1\frac{2}{3}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere in England, prefer single contacts up to own age. Girle webser own age. Girls welcome.

LONDON

A. GARDINER, age 26, Printer, 48 Goodrich Road, East Dulwich, S.E.22. Cycle road racing, magic. Trad. jazz, folk, modern piano. Geloso G256/E, 3in. 1²/₄. Mainly Australia, any U.K. countries with same interests.

SURREY

GEOFFREY DERICK FOSTER, age 19, Electronic Wireman, 152 Mead Lane, Caravan Park, Chertsey, Surrey. Radio and T.V. repairs, Pop, sound track recordings. Philips AG8108G, 7in. $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Anywhere, to females of same age.

YORKSHIRE

H. BOOTHROYD, age 50, Joiner, 54 Norwood Avenue, Shipley. Yorks. Educational interests, hi-fi. Philips 4 track, 3in. to 7in. $1\frac{2}{5}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Anywhere English spoken.

GORDON JOHNSON, Store Display, 26 Larch Hill, Sheffield, 9, Yorks. Interior decorating, do-it-yourself, archaeology, Egyptology, 8 mm, cinema-tography. Generally most music, but not extremes. Philips 3 speed, 4 track, up to 7in. Anyone outside U.K. GLYN WATSON, age 17, Junior Clerk, British Railways, 27 Breck Lane,

Dinnington, Nr. Sheffield. All aspects of hi-fi tape recording, tapesponding, Mainly pop, good film music. E.A.P. 2 track machine, up to 7in. 33. Anywhere English spoken. Either sex, females welcome. All tapes answered.



Our reference to Mr. Rimmer and his 29 tape pals in the September 'Tapesponding' edition brought us a heavy post from folks who could go one or more better than Mr. Rimmer. Here is a selection :

Firstly from MAX H. NICHOLLS, P.O. Box 40, Pietermaritzburg, Natal, South Africa.

I can claim 40 tapespondents, can anyone beat this? I must say, however, I started in 1948 with a wire-recorder. I can claim also to be one of the first tapespondents in the world, then known as wirespondents. I was the first in South Africa. In those early days a club was formed in the U.S.A. known as the Wiresponding Club. Today that has been taken over by the Voicesponding Club. I am of course a charter member of the Voicesponding Club and also the British Recording Club.

Through the years of this hobby I have collected many unusual recordings, amongst them being the last words spoken from Hungary before that country was over-run by the Russians. Another recording in my extensive library of more than 60 tapes, is the New Year sounds of Valparaiso Harbour and sounds of the queer birds and animals from Australia. One of my Dutch tapespondents sent me a very good sound picture of his country. Yes I have numerous recordings of unusual interest in my library, together with what I can now call historical recordings on wire. I still have one of these wire machines, mainly now as a curio to let the new tapesponding friends I have see what we had to use in the old days.

Yes, sound has progressed a lot since those days. Any wirerecorder owner will tell you the trouble we had when the wire 'spilled' off the reel.

Our old friend MIKE STOREY writes :

In the article you had on me in an early edition you did, I believe, mention that I had over 50 tape-friends (or some similar number). This still stands, but I know of several who could probably beat it. Don't get the impression that I am out to beat a record. I never thought when I started in the hobby in 1957 that I would eventually have so many tape friends, but it just snowballs. In fact of late, I have been saying 'no' to the few folks who have written asking if I will tape with them. They all seem so interesting, but I have, I think, reached saturation point. I have got to the stage where I find I am already taking up to a month to answer a tape, though I often manage a by-return reply.

My number of regular tape-friends is in fact just over the 50 mark; but if you wish to account also for those tape-friends with whom I tape irregularly (i.e., perhaps once or twice a year), or those who are on 'round robins' with me, and those folk who are on circuits of my tape magazine 'Folk Voice' then my circle reaches the 100 mark and beyond. Please do not get the impression I am boasting. Many, many could beat this, but I merely show surprise that you hadn't already realised that there must be quite a lot of people around who have been taping longer than I have and who have gathered an even larger number of tapespondents. I know for instance, of several-retired people who have more spare time than I have, who can boast of more tape-friends than I and even boast a reply within 3 days to everyone who tapes them !

Not forgetting of course that I do have here a small black circular object made of plastic and about 7in. in diameter. It has a hole through the middle. I'd be most grateful to know if this is a record?

RON G. NORMAN, 1 Manor Road, Felixstowe, says :

Tapesponding to my mind is the best possible hobby that any tape recorder owner can take up; it has unlimited scope for the inventive mind and yet can be a simple way of making real friends for those of us who have difficulty in mixing in company in the usual manner. I myself until a few months ago had over 35 tape pals, but due to a change of business which has curtailed my free time, am down to about 10 steady, though I still send the odd one to the rest when time permits. The champ of all must be well-known to many 'Tape'natics' in this country; he calls himself 'The Crazy Tape Worm', namely Dick Kenny of 41 Bank Street, Stamford, Conn., U.S.A., who at the last count had 87 tape pals all over the world. I myself cover around six countries and am building up a tape library of effects from each one. As a method of keeping track I use a card index filing system to allow me to follow each tape in and out together with the details of what has been said and the effects that have been sent, this makes sure of not sending the same track twice.

My library is up around the 30 reel mark at present, but I have a long way to go to catch up with Dick Kenny; he has over 2,000 7in. reels in his library and can trace any of them that he needs in a few minutes.

I have five recorders, though a Vortexion WVB, is the most used. I never use four track and only use stereo in records with a Lenco deck and a Triple-Tone 5-5 amp.

I am often asked about taping and my advice to anyone who has a tape recorder and wonders just what they can use it for, is get a copy of 'ATR', look down the list till a name strikes your eye then drop him or her a card saying : "I would like to tapespond with you, but am not sure how to start".

In most cases he will receive a tape in a few days as I have found that tapespondents are the same all over the world — willing and ready to make friends with anyone who is crazy enough to sit and make a conversation to a microphone.

Finally, here is MR. RIMMER again on another aspect of tapesponding :

HOW FAR CAN A TAPE TRAVEL?

On reading your article in the September issue of the 'ATR' magazine about interesting and unusual tapes one receives, I would be pleased to know if anyone has a tape that has travelled the world and covered the thousands of miles, a tape I have received has done.

A few weeks ago I received a very fresh and spirited tape, this being proved when I placed it on my recorder and sat down to listen.

It was a five inch L.P. and was indeed very interesting, I won't say unusual because there may be others circulating the Universe. This tape started its journey round the world in 1959 from Cape Town, South Africa, afterwards calling at Norway, Zurich, Germany, Scotland and Ireland. It decided to take a trip across the atlantic to the U.S.A., calling at Ohio, Florida, Wisconsin, Mitchigan, Indiana, California, Pennsylvania, Philippines, New Westminster, B.C., Canada. Whilst in Canada it must have remembered us here in England for after a visit to the South of England it came along to the Midlands here to be greeted by me. Well, like all the other contributors from the countries I mentioned I add my three minutes to the now rather weighty tape. But although heavily recorded with music and chatter of these countries, it was in excellent voice and spirits when it left me for its long journey to Australia, its last call will be to India and then back home to Cape Town, South Africa. I estimated its arrival there some time in December, 1961.

I think you will agree with me that it is a most interesting and well travelled tape.

A copy of this tape is to be made and this will be sent to all the people who participated for them to make a further copy if they wish. I for one have my recorder warmed up ready as it is really worthy of being placed in one's tape library.

I would like to read in the magazine if anyone has had a similar well travelled tape.

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THREE CHANNEL MICROPHONE MIXER

_by F. C. JUDD A.Inst.E._____Part 2

_Part 2 Pro

Practical Layout and Components Required



FIG. 1. THE FINISHED INSTRUMENT

A COMPLETE circuit diagram for the three channel microphone mixer was given in part 1 in the October issue. A photograph of the finished instrument is shown in this issue as Fig. 1, so the first point to be considered is a suitable housing. The case shown in the photograph consists of a front panel on which the chassis and the controls are mounted. The case itself is merely an oblong box which fits over the chassis and is secured to the front panel by six screws.

The size of the panel is 12in. x 5in, the case itself being 11in. long, 5in. high and $4\frac{1}{2}in$. deep. The original case was made from mild steel formed with lips top and bottom to which the front panel is secured (Fig. 2).

The chassis merely consists of a flat strip 7in. x $3\frac{1}{2}$ in. with a right angled bend along one edge. The size of the case, front panel and chassis is not greatly important providing there is sufficient room for the valves and components. Careful layout is however, essential and for this purpose the diagram Fig. 3 has been included. Note, however, that the diagrams



and the measurements given are merely intended as a guide to layout and the construction of a case of comfortable proportions. Note also that the photograph shows an additional control and input socket on the left hand side. The control is actually a switch for changing over from high to low impedance input and the socket provides an additional low impedance input. This will be discussed later when dealing with modifications for low impedance microphones.

FRONT PANEL AND CHASSIS LAYOUT

The three volume controls VR1, VR2 and VR3 are mounted on the front panel together with microphone and radio/gram input sockets. In the original design provision was also made for a pilot lamp which was operated from the heater supply. It was discovered however, that its presence introduced hum and for this reason was omitted from the final circuit. The input sockets must be insulated from the panel. Standard jack sockets with insulated bushings are available (Bulgin, Radiospares, etc.). Other types of socket may of course be used but must be insulated from the panel.

The earth return of each socket must be made to a common point on the chassis.

The output from the mixer is taken from the capacitor C9 (0.5 uF) and earth or H.T. negative. The impedance at this point is sufficiently low as to permit a screened cable of 50 feet or so connecting the mixer to the tape recorder.

The output socket may be co-axial or jack type and can be mounted at the back of the box or on the front panel as desired. It should, however, be as remote as possible from any of the input sockets.

The two valve holders should be spaced approximately as shown in Fig. 3 and mounted close to the component tag board. When wiring, aim for the shortest possible leads between the anodes and grids of the two valves and associated components. Heater wiring should be twisted but **not** earthed at any point since it is possible that one side of the heaters may already be earthed in the power supply; if not, it may be necessary to earth one side if the hum level is excessive.

Care should be taken over the positions of the anode coupling capacitors C1, C3 and C5 although these components should be separated as much as possible to avoid crosstalk in the microphone stages V1a and V1b.

COMPONENTS

Now a word about components generally. The capacitors C1, C3, C5, C7 and C9 may be paper type with an operating potential of at least 250v. Capacitors C2, C4 and C8 should be not less than 350v, working types, leaving C8 for which a 12 to 25v. working type will do. As shown in the circuit diagram in Part 1 the volume controls are logarithmic types and except where indicated all fixed resistors are $\frac{1}{2}$ watt type. Note, however, that R1, R2, R3 and R4 are high stability resistors. The use of ordinary carbon types would result in a high noise level.

THREE CHANNEL MICROPHONE MIXER

__by F. C. JUDD A.Inst.E.____

____Part 2

Practical Layout and Components Required

PERFORMANCE OF THE MIXER

The frequency range using either the microphone or radio/ gram inputs is approximately the same. The curve shown in Fig. 4 was actually taken using Mic1 input with a 10mv. signal. Each stage will handle appreciably larger signals without overload and consequent distortion, and if the layout and wiring is well arranged there is virtually no hum from the microphone amplifiers when operated at full gain. On no



account attempt to build a power supply into the mixer unless it can be incorporated with a substantial amount of screening and be well spaced from the components and valves of the mixer circuit. The case would have to be considerably larger to accommodate the extra components. It would be especially undesirable to include a power supply if low impedance inputs are contemplated.

The mixer has more than enough gain for operation with crystal microphones and will provide ample output voltage to load the radio/gram input socket of the average domestic recorder. The output would have to be severely attenuated if signals have to be fed to a microphone socket on the recorder.

Part three will provide details for a simple fixed attenuator and will give circuit modifications for low or high impedance



microphone inputs with suitable matching transformers and provision for an additional gram/radio input.

Finally, the total power consumption of the mixer is as follows: valve heaters 6.3v. at 0.6 amps. so that a 1 amp. heater supply is adequate. High tension 250 to 350v. at approximately 5 milli-amps.







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	0063 WHS20063
Vienna State Opera Orch. Mozart	WH20064
Schubert : Octet in F Major	WH20065



Tape

and disc review

STANLEY WHITE . . .

Bryan Rodwell at the Organ

Music On Tape. D 1127. (Monaural) $3\frac{3}{4}$ i.p.s. 45/-. $7\frac{1}{2}$ i.p.s. 60/-. 1 hour. (Bryan Rodwell at the Wurlitzer Pipe Organ of The Granada, Clapham Junction.)

This one hour recital includes no less than nineteen musical items covering a very wide field, but all linked by the modernistic style of playing which has earned Bryan Rodwell praise from theatre and classical organists the world over. Ranging from the Puppet Suite, Malaguena to Ain't Misbehaving, Rodwell gives out with some of the most exciting performances ever recorded on a theatre organ. Early musical training has served the organist well, and he is able to control the powerful organ as few can, employing a style of playing which calls for very fast work by his hands, feet and brain in order to perform the difficult arrangements he chooses to use.

His modern style of playing is out-ofthe-ordinary for an organist, but by mastering this idiom, he is able to present modern arrangements of jazz music, which actually does justice to the titles (not many organists are capable of success in the jazz field), whilst his modern style lends added interest to items such as the **Puppet Suit** and the **Toy Trumpet**.

One of the cleverest organists in the world, Rodwell spares no effort to please in this interesting programme. The mighty organ whispers and roars at his command, and punches out a bass accompaniment to the rhythm numbers which would put many bass players in current jazz groups to shame. (Rodwell uses the pedals for this work). Wonderful music, a great organ plus the best of the modern style of organ players in the person of Bryan Rodwell. For organ fans and all lovers of excellent musicianship.

First Flight

Music On Tape. (Mono) $3\frac{3}{4}$ i.p.s. 29/-. $7\frac{1}{2}$ i.p.s. 39/-. Approx. 30 minutes.

Tape Nos. 3¹/₄ TR123. 7¹/₂ TR147. It's Tough In The Teens Juniper Jane Paradise Avenue Mention My Name Riccione Strange Feeling Think It Over Weeping Willow Janie Maybe Because She Loves You David Brook Joe Vaughan Val Nash Bob Starr

Derek Hudson

This tape presents music in the present day popular styles featuring new voices from around Britain. The standard of performance is very high, and the excellent musical backing is provided under the direction of the very well known orchestra leader, Johnny Douglas.

The tape really rocks, with a real professional group of musicians playing the backing to the vocalists in hot 'rock 'n' roll' arrangements. A very lively vocal group also lends support to the vocalists. These are a good crop of young singers with voices capable of taking them to the top on their own merit.

Val Nash has a lovely voice, and has everything a singer should have. Even so, this is the 'pop' music of today, and should find favour with many people. I'd bet my last penny that if some of these numbers were issued on disc, they would make the top twenty.

This is real good quality popular music. You'll enjoy it.

Music for Lonely Boys

The Teenmates

Music On Tape MT 9-1063. Mono $3\frac{3}{4}$ i.p.s. 45/-, 4 track stereo $3\frac{3}{4}$ 50/-, 4 track stereo $7\frac{1}{2}$ i.p.s. 60/-.

This hour long session features an out and out rock 'n' roll outfit called The Teenmates, complete with vocalists, wailing electric guitars and all. Whilst the lads appear to give a reasonable presentation instrumentally, the vocalist is not on the same level. However I cannot compare these performances with the excellent 'First Flight' tape, which has the same basic formula with better performers.

Bric-a-Brac

A Garland of Victorian Poesey, read by Keith Parry, Valerie Douglas and Thom Neville

Music On Tape. DP 433. Monaural $3\frac{3}{4}$ i.p.s. 42/-.

The contents of this tape are exactly as the title suggests, a collection of Victorian 'Bric-a-Brac'. Some of the material is quite amusing, certainly not funny to my mind but containing an element of mellow entertainment which is rarely heard today. The readers do well with the better material, but struggle a little here and there with the less entertaining lines. If you are the type of person who enjoys being entertained by poetry readings, you might find this related art rewarding.

A clever presentation and certainly a novel tape. The speech is linked by suitable period music.

The new 'Music On Tape' boxes used with the above tapes are most attractive.

Top Brass

The 'All Star' Concert Brass Band. Conductor Harry Mortimer, O.B.E.

Esoteric. BB 001(M). Monaural. $3\frac{3}{4}$ i.p.s. 1 hour.

'Top Brass' contains some very excellent Brass Band material, not marches as one might assume, but concert



Bryan Rodwell, well-known for his many broadcasts and recordings, acknowledges the applause of his audience, from the console of the Christie Organ in the 'Rialto' Cinema, Enfield.

material including 'Music for the Royal Fireworks'. The playing is superb, and it goes without saying that Brass Band enthusiasts will want this tape.

The tape box has good sleeve notes with a picture lid. The one fault lies in the reproduction quality, which although good, does fall off sharply at the top, leaving a rather ragged sound. This could be for one of two reasons, recordings made some years ago — or the slow speed. On the other hand it is only the higher frequency band which suffers, and there is no other distortion, so that correct adjustment to your equipment can bring out pretty good listening.

An hour of good Brass Band music will probably be enough to attract a good number of buyers anyway.

Reproduction not as good as from other Esoteric tapes.

RUSS ALLEN ON JAZZ . . .

Some great stuff in the lists this month and I was unable to decide on my favourite of the month until I put Ember 3327 on the turntable. The Duke Ellington Orchestra.

Ellington of the forties — nostalgia mmm! I've heard them all before on Parlophone 78's and I loved 'em then, I love 'em now. How fantastically good that band was. Lawrence Brown, that sax' section, Hodges, Hamilton, Sears, Carney, Procope. Sonny Greer, Oscar Pettiford. Great, great. This is a must, not only for Ellington fans, but for all lovers of big band jazz and although it was recorded around 15 years ago it has dated very little. In fact I think that only the drumming and guitar styles date it.

Next on the list must be Volume III of Louis Armstrong, His Greatest Years. Parlophone PMC 1146.

Recorded between 13th May 1927 and 27th June 1928, these are the last of the Hot Seven sides, four tracks with Lonnie Johnson and three with Earl Hines and Zutty Singleton.

This is jazz!

Bud Shank Quartet. Ember 3322.

Bud with the Claud Williamson Trio, being Claud (piano), Don Prell (bass), and Jimmy Pratt (drums).

Side one kicks off with everyone playing authentic African instruments and much as I hate gimmicks in jazz, what Bud does with an African six hole penny whistle is nothing short of miraculous and this track swings like mad. Next best track was a 3/4 blues which swung better than most similar efforts.

Very flutie of course, but fine contributions from the rest of the cast. A swinging set for you to get, yet. Soul Junction. Esquire 32-136. Red Garland Quintet featuring John Coltrane and Donald Byrd and with George Joyner (bass), and Arthur Taylor (drums).

Title tune opens side one in true soul style but soon reverts to the more typical Garland sound with a long piano solo well backed by the rhythm. Trane and Byrd are both Soulish and the coda pure corn (must be tongue in cheek). Woody'n You, Birk's Work, I Got it Bad and a molto rapido Hallelujah are all given a great workout. Best Garland for some time and of course, Trane and Byrd are more than just a help. Super !

Looking Ahead. Esquire 32-133. Ken McIntyre with Eric Dolphy. With Walter Bishop (piano), Sam Jones (bass) and Arthur Taylor (drums). Recorded 28th June 1960.

Both the leaders play alto and flute and Dolphy uses his bass clarinet also.

Ken impresses me less than Eric both tonally and in his approach to jazz. Together, in ensemble they make a most interesting sound and I'm sure make excellent foils. I raved about Dolphy's first disc and I like him still. Of McIntyre I'm less sure. Anyway this is an exciting album and well worth a place in the modern collection.

The Great Kai & JJ. HMV CLP1476. Kai Winding and J. J. Johnson plus Bill Evans (piano), Paul Chambers or Tommy Williams (bass) and either Roy Haynes or Arthur Taylor (drums). This is a reunion, the two 'bonists getting together again in December 1960(?) and proving they've lost none of their wonderful old touch. It's very much the mixture as before but with plenty to make it a best seller. Blue Monk for instance sounds as good as Monk himself could wish. A whimsical Side by Side is a pip and Trixie a waltz by J. J. superb.

Farmer's Market. Esq., 32-137. Art Farmer Quintet with Hank Mobley and Kenny Drew, with Addison Farmer (bass) and Elvin Jones (drums). Recorded 23rd November 1956.

My first thought was, this an old one (for modern). Forget the date and enjoy. Farmer's fat tone and delightful lines are a treat. Particularly good were Addis-on, Reminiscing and Be Myself. Mobley sounds a bit adenoidal and not the best I've heard him but Kenny Drew is fine. The sides swing though I don't always like what Jones plays, but Addison is solid. Perhaps not sensational but highly satisfying. Fat Stock at a satisfactory price.

Stompin' with the Ronnie Ross Quintet. Ember 3323.

Ross with Bert Courtley, Eddie Harvey (mostly on piano), Pete Blannin and Andy White.

A lot of swinging stuff here. I should think that a tinge more bass and drums would have helped, but generally the recording is O.K.

Ross impressed me most, playing with just the rhythm, on **Smoke Gets in Your Eyes**, Excellent, Blannin plays solo on all but one track but his playing on **The Serpent** was extremely good. Ensembles were good too, so why not get some home produce for a change.

Max Roach+4. Moon faced and starry-eyed. Mercury MMC14079. With Abbey Lincoln.

This is the group from the so successful **Quiet as it's Kept** MMC14054, the Turrentines, Stanley and Tommy, tenor and trumpet respectively, Julian Priester (trombone), Robert Boswell (bass), plus Ray Bryant (piano) and a Miss Lincoln who sings I concentrate on you and Never Leave Me.

There is not the same inventive groove and excitement here as before but it concentrates on giving each man a solo blow. All play well, especially Priester, but it's a subdued mood and Max doesn't solo once.

As for Abbey, described as a supper club songstress, I can only say she showed a lot of promise. The two numbers we hear are not ideal vehicles for a display of jazzbatics and we have none.

I look forward to the M.R.+4's next album and hope it will be more like the first.

Nick's Jazz. Albert Nicholas Quartet. Esq 32-135. With Art Hodes (piano), Freddie Koolman (drums), Earl Murphy (bass). Recorded 19th and 27th July 1959.

Albert Nicholas played with King Oliver back in 1925 and with Armstrong, Russel, Jelly Roll, Webb, et al. According to Delaunay his name was Nichols but then —

He still plays remarkably well and backed by Hodes and the rhythm he really makes it breaks it.

This is a first class example of what I call small club jazz, intimate, smoky and tunes you all know, Ain't Misbehavin', Rose Room, Rosetta, oh you know and easy on the ear.

I dig Dancers. Quincy Jones and Band. Mercury MMC14080. With mainly an 18 piece, Quincy has arranged ten tunes. They're beautifully recorded with full use being made of echo an' all 'at. There's a fairish amount of jazz but you can still slip it in among the Frankies without spoiling the mood.

Jazz at the Fabulous Flamingo. Ember 3321. 10th Anniversary Tribute.

This is a brief and not too flattering resume of life at the Flamingo Club. There are examples of eight different groups, from which Tubby Hayes and Eddie Thompson emerge as the real stars. You may hear much better jazz from most concerned any night you visit the Flamingo itself.



CAMBRIDGE

CAMBRIDGE Two members of Cambridge Amateur Tape Recording Soc-iety-Margaret Green-all and David Neech were 'spliced' on 16th September, and Secretary 'Mike Ren-shaw recorded the wedding service. We join with the club in wishing them every success in their future married life. (Mike Renshaw, 6 St. Vin-cent's Close, Girton, Cambridge.)



DEVON

DEVON Members of South Devon Tape Recording Club took a trip to Dartington Hall, Totnes, for a very interesting demonstration by Fred Judd entitled 'Elements of Electronic Music'. Aptly described by one member as ''out of this world'', the programme certainly left plenty of food for thought . . At the 13th September meeting, in the YMCA, Castle Circus, Albert Pengelly, win-ner of the 'Music or Speech' section of the 1961 British Amateur Tape Contest, with his two associates, Peter Cox and Mr. Penty, told mem-bers how they recorded his prize-winning tape in the Plymouth City Library. (Mrs. J. Pletts, Brid-ham, Kents Road, Wellswood, Torquay.)

ESSEX

ESEX Clacton Tape Recording Club's members have recently interviewed singers Sheila Buxton and Ronnie Hilton. . A few members visited the Radio Show, by-passing the TV stands to gape at the new additions to the tape recorder family. No doubt a few new machines will find their way into the list of members' equipment before very long. (J. Heavens, 27 Chapman Road, Clacton-on-Sea, Essex.) At Ifford & District Tape Recording Society's AGM, both Chairman Jimmy Hunter and Secre-tary Dave Bolton were re-elected, with Bill Paine taking over the Treasurer's duties from Dave (he held both positions last year). . . Recently, members received a comprehensive questionnaire, and answers have proved both useful and informative. Typical questions : Which interests you most : (a) Outings to Whipsnade, the coast or other places of interest ? (b) Meetings with other clubs ? (c) Recording live concerts, choirs, music students, etc.? (d) Forming a hospital or similar service ? Members placed (c) and (d) first, in a tie, and (a) last (Naturelly, we chose that example at

Forming a hospital or similar service ? Members placed (c) and (d) first, in a tie, and (a) last. (Naturally, we chose that example at random 1) . . . The club proposes to run an subject, which will vary from year to year. The contest will be open to all members, and two prizes will be awarded by judges from outside the club. First prize will be a 7in. long play pre-recorded tape of the winner's choice, and second prize a Bond tape splicer. This year's subject. (Dave Bolton, 13 Gloucester Road, Manor Park, London, E.12.)

GLAMORGAN Good news for the folks in Aberdare : a club for you is in existence again, and will hold meetings on alternate Wednesdays at the Labour Rooms, Albert Street. (Michael Rogers, 13 Stuart Street, Aberdare, Glamorgan.)

Street, Aberdare, Glamorgan.) **Closwold Tape Recording Society's** 7th Sep-tember meeting was devoted to a live recording severcise, the special object of which was to examine the effect of microphone placement on the overall balance of recording. The society was fortunate in having for this purpose, a dance band run by member Ray Tingley, who is well versed in the art of recording and knew exactly what was required. Four instrumentalists were present, doubling on plano, drums, tenor saxophone, banjo, plano accordion and elec-tronic organ, so providing a wide range of tone-colour and dynamics. The planist of the band, Andy Clyne, is also a composer, and it was his tune, 'Passing Cloud' which was recorded — played as a waltz, straight, and as a cha-cha. Upwards of a dozen recorders, representative of the whole price range were in use, and after played back and discussed. It was fascinating and instructive to observe the difference pro-duced by moving a microphone only a few

inches, and also to hear the differences between recordings made by identical microphones on different machines and vice-versa. One member even tried the effect of recording sound reflected from different surfaces such as walls and screens, cutting off as much direct sound as possible, with remarkably good results. Member Eric Jones was also in action with his home-made multi-channel mixer and three microphones, and it was interesting to compare his more ambitious efforts with those using simpler equipment. In all a very useful evening's work. (Peter Turner, Cave Cottage, Oakridge Lynch, Stroud, Glos.)

KENT

KENT Mr. D. F. A. Bird, 'Radac House', 92 Gar-diner Street, Gillingham, Kent, writes to say : ''I wish to thank you for printing the paragraph concerning the starting of a tape recorder club for this district. In this district it seems that there are many recorders dormant due to lack of things to do with them. However since this month's 'ATR' magazine came out I have had an overwhelming number of enquiries for mem-bership to our club, which I might add has not been completely formed yet. It now seems that in this area the club may be one of the biggest of its kind; we expect to get about 180 members In one area the club may be one of the biggest of its kind; we expect to get about 180 members in all, especially if the campaigning continues at the rate it is going at the moment. I must admit that I am not a member of the BRC but this is something which will certainly be remedied".



LANCASHIRE

Mr. A. Evans has resigned his Secretaryship of the Liverpool Central Tape Recording Society. The new Secretary is Mr. E. Durkin, 103 Ritson Street, Lodge Lane, Liverpool 8, and the club has moved back to its former premises at 'Brockman Hall'. Future activities include a visit to a jazz club and to the docks.

LEICESTER

<text>

don't read their 'ATR' magazine thoroughly!) and had asked to hear a copy of this mag, so the poor overworked Sec had to arrange to get the copy . . . John Thorpe, one of the club's new members, is busy constructing a video machine for recording and playing back pictures from the television. He is building a camera and monitor set to use in conjunction with his tape recorder. Efforts to get more information out of him have at present failed as he says he isn't sure yet whether it will work. But if it does he will take it along to the club for demonstration and we will give a full report then. (Keith Smith, 117 Wykin Road, Hinckley, Leics.) At a meeting of Leicester Tape Recording & H-Fi Club Malcolm Clarke gave a lecture about the various instruments of the orchestra from a scientific standpoint. Such matters as determina-tion of pitch, volume, and tone quality of the different sections of the orchestra were discussed, with help from various recorded orchestral works. Malcolm's lecture gave a chance to illus-trate his own virtuosity — on the Euphonium 1 (Peter Starrie, 56 Minehead Street, Leicester.)

(Peter Starne, 56 Minenead Street, Leicester.) **LONDON Brixton Tape Recording Club** are now in the final stages of editing over 15 hours of recorded material for the 'Lambeth Festival' tape – a mammoth task for this small but lively club . . . Club Secretary R. G. Garrett, now on holi-day, has promised to send a tape back to the club, which members hope will be even more interesting than the tape Mr. Garrett sent from France when he was on holiday earlier this year. Tapesponding is enjoyed by many club members – tapes having been sent to Baghdad (Iraq), and Iowa and Colorado Springs (USA), and a tape having been received from New Zealand. This is only one of the many activities members take part in and new members are always wel-come. (R. G. Garrett, 56 Rattray Road, Brixton, London, S.W.2.) Following pleas from members interested in the hi-fi aspect of tape recording and due to the lack of other clubs in the North London Tape & Hi-Fi Club . . . In a contest for tapes made up of sound effects, telling a clear story, Roy Smith won with a 'smash and grab' tape, using the sounds of a window smashing, tootsteps, the puick withdrawal of a motor vehicle, and the pursuing police cars. The contest gave members excellent practice in the use of sound effects, especially as a time limit was set. (Richard Collinson, 30 Ridler Road, Forty Hill, Enfield, Middlesex.)

especially as a time limit was set. (Richard Collinson, 30 Rilder Road, Forty Hill, Enfield, Middlesex.) Walthamstow man, Sgt. Tony Clarke, now in Germany, who is in regular receipt of the local press, read of the activities of Waltham-stow & District Tape Recording Society and promptly applied for membership through tape-spondence. Offering him honorary membership, the Society also asked if they could perform any services for him, his family and colleagues. Back came a request for the sounds of Walthamstow's High Street Saturday afternoon market for the benefit of him and other London servicemen. The society, obliged by sending a member out with a battery portable to collect the cries of stallholders, a butchers' auction, and many amusing selections of sales patter typical of the market. An edited version of the tape has been est — together with a promise of another to follow of a ride on a bus from Bakers Arms to Chingford Mount. This will be a real reminder of civy street for Sgt. Clarke, as he was a trolley-bus driver with the local Walthamstow garage before enlisting... Members have been having a shot at contacting Moscow through tapespondence. The idea started when a member visited the Russian Exhibition at Earls Court, and talked to an official who said that the Radio Club of Russia had a tape recording section who were always keen to tapespond. So far no reply has been received, and it awaits to be seen whether or not the Iron Curtain is non-magnetici (Ken Perks. 9 Third Avenue, Walthamstow, London, E.17.)

London, E.17.) Long time since we last heard from Catford Tape Recording Club, but they thought they'd better let us know of one or two changes they've made in the last few weeks . . . Meetings are to be held in future on Thursdays, and their address has been changed to the Black Horse, Rushey Green, Catford, S.E.6, which means they now have a comfortable room with fitted carpet, soft chairs, and reasonably heavy drapes over the windows which cut out most of the traffic noise and give far better acoustics than the schoolroom where meetings have been held in

the past. The programme has also changed with the new surroundings, so that on 7th September, for example, they had a 'Music To Listen To' evening when members took along 15 minutes of their favourite music. The selection of music was varied and with a first class machine repro-ducing tapes through first class loudspeakers in comfortable surroundings, members were able to' enjoy the whole evening without strain. (Derek C. Harker, 62 Barmeston Road, Catford, London, S.E.6.)

(Derek C. Harker, 62 Barmeston Road, Cattord, London, S.E.6.) Mr. J. Turner, 1a Frith Road, Leytonstone, London, E.11, has started a club in his area and the inaugural meeting was held on 20th September.

[.]а F i n a arrangements have now been made Friern for Barnet R e c o r ding Club's Car Rally, and the crews selected selected briefed. and All instructions will be given on tape and full use made of portable equipment . . . The club held a stand at the Friern Barnet Summer Show and members



Friern Barnet Summer Show and members were present for two days to demonstrate their equipment. An endless loop was used to record interviews and this gave sufficient delay to enable those interviewed to hear themselves when they approached the stand . . . Representatives from the club visited the Centre of Sound to attend the meeting held by the Federation of British Tape Recording Clubs . . . Members had looked forward to a visit from Mrs. Betty Strom of Hawaii, one of their tapespondents, during her European trip. Unfor-tunately, despite their arrangements to entertain her, she did not arrive and no communication was received to explain her absence. A tape for another contact, in Tanganyika, has now been completed by Production Engineer G. Wilgrove . . At recent meetings, J. Neal has demon-strated methods of splicing and Mr. F. Inman has continued his lectures on recording and recorders, Mr. J. Fulton has handed to the Secretary, the cup which he is presenting for the best 5-minute tape in a contest, to be judged in December. (Tony Andrews, 13 Hartland Road, Friern Barnet, London, N.I.) The Howard Wall & Bethnal Green Tape Recording Club goes from strength to strength, recently a tape was made of the Bethnal Green Carnival by members of the club stationed at vantage points along the route. Among other recent activities have been lectures on speakers and recording technique by Mr. A. Strange; on microphone technique by Mr. A. Strange; on microphone technique by Mr. A. Strange; on microphone technique by Meretary H. Schaller; and a demonstration of stereo by L. Burchell, who included a tape of Musique Concrete, much to the interest of members . . A round-robin tape is proving popular amongst members and jives each one some idea of what the other chap is up to . . . The club acted as hosts to mem-bers of the WallAmstow Club on 1s September. The visitors arrived in force and were treated to recordings made by Howard Wall's members, and a display of recorders, including stero and battery operated models. Anoth

to recordings made by Howard Wall's members, and a display of recorders, including stereo and battery operated models. Another interesting feature of the evening was a colour slide show, with taped commentary, made by two H.W. club members, depicting their recent holiday in the Channel Islands. (H. Schaller, 20a De Beauvoir Square, Dalston, London, N.1.)

MIDDLESEX

MIDDLESEX Harrow Tape Recording Club continued its activities — suitably reduced — during the sum-mer months, and many interesting evenings were held outside, for recording effects, etc., as well as indoor technical talks and demonstrations. The club will settle down to more serious work during the Winter months and new members are welcome. (Leslie M. Bouldstridge, 10 Towers Road, Hatch End, Middlesex.) Southall Sound Club provided all the sound effects for a comedy-farce production 'Is Your Honeymoon Really Necessary?' presented by the 'Company of Twelve' at Southall Com-munity Centre on 29th and 30th September.

Both organisations are groups of the Southall Gether on previous productions. (N. Robinson, 14 Hayes End Close, Hayes End, Middlesex.) At the 14th September meeting of West Middlesex Tape Recording Club, Mr. Yardley of highers Tape Recording Club, Mr. Yardley of highers thape group could help them in putting on future plays. In practice, it would appear for the various shows and manning the replay and amplifier equipment at the performances. Five members have volunteered to give active agreed to assist in obtaining the actual sound effects. The participating members will work as presented with half a dozen tickets for Ted-inprintal of the producer. They have been presented with half a dozen tickets for Ted-inprints of the producer they have been presented with half a dozen tickets for the show times, but the play on. One interest inprints of the problems involved and wander working folk who put the play on. One interest inprints of the appropriate copyright clearance for music used for the show, so they and have no worries on that score ! (H. E. built have no worries on that score !

SOMERSET

SOMERET Bath Sound Recording Society's first year of existence is now drawing to a close, and al-though they have had a most successful year, though they have had a most successful year, they are not complacent and hope to make the second year an even better one. . On 13th September, members enjoyed a first class stereo dem by Mr. Glyn Dommett-Curtis of the Bridg-water club, who travelled all the way from Weston-Super-Mare with his charming wife . . . After a visit to the Radio Show, members J. Fishlock and T. Tregale went on to the Centre of Sound. There they met the Secretary, Mr. Alexander, whom they mistook for the barman ! After sorting it out, they had a good look around and, I must add, were very impressed. (K. W. J. Gingell, 9 Norfolk Crescent (Top Rear), Bath.) The Yeovil Amater Tape Recording Cub hospital to start a fortnightly programme of musical requests, and, at a later date, a monthly Sound Magazine and a tape message service. Secretary R. Webb asks for help from other secretary R. Webb asks for help from other lubs in recording and replaying tapes for rela-tivist. Secretary R. Webb asks for help from other secretary R. Webb asks for help from other lubs in recording and replaying tapes for rela-tivist. Secretary R. Webb asks for help from other secretary R. Webb asks

Somerset.)

WARWICK

WARWICK On 2nd September, three members from Rugby Amateur Tape Recording Society – Nelson Woerner, Ken Morris, and Charles Wilkinson recorded a wedding service at St. Matthew's Church, Rugby, and parts of the reception at the Town Hall. Later they were joined by Secretary Mike Brown, and they watched the local apprentices annual 'Rag' procession as it passed, and carried out some impromptu inter-views with some of the participants using battery recorders. recorders.

passed, and carried out some impromptu inter-views with some of the participants using battery recorders. At a meeting of the **Coventry Tape Recording Club**, a tape recorded conversation was played. This had taken place between Roy Reynolds and Peter Warden and concerned tapesponding. Discussing how they started this, both Roy and Peter played extracts from early tapes received years ago, and went on to give hints on how to obtain contacts and maintain them . . . Another tape played back during the evening, had been taken along by John Inness Chaytor, and was an example of the 'off beat' American humour which he likes so much. The extract took the form of a personalisation of the tape recorder with a sultry female voice giving the gen on her specification and performance. It drew a lot of John to request a dubbing. (L. S. Day, 41 Moseley Avenue, Coventry.) At **Leamineton & Warwick 'ATR' Society's** meeting on 6th September. Terry Draper pre-sented an item entitled 'Draper's Holiday' de-piting the Draper family's adventures on holi-day in Devon . . . Honorary life member Jack Willis, who now lives in Rugby, was welcomed back to the clubroom for the evening. Even though he is totally blind, Jack is a very keen recordist, and as well as being a member of the Rugby society he tapesponds with other folk all over the world (as we have mentioned in earlier editions). During the evening, Jack spoke about some of his many tape-pais, illustrating his talk with extracts from tapes they have passed be-



tween them. The Learnington Club has two other blind members and both were present that evening to welcome Jack. Some members of the South Birmingham Tape Club were also present. (Miss Eileen Jones, 26 Hampton Street, Learning-ton Spa, Warwicks.)

WORCESTER

WORCESTER At a meeting of the Kidderminster & District Tapte Recording Society, the committee decided that it was too early in the history of the club to embark on the tape talent competition prev-jously announced in this columni. This is partly her to the resignation of Mr. John Griffiths, the prime mover of the original idea. Therefore it has been decided to postpone any further de-velopments in the way of a competition for at east 12 months . . . Mr. Griffiths wishes to inform his fellow BRC members that he will answer all outstanding tapes just as soon as he hallads, which are a feature of his tapesponding. It was the pressure of this tapesponding, which Mr. Griffiths so much enjoys, which partly led to the decision of his resignation. (The new see is R. F. Drew, 87 Brindley Street, Stourport-on-Severn, Worcestershire.)

YORKSHIRE Leeds & District Tape Recording Club's Sep-tember meeting brought forth the judging of a competition, and recordings made on Bank Holi-day Monday, warm and sunny, included a visit to Roundhay Park, taped interviews with the general public, with officials, and sports compe-titors . . . Mr. Goodman gave a talk on his recent visit to the Centre of Sound, and followed this with a lecture on Electronic Music. (R. Crossley, 96 Stainbeck Road, Meanwood, Leeds, 7.)

this with a lecture on Electronic Music. (R. Crossley, 96 Stainbeck Road, Meanwood, Leeds, 7.) SOUTH AFRICA At a recent meeting of the Tape Recording & High Fidelity Society of South Africa, Mr. Liewellyn gave a most interesting and informa-tive talk on the various methods of utilising an add-on reverberation unit, and played several recorded examples, including both music and the spoken word... The subject for the month's competition was 'Choir Singing' and the tapes entered were: The 'Hallelujah Chorus', a mono recording; 'I Belong to Glasgow', a Quartette produced as a result of multiple recording techniques; three Nursery Rhymes by a speech choir and two songs... all done by, little children from the Bantu Cripple Care Home, Germiston; Excerpts from 'The Marriage of Figaro' sung by a school choir; 'In the Gloam-ing' sung by a ancive choir; 'Brahms Lullaby'; and 'Now is the Month of May' sung by a Convent Girls' Choir; and finally 'Hail Mary, Pearl of Grace', sung by a Convent Coloured Girls' Choir. Nine tapes in all making a most gratifying response, particularly as this was the winner's first ever entry in the monthly com-petitions. (1 Belong to Glasgow' won, with 'Hail Mary' second). In his fourth talk on the tape recorder, en-titled 'Microphones and the Parabolic Reflector', Mr. D. Worman discussed the varying charac-teristics of different types of microphones and explained how each type could best be used by playing a number of recorded examples. After-wards, he played back a tape made overseas which discussed the parabolic reflector.

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INFORMATION BUREAU

What's new, Reviews and Illustrations of Tape Recording and Hi-Fi Equipment

THE STUZZI MEMOCORD MINIATURE RECORDER

By F. C. Judd, A.Inst.E.

We are reviewing this recorder because we feel it is unique in every respect. It is of course intended as a pocket size dictating recorder and obviously cannot be compared with domestic tape recorders intended for high quality speech and music recordings. The makers claim it to be one of the smallest in the world for it measures only $4\frac{1}{2}$ in. x $3\frac{1}{2}$ in. x $1\frac{1}{2}$ in. and will fit comfortably into a coat pocket. It is fully transistorised and of course battery driven.

THE microphone which also does duty as a loudspeaker is 'built-in' and the Memocord provides a total playing time of one hour from its four track record/playback system.

It has a multitude of uses as a pure dictating machine, as a ready means of making 'notes', reports and commentary under almost any conditions. From the dictation point of view the typist will find it a delightfully simple device to operate for it can of course be used in the normal way with earphones and a remote control attachment, foot or hand, according to choice.

The Memocord is supplied complete with tape and locked-on spools and a most attractive but protective case shaped as a book. It weighs only 11oz. and is powered by one PP3 Ever Ready battery and a single pen light cell which drives the motor.

TECHNICAL DETAILS

The Memocord has a frequency response of 400 to 3,000 c.p.s. which is ideal for recording clear speech. The amplifiers are designed around OC75 and OC72 transistors and with four track operation of 15 minutes per track, a total of one hour record/playback

time is available. The output is rated at 20 milli-watts which is ample for reading back directly from the internal loudspeaker.

There is a separate input socket for connecting an external microphone (impedance 3,000 ohms) and for this purpose a super sensitive lapel microphone can be supplied at extra cost. An output socket is also provided for external headphones or the special earphone which the manufacturers have designed for use with the Memocord.

The tape transcription mechanism is quite unique for not only is provision made for four track operation and automatic erasure but for variable speed as well. Yet another feature is the tape position indication system. The tape is marked off for its whole length in equal divisions of about two inches by numbers 001, 002, etc., these numbers being visible through a small window at the side of the recorder. It is possible therefore to return to any place on the tape, quickly and accurately and from there switch instantly to the appropriate track.

Forward and reverse rewind facilities are provided, these being slow when operated by the internal motor or fast when the spools are turned by hand. The latter operation can be carried out with a surprising amount of speed because the spools each have a small hole in which to place the point end of a pencil or ballpoint pen. One simply turns the spools using the pen or pencil as a handle. (Continued on page 36)



Interior view showing the tape head assembly and spools

Memocord Review (cont.)

PERFORMANCE

The Memocord is not the kind of machine which warrants the usual tests that are given to a domestic recorder. It is intended as a dictating instrument and was accordingly tested as such. It runs smoothly and quietly and records and plays back speech with ample clarity. The controls are almost foolproof and I could find no snags with the four track record/playback system or the rewinding operations.

Changing the tape spools is a comparatively simple operation, but I should point out that the spools are of special design intended only for the Memocord. The nominal operating speed is around one inch per second so that recordings are unsuitable for playback on standard speed machines.

There are a number of ingenious design features, one being the method of moving the record/playback head physically from track to track. The motor and tape drive also warrant praise, considering the extremely small amount of space into which the whole mechanism has had to be fitted. Nevertheless the Memocord is robust and short of extremely rough handling, should stand up to continuous usage in a busy office. It is an ideal 'talking notebook' for business executives, reporters, writers and all those who have to dictate or make notes when other matters are pressing, or else commit their thoughts to a perhaps not too reliable memory.

A number of special accessories are available such as a carrying case, telephone adapter, tape on spools, special earphone, remote control unit, etc., full details of which are available from the distributors of the Stuzzi Memocord : Recording' Devices Ltd., 44 Southern Row, Kensington, London, W.10. Phone LAD 4775. The Stuzzi Memocord retails at 25 gns. complete with tape and case.

A.T.R. Christmas Issue

Competitions - gift suggestions, running a tape party ... everything for a tape enthusiast's

HAPPY CHRISTMAS

Make sure of your copy (see p. 42)

ARMSTRONG'S NEW HI-FI RANGE

Armstrong Wireless & Television Co. Ltd, announce the introduction of the new A20 Stereo Power Amplifier and PCU25 Stereo Pre-Amplifier at a combined price of £52.10.0, and the new T4B F.M. Tuner price £23.0.0. Specifications

A20 Stereo Power Amplifier.-12 watts push-pull ultralinear output from each channel: distortion less than 0.1% hum and noise, 85 dB below full output; frequency response 15 to 22,000 c.p.s. within 1 dB; power response 20 to 20,000 c.p.s. ±1 dB; negative feed-



T4B V.H.F. Tuner

back 29 dB; stability factor 20 dB; high specification output transformers with grain orientated laminations and multisectional windings; valves 3 x ECC83. 4 x EL84, GZ34.



A20 Stereo Power Amplifier

PCU25 Stereo Pre-Amplifier .- Six inputs providing for all possible signal sources including the lowest output pickups and tape heads; push button function switching; bass and treble tone controls; balance control; treble filter, rumble filter; tape recording outputs; distortion less than 0.1% hum and noise (high sensitivity pick-up input) 60 dB below full output; valves 2 x EF86, 3 x ECC83.

KITS FOR THE ENTHUSIAST

Martin Electronics Ltd. have brought out a series of new kits to enable the non-technical home constructor to build his own tape recorder. There are basically three types of constructional kits offered and these are based upon a well developed 'brick-bybrick' system.

Martin Recordakits are centred upon the printed circuit amplifiers developed by Martin Electronics. They come assembled with valves and each is individually tested before leaving the factory. To help the constructor, wires are cut to length and attached by one end to the relevant component part. Exceptionally detailed instructions are included with each kit and as an added facility there are case and loudspeaker assemblies offered, with or without the appropriate deck.

In this way the would-be constructor can build a 3-speed 2 track recorder using a Collaro Studio Deck, or a 4 track or 2 track recorder using a B.S.R. Monardeck.

The Martin Recordakit Amplifiers are also recommended for building into existing installations where it is desired to modernise and improve standards of reproduction from tape and/or disc.

Prices for these excellently presented

Martin Recordakit Model C

amplifier kits are most reasonable, starting at £8.8.0 for Type 8312-M (for B.S.R. 2 track deck) to £11.11.0 for Type 8311-V (for Collaro deck). Everything is complete, to labelled knobs, indicator plates, nuts, bolts, wire, etc., and all equipment is guaranteed.

GRAMPIAN PRICE CORRECTION

The price of the Grampian DP4/L (low impedance) microphone complete with connector and 18ft. screened lead is £8.0.0, and that of the medium and high impedance model is £9.0.0 - not as stated in the October issue.
T4B F.M. Tuner.—Self-powered; full V.H.F. band (87 to 108 m/cs); automatic frequency control; cathode follower output; variable output control 0 to 500 mV;; valves 2 x ECC85, EF89, EF80, EB91.



PCU 25 Stereo Pre-Amplifier

'ELECTRONIC WORLD' TAPE

'Electronic World' is being sold at a surprisingly low price and with a guarantee of 'money-back plus postage if not satisfied'.

It is now available on 'Standard' and 'Long Play' bases, and 'Double Play' will shortly be added. Seven inch spools (1.200ft. Acetate and 1,800 Polyester) are offered 'ex stock' and 3in., 5in., and 54in. sizes are on the way, to complete the range. It is worth noting that unlike many other cheap tapes, the base used for 'Electronic World' Long Play is Polyester and not Acetate.

Quality

'Electronic World' is new, splice-free tape of good quality. It has a very low print-through factor and covers the full frequency range. Background noise is surprisingly low and 'drop-out' is at a minimum. Careful control during manufacture ensures that quality is kept to a consistently high standard.

Packing and Spools

'Electronic World' tapes are packed in a strong box and also each box is despatched through the post in a strong carton. 'Electronic World' spools are well finished and non-warp. They incorporate a special 'D-slot' hub which ensures quick and simple threading.

Prices

The prices of these tapes are astonishingly low. A 7in. 1,200ft. (Acetate) costs 17/6 and a 7in. 1,800ft. (Polyester) is 29/- and both prices include U.K. postage. In order to achieve these prices every possible economy is practised other than any which affect quality,

TRUVOX SERIES 80 TAPE RECORDERS

The new Truvox range of tape recorders has a redesigned tape deck, which, whilst similar in appearance to the Mark 6 model, has numerous modifications resulting in improved mechanical performance. The method of operation has been simplified, frequency response improved and additional facilities provided. The 'D.I.N.' input and output sockets, now internationally accepted and which are to become a British Standard, are fitted. Model R.82, two-track tape recorder will have the following facilities :

- 1. Mechanical disc brakes which are speedy, smooth and efficient.
- Separate drive wheels for each speed, automatically disengaged when the machine is switched off. Speeds can be selected whether the deck is running or stationary.
- Efficient interlock which ensures that the record switch will revert to play-back when the stop, forward wind, or rewind buttons are pressed.
- The pause control can be left on indefinitely. It will not break the tape if accidentally operated during fast winding.
- 5. Superimposition.
- Mixing facilities. For high and low impedance sound sources with Independent volume controls.
- 7. 4 watts output at 3 and 15 ohms, and twin high impedance output of 10v. at .25 Mohms and 1v. at 47 Kohms.
- 8. Push pull bias-oscillator.
- 9. Auto stops. Relay operated.
- 10. Loudspeaker muting switch.
- 11. Amplifier can be used alone.
- 12. Accommodation for 2 extra reels of tape.

even to the extent of omitting leaders and stop-foils, since it is felt that tape users who require these two items will weigh the cost of do-it-yourself against the enormous price-saving.

'Electronic World' tape is available (by mail only) from F. Villiers, 12a Horseferry Road Estate, London, S.W.1.



Model R.84 Four-Track Recorder

Specification as R.82 recorder with the following extras:

- 1. Track selector (1-4 and 2-3) which also has a stereo replay position.
- 'D.I.N.' socket at rear for second tape amplifier.

Performance Figures for Series 80

Frequency response at $7\frac{1}{2}$ i.p.s., 40-20,000 c.p.s., ± 3 dB; at $3\frac{3}{4}$ i.p.s., 40-12,000 c.p.s., ± 3 dB. Wow and flutter, at $7\frac{1}{2}$ i.p.s., better than .15%; at $3\frac{3}{4}$ i.p.s., better than .2%. Signal/noise ratio : 45 dB or better.

The following tape decks and tape units have also been introduced in the new 'Series 80':

PD.82 two-track tape unit comprising a Series 80 tape deck, finished in two tone beige with matching cabinet, fitted



with pre-amplifier and push pull erase and bias oscillator, self powered and ready to connect to any high fidelity amplifier. Price £42.0.0

PD.84 four-track tape unit as above but with track selector (1-4 and 2-3) which also has a stereo replay position. Price £46.0.0.

D.82 tape deck only, twin track. Price £26.5.0.

D.84 tape deck only, four-track with track selector/stereo switch. Price £29.8.0.

November, 1961



DARABOLIC EFLECTORS D

THE HOW AND WHY OF A MICROPHONE PROP

CCORDING to a dictionary of science, a parabolic A reflector is for producing a parallel beam of light from a source and consists of a curved reflector, the section of which is a parabola. Such a reflector will also bring a parallel beam of light to a focus and conversely if a source of light is placed at the focus the light will be reflected as a parallel beam. Sound may be reflected in the same way as light and by focussing will of course, be intensified. The curved reflector



(see Fig. 1) may be used with a microphone so that sounds coming from a point X may be concentrated into a beam and therefore amplified before reaching the microphone. The method is used extensively by the B.B.C. for recording bird and animal sounds from fairly great distances and has the advantage of excluding sounds outside the parallel beam path of the reflector. Theoretically the parabola should be quite large, having dimensions related to the audible range of frequencies although again, theoretically it will only operate at maximum efficiency for one frequency.

Readers who would like to experiment with focussed microphones can do so by using a simple reflector and a crystal microphone; preferably an insert such as those made by Acos. The reflector may be the type used for car head lamps, the larger the better, or the copper reflector from an old bowl fire, but the hole at the centre must be covered. These might be obtained from a local junk dealer. A shallow metal mixing bowl would also do for experimental purposes.

POSITIONING THE MICROPHONE

The microphone should be moved backwards and forwards in front of the reflector with the front of the microphone

Continued from page 16

There are of course many other makes and types of microphones ranging in price from about £2 to over £200. Even a poor tape recorder will do better with a good microphone, but a good recorder and a good microphone is the ideal combination. Choose a microphone to match the recorder both quality wise and impedance wise and make sure that the microphone you choose is best suited for the kind of recording you wish to make. If in doubt write to our

November, 1961

Technical Query department.

The list of microphones we have included with this report is one showing representative types ranging from simple crystal units to studio grade ribbon instruments. The manufacturers will be pleased to advise you on a suitable choice of microphone and send further details if required.

Finally may we remind readers that the use of a microphone mixer allows far more control over two or more microphones. We have included in this

facing inwards, until the focus point is found. This is not critical and can be done by concentrating on a continuous sound source and adjusting the position of the microphone until the point of maximum signal is found. All that remains is to fix the microphone at the focal position by means of wire struts across the front of the reflector (Fig. 2A). The microphone may be secured by adhesive tape. One could of course make a more pretentious job of it by fitting a handle at the back of the reflector, alternatively a tripod support could be used (Fig. 2B).

The sensitivity of a simple reflector microphone is quite



high and with a large car headlamp type reflector sounds from more than a 100 feet away will be amplified to quite a high degree. A small reflector will accentuate the higher frequencies and is useful for recording bird songs and other high pitched sounds. To obtain a good low frequency response as well, the parabola should be 30 to 40 inches in diameter and a high grade microphone should be used.

> edition details for constructing a three channel microphone mixer, the circuit of which appeared in the October issue.

> A microphone reflector is also a useful device for outside work and we call readers' attention to the parabolic reflector marketed by Grampian Ltd. of Hanworth Trading Estate, Feltham, Middlesex, who will send details on application. How a parabolic reflector operates and ideas for constructing a simple reflector are given in the article on this page.

TETE-A-TAPE

Further assorted thoughts on tape recording from Mr. Lazell's bottomless bucket of golden words — and bits of tape machinery.

TAPE A TRAIN TO MANCHESTER

WHEN I caught a train to Manchester one day last week, I carefully selected a compartment labelled 'No Smoking'. I travelled alone until we reached Derby, where the compartment was invaded by a joyful gent, who adhered to the legend on the window, but who made up for the absence of cigarettes by (a) quaffing (is that the word?) a welcome draught from a whisky bottle which he carried in a carrier bag, and (b) producing a transistor radio which belched loud and unwelcome sounds in my direction. There were, alas, no notices which demanded 'No Whisky Bottles' or 'No Transistor Radios', so my trip to Manchester was, to say the least, surrounded by festivity. I wondered if this jolly gent, had decided to have a one man party - I have heard of students holding parties on the 'Underground' in London. The blast of sound was most erratic; whenever the train went through a tunnel, for example, the transistor radio became silent. But, as soon as we emerged into daylight, the loudspeaker became active again. After a while, I took a surreptitious look at my travelling companion. He was asleep, lulled, no doubt, by the music from the radio.

To reflect, gentlemen—should travellers of this kind be required to produce a wireless licence, as well as a railway ticket?

Again, if long railway journeys are so depressing, can't the authorities provide some planned entertainment, like the film shows occasionally arranged on trains running from Bristol to London ? If readers have any suggestions, I would like to have them. One last point — would it be held as an infringement of copyright, if, whilst using my tape recorder on the 9.15 to St. Alban's, I recorded — without malice afore-thought — some stray chords of Housewives' Choice, booming from the transistor radio in the next compartment ? After all, some unsuspecting enthusiast, waiting on platform four to record train noises, may find himself landed with a peculiar blend of weather forecasts, military bands and 'Children's Hour' after the express has passed musically by . . .

FRUSTRATION FOR FIRMS

Every now and then, one comes across an advert, for a piece of equipment, bearing the legend 'Frustrated Export Consignment' or 'Cancelled Shipment to Europe'. The adverts. then declare that the manufacturer, in bitter frustration, no doubt, has decided to offer them to the home market for a sum so absurd as to be suspicious. Why, Lazell wonders, are these export orders frustrated ? I have, in fact, been carrying out some research, in order to discover the international events that cause such havoc to our export market. So far, these researches have been, as you would expect from my past record, fruitless. For example, a special offer of 'frustrated' tape recorders appeared in the papers just after the visit of Mr. Gagarin to our shores. This worthy event can have no bearing on the cancellation of exports of tape machines . . . then, what about the economic situation ? (Don't ask me which economic situation; they change so fast these days !) I believe that frustrated export orders may follow reports from overseas representatives like these :

"From L. Downryte-Shoddie, Overseas Representative, To Head Office, Ever Gasping Tape Recorders Inc. "Ref. consignment of tape recorders aggressively sold to Eskimo Trading Post — can we accept payment in blubber!" or

"From L. Downryte-Shoddie, Chief Sales Representative, To Head Office, Ever Gasping Tape Recorders Inc.

"Ref. export order to nomadic tribe at Sidi-el-Abdab, please halt despatch until mains electricity supply available. Discover that tribe wanted paraffin operated model." or even

"From L. Downryte-Shoddie, Sales Director, To Despatch Department, Ever Gasping Tape Recorders Inc.

"Have now discovered reason for cancellation of overdue consignment of tape recorders to Australia. Young lady in typing section wrote 'Austria' on despatch instruction by mistake. Can we trace where the consignment is at the moment? Maybe we can unload them on to the domestic market." or, finally,

"From L. Downryte-Shoddie, Sales Clerk. To Head Office. Ever Gasping Tape Recorders Inc.

"The order obtained from Senor Galvanez Zinc, of South America, is conditional on these specifications :

- 1. Tape Recorder case must be in national colours (what are they ?)
- 2. For political reasons, spools must go from left to left.
- 3. Tapes must always play national anthem as background to other signals.
- 4. Tape recorder to be bullet-proof, and fully insured against damage in the event of sudden revolution.
- 5. Instruction manual to be combined with exhortations from the President.
- Microphone to be capable of picking up nasty comments about the Government."

But when you consider how some tape recorders are treated, you can't wonder that they get 'frustrated', eh ?

ONE WAY OF MEETING MR. SIBELIUS

A few weeks ago, I was recruited(!) into giving three talks on music to a group of young people. After all, I did play the violin, years ago, before TV . . . I selected a programme of records for all tastes, and decided to include one or two classical works. After all, I thought, the work of Tchaikovsky and Beethoven will probably be known when much hit parade 'material' (notice they rarely call it 'music') has been forgotten. So, between the items on modern music, I played part of the 'Karelia Suite' by Sibelius, a wonderful, lively piece of music.

"You won't know this piece of music," I said, as I placed the sapphire down, "but it is very good . . . ". I anticipated no sign of recognition, and so I was really astonished when the young people present smiled and nodded vigorously. They knew the music all right.

I turned to Jeff, the organiser.

"Fancy that . . . " I said excitedly.

"Aye," he replied. "It's on the telly, you know. Signature tune for one of them programmes on the telly . . . "

It's a thought, isn't it, that so many classical works must be known, not by their names, but as 'that twiddley bit that comes before Mrs. Archer's Dairy' or 'that thumping sound that comes after Pie-Snatcher'. What would Bach have said ?

There are two kinds of people who'll want this new

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.... Two quite different kinds of people will want the new TK 24 — the inexperienced and the experienced. The inexperienced because they don't know any better and the experienced because they don't know any better either: because there isn't any better than this brilliant new four track Grundig model.

The new TK 24 makes no compromises. It doesn't ask you to choose whether you want high fidelity or long play — it gives you both! All the time! Six hours record/playback.

- It doesn't ask you to scrap all your existing conventional twin track 3³/₂ i.p.s. tapes — it lets you play them back as well (and how good they sound !).
 - It doesn't expect you to have to make complicated arrangements to produce special trick effects — *it allows two tracks to be recorded separately and then played back together*. (Normally, of course, you would play them back separately to get the doubled playing time that four track gives you).

In fact it's the most accommodating tape recorder ever made—even by Grundig!

No matter how much you know—or don't know—about Tape Recorders, go to your nearest Grundig Approved Dealer and have him demonstrate the TK 24.

See and hear Grundig quality for yourself;

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42



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