VOL 2. No. 4 PRICE 2/- NOVEMBER 1960

See page 1 for FABULOUS DEMONSTRATION PRE-RECORDED TAPE OFFER

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Recently the British Ornithologists' Union was given permission to make an expedition to Bulgaria—the first allowed behind the 'Iron Curtain'. Led by Guy Mountfort, the party took over 4,000 photographs (Eric Hosking was chief photographer) and made a large collection of recordings of rare bird-songs, using Emitape exclusively.

Mr. Mountfort afterwards said: "We had no 'second chances' with bird-song—it had to be right first time, every time. We often recorded under the most appalling conditions, where an inferior tape might have let us down. With its dependability, and the complete absence of flaws in its recording quality, Emitape always gave us superb results and without a trace of background noise." EMITAPE ON SAFARI TO BULGARIA

First-ever expedition chose EMITAPE for dependability

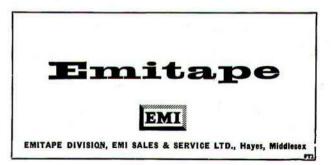
"No 'second chance' with bird-song" LEADER



Parabolic reflector fitted with gun-sight gets it all on Emitape. E. D. H. Johnson, the expedition's recordist, used this special equipment to record the songs of distant birds.



Emitape captures folk music. Recordings were also made of Bulgarian folk music on Emitape. The quality of these recordings makes them a unique and valuable addition to the world's library of folk music.



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are pleased to announce a Special Offer exclusive to members of The British Recording Club and readers of Amateur Tape Recording:-

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(See Editorial Review on Page 40)

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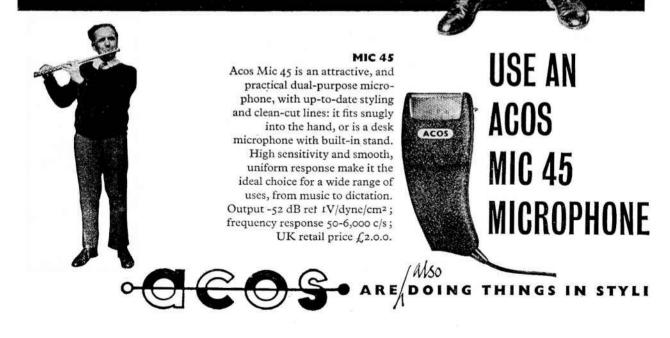
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	l enclose remittance £ Cheque/Postal Orders.	s.	d.	
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November, 1960

1

DON'T MUFFLE THE MUSIC

Unfair to flautists! If you stifle the input with a poor microphone, you trifle with the output from the speaker. Do the right thing by the performer and the composer, by the tape recorder and by your ear. Use the right microphone. Use an Acos microphone. An important new one has recently been added to the range.



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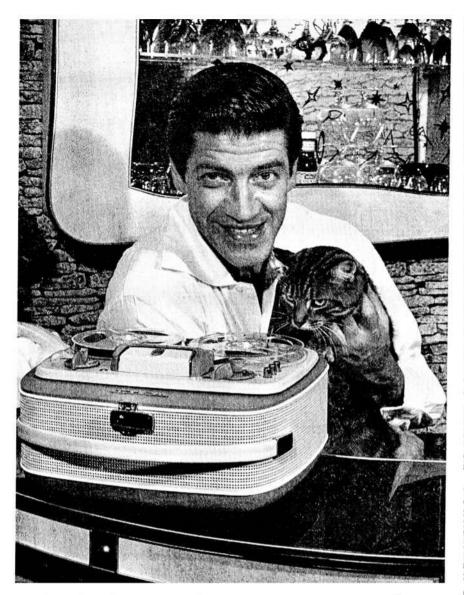
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Double your fun with this revolutionary tape recorder. It makes you independent of mains electricity supplies; yet it's full size (takes $5\frac{3}{4}$ " reels) and gives you BIG 2 watt output and faithful reproduction on batteries or on mains.

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I wish to become a member of The British Recording Club. I enclose my membership fee of twenty-seven shillings (27/-), which includes my annual subscription to the "Amateur Tape Recording" magazine.	T. NURSE Advertisemen J. A. PEA	t Man	ager					
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Amateur Tape Recording



Michael Holliday looks well pleased with life as he introduces his cat to his new 4-track tape recorder—the Grundig TK 24. Mike, whose tape recorder is the main 'prop' in his 'Relax with Michael Holliday' TV series is a keen amateur enthusiast.

(The Grundig TK 24 is reviewed on page 58 of this issue)



THE OFFICIAL MAGAZINE OF THE BRITISH RECORDING CLUB (INCORPORATING THE BRITISH TAPE RECORDING SOCIETY)

VOL. 2 No. 4

NOVEMBER, 1960

November, 1960

TAPE RECORDING Clubs are having a boom year. Our master list of local clubs has passed 115 and is still increasing. Reports of club activities are now appearing in almost every local newspaper in the country, and some clubs such as Ulster with their now famous ghost hunting activities are breaking into the National Press. Another encouraging sign is the growing trend for clubs to contact each other by visits, direct tape exchange or roundrobin tapes, all these things strengthening the tape movement as a whole.

The individual who has no local club in his vicinity can often find support from fellow enthusiasts nearby to start their own club. The British Recording Club will always help and publicise such efforts. Should this not be possible or if he wants to remain a lone-wolf, he can still engage in that most popular activity, tapesponding. More and more B.R.C. members are going in for this, creating a fantastic tape network across the world which is wonderful, but which puts a lot of pressure on the space available for Inter-Tape Directory. It has therefore been increased in size this month and in next month's issue, which is A.T.R's. second Christmas edition, there will be another large Directory. This is possible because the December A.T.R. will be the biggest yet, packed with articles, competitions, pictures and cartoons.

This month sees the unveiling of the B.R.C. Demonstration Tape, now being produced in response to the many requests from members and readers. It will be excitingly different from any existing demonstration tapes, as you will see from the review on page 40.

Our post assumes formidable proportions nowadays and a sizeable per centage of letters received are from readers who have experienced difficulties in obtaining copies of the magazine in their particular area. Well, with next month's issue the demand is likely to reach an all time high, so avoid disappointment and place a regular order for A.T.R. NOW.

SHERLOCK HOLMES COMPETITION

First place in our Sherlock Holmes competition (August A.T.R.) goes to Mr. Richard D. King of Southfields, London, S.W.18. He submitted a wellrecorded tape, with imaginative characterisation of voice to put over an excellent summary of 'The Speckled Band' and its solution. Second place is taken by Mr. Richard Collinson of Enfield, Middlesex with 'The Problem of Thorpe Bridge'. Third is Mr. E. Webb of Sydenham, London, S.E.26. Tapes are on their way to the three winners.

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The performance of a portable tape recorder is severely limited by the space available for its internal loudspeaker.

The connection of a high quality external speaker will reveal hidden detail in your recordings, and the Wharfedale PST/8 is an ideal choice.

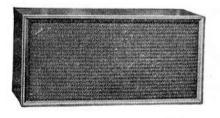
This unique, patented enclosure design gives optimum results with Wharfedale 8" foam surround units which are available in a range of impedances to suit all machines.

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PRICE cabinet only 17 10 0 in whitewood 10 10 0 finished in walnut, oak or mahogany veneers.

Recommended units 8" Bronze/FS/AL £4 6 7 inc. P.T. Super 8/FS/AL £6 19 11 inc. P.T.



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WORLD TAPE NEWS

THAT HUM AGAIN

The Daily Sketch has been investigating the complaints sent to them by readers annoyed by mysterious humming noises, and called upon the expert knowledge of our Technical Editor, Fred Judd, to assist them.

Tests were carried out with the aid of volunteers, in a sound proof room in Broadcasting House, London. Mrs. Marie Zamecznik, a Brixton housewife, could still hear the HUM despite the sound proofing. The volunteers then listened to a series of electronically produced sounds to pick out any resembling the HUM. The majority chose a throbbing undertone of approximately ten cycles per second. Fred Judd's view on this is that they almost certainly could not hear, that note in the normal way, but they could experience its vibrations and may have been confused into believing that they can actually hear it. The G.P.O. has now entered the lists, so with all the big guns being fired at this mystery it may soon crack.

TAPE LIBRARY SERVICE

Over seventy district ministers of the Methodist Church are now using tape recorded material supplied by a unique tape library service started last December by the Rev. John Davis, B.A., of Horwich, Bolton.

Davis, B.A., of Horwich, Bolton. The library provides recorded material for classes and discussion meetings and for special groups such as local preachers and Sunday school teachers. Subject matter already includes 'Direct Giving', 'St. Paul and the modern world' and 'Is the day of the Sunday school over?' and the extent of the library is continually being increased. Some of the recordings are in the form of talks and others are interviews.

In every case the speaker is an authority on his subject and church members in small communities would not otherwise have the opportunity of hearing him.

Typical of the interview type of recording is one made by a minister talking about his experiences in an Indian leper hospital.

BLIND WILL FIND THEIR WAY LIKE BATS Members of the Ellen Terry Club for the Blind, meeting at the Thompson Rooms, Ilford, on Monday, learned through their 'talking newspaper' of a new electronic device which may take the place of the blind man's white stick.

Al Burnett of that smart nighterie the Pigalle, was at London Airport with his Grundig Cub to greet Marty Allen and Steve Rossi, top American cabaret stars, when they flew in recently. Marty and Steve are here to keep the customers happy at the Pigalle.



Amateur Tape Recording

8



(Photograph by courtesy of GTV Channel 9, Melbourne, and the Australian "TV Week")

Australian TV reporter Panda Lisner uses a Fi-Cord to interview Hugh O'Brian, star of the Wyatt Earp series, during a break on the Hollywood set.

They heard Walter Gillings, editor-producer of 'What Goes On Here,' interviewing the inventor, Mr. Victor Valchera, of the Valradio Co., who explained how the appara-tus produced signals similar to those radiated by bats and porpoises. These pulses are projected in short bursts from a small box with a carrying handle, and are heard as a buzzing sound.

When the beam hits an obstruction an echo is reflected back and a change of tone in the buzzing noise reveals the obstruction to the blind person, who, with training, may be able to detect its nature.

Interviewed at the Radio Show, Mr. Valchera said that two years of research had gone into the device, which could be perfected within a few months once it is approved as a suitable aid to the blind.

TAPE RECORDERS TOP THE WORLD

One of the most northerly stations of the Royal Canadian Air Force is their Arctic base at Resolute. All male Eskimos in the area aged over 16 (eighty of them) are employed on construction work at the R.C.A.F. installations and earn up to £100 a month. Their huts are filled with luxuries which up to £100 a month. Their huts are filled with luxuries which a short while ago they did not know existed, but which are now theirs for the asking as a result of their newly acquired wealth. And now, having become accustomed to radios and record players, they are following what appears to be a natural progression throughout the world—they all seem to want tape recorders. B.R.C. membership forms have been despatched, so keep an eye on the Inter-Tape Directory — there should be some very unusual entries soon.

FLASHES

FLASHES In Poland, many of our modern luxuries can only be found on sale in 'Komis' shops, which are State shops stocking a large proportion of Western products. The tape recorders to be found in them, however, are Russian made. They have one thing in common with the Western goods alongside them — price! To buy one, a person on an average income in Poland would have to pay 9,000 zlotys; which is the equivalent of 4½ months' income, or to put it another way, £216 for someone earning £12 per week. It is better to be an Estimo an Eskimo.

Quote from the Evening Standard: "Tape Recordings made during the London blitz will be played back at a demonstration of recording equipment at Acton next month". We were under the impression that Tape Recorders were rather scarce in this country at that time !

The finest kit-sets



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you cannot afford to miss considering models in the world-famous **HEATHKIT** range.

YOU WILL ENJOY **BUILDING THEM!**

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Kits include :--

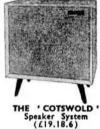


in the World

Stereo Stereo Mono TAPE (RECORDING & PLAYBACK) Stereo £22.4.0 Mono £16.4 0



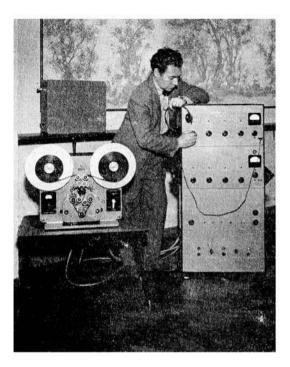
SSU-1 SPEAKER SYSTEM Pedestal £11.12.6 Bookcase £10. 5.6





DEPT.	AT 3
GLOUC	ESTER

(b) Full details of mode	·ls
(Block capitals please)	
NAME	
ADDRESS	



The author operates the 4 track Stereophonic Perjectone Recording Channel supplied by Technical Cinematograph Requirements Ltd.

OFALL SUBJECTS available for recording (and nowadays the field is vast), it is certain that an opera contains the maximum combination of excitement and technical complexity. The challenge has been met most brilliantly by the major gramophone companies whose recent issues in stereophonic sound have been the subject of so much well deserved praise.

It follows that when producer Paul Czinner told me that his latest film production for Rank was to be the opera 'Der Rosenkavalier' as performed for the opening of the New Festspeilhaus in Salzburg, I knew that I was presented with just such a challenge!

Of course I had recorded opera before, notably 'Boris Godunov' issued by Decca, and even filmed 'Don Giovanni' in Salzburg, for Dr. Czinner, but for such an occasion it seemed cowardly not to attempt to bring the benefits of stereo sound, so convincingly demonstrated by the latest records, to preserve as far as possible the lustre of a performance by such stars as Schwarzkopf, Jurinac, Rothenberger, Edelmann and Kunz under the direction of Herbert von Karajan conducting the Vienna Philharmonic Orchestra who would adorn this production.

However, while the equipment required for stereo tape and disc has been brought to an extremely high level and a fair degree of standardisation — the necessity for obtaining and holding exact synchronisation of the sound track of a film, presents many problems which have been solved by large static installations in the major film studios — but not in portable form.

The'Der Taping of Rosenkavalier'

Edgar Vetter — of Jupiter Recordings Ltd. and Sound Supervisor for Poetic Films Ltd.

For professional purposes most record companies now use machines pulling a $\frac{1}{2}$ inch width tape, putting down two or three tracks according to their own individual techniques the greater width of each track giving better signal to noise ratios and freedom from cross talk, but the manufacturers of such equipment will not guarantee accuracy of speed better than 3%. By industrial standards and in terms of musical pitch this is excellent enough but would be quite unacceptable for film synchronisation—where there is *no* tolerance whatever.

The solution lies in the use of perforated material—i.e., the standard film base coated with magnetic oxide, running on standard film sprockets. But nothing is gained without some sacrifice. The existence of the perforations and the teeth of the sprockets cause a ripple of 96 cycles which requires massive mechanical filtering and indeed the whole drive mechanism must be much bigger and heavier than any form of tape deck, even though two generations of first class brains have worked on the problems of improving the performance and efficiency of film recording machines (we still tend to call them 'cameras' even though they are now magnetic and exposed to light !)

After exhaustive enquiry and testing of many equipments that might have been specially adapted for the purpose of our project, it was discovered that the Swiss factory making the 'PERFECTONE' cinema and film studio equipment had available a recording machine and set of amplifiers and bias generators capable of recording four channels across the width between the perforations of 35 mm. magnetic film, in the manner used by studios for recording 'Cinemascope' and other wide screen presentations. (The final release prints carry the four tracks, two on each side of the perforations.)

I made a trip to Bienne and carried out certain tests with its brilliant designer Jean-Jacques Bessire, discovering that it really was transportable, with a performance better than its specification. However the mixing and monitoring equipment to work with it would have to be specially built. At Perfectone, the factory was so heavily committed to its production schedule that it was decided to do this work in England as the time was now dangerously short. In the space of three weeks an elaborate four channel mixer with talk back, volume indicators, a four channel comparator switch, monitor level and record level trimmers, etc., high quality monitoring amplifiers and an enormous voltage regulated power supply was built to my specification by Jack Cooper of Audio Efficiency Ltd. Neumann and A.K.G. stereo microphones were assembled and 100,000 feet of 35 mm. magnetic material lined up. The whole passed through customs and crated (you should see the documents !), and finally loaded into one huge container and despatched by road for Salzburg.

The 'Der Taping of Rosenkavalier'

Edgar Vetter — of Jupiter Recordings Ltd. and Sound Supervisor for Poetic Films Ltd.

My preliminary visit had proved the new Opera House, built at a cost of some 230 million Austrian Shillings (about £3 million), to contain every technical device that a modern theatre could be expected to have and a few that are not to be found anywhere else in the world. The Austrians had been determined to surpass even their own recently completed Vienna Opera, even though they had to carve extra space for it out of the rock, and have succeeded magnificently. There is even a room with TWO(!) Philips studio model stereo tape recorders --- just in case a few off-stage noises are required. Every department has been thought of and special accommodation provided. There are wigmakers, shoemakers, wardrobe departments for men and women, workshops and innumerable rehearsal rooms. A whole suite for the Rundfunk and Fernsea with double glass windows looking into the auditorium . . . but no place for the sound department of visiting film companies. We solved the problem by having a contractor build us our own double glass window which was fitted into the front of one of the loges at the back of the stalls, on each recording day.

Into this loge and the retiring room behind it we had to assemble the great weight and complexity of our stereo apparatus, connect up and test out. While another team of engineers hung and cabled up to the half dozen or so microphones, with special care for phasing, right and left discrimination, earth loops, etc.; a most nerve racking business with the knowledge that the orchestra and stars would be assembled at three o'clock, having had six weeks of rehearsals and ourselves none.

The plan I had devised for the recording was to make a classical stereo record of the orchestra and chorus in tracks 1 and 3, with the soloists in track 2, and a microphone high

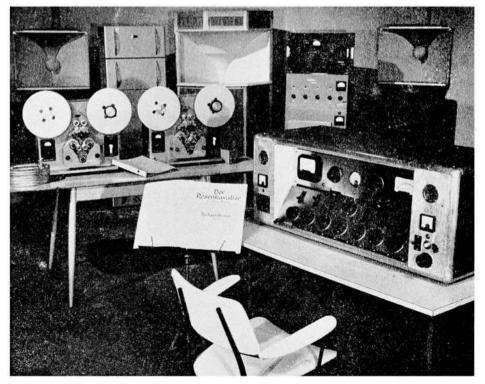
The Recording Set-Up, comprising three monitor loudspeakers, two equipment racks, two recording machines and the 4-changel mixer console.

November, 1960

at the back of the auditorium for ambience in the 4th track, so that later we would have complete control of the soloists, both right and left, and forward and backward, to suit the edited picture and yet keep the orchestral balance and positioning consistent throughout. We stuck to this plan and have no regrets.

We made a full $\frac{1}{4}$ inch tape recording on a Philips studio machine of the first public performance in which our cast took part, to help in planning and musical continuity.

And so, after some months of preparation in London and two weeks in Salzburg with much help from our good friend Dip. Ing. Otto Lippert who placed his workshop and laboratory at our disposal and a flying visit, to stiffen our morale, from Jean-Jacques Bessire of Perfectone, on the 16th August, 1960 with the flags of all nations fluttering outside in the sunshine and the city thronged with music lovers from all over the world, we started to preserve for all time a performance of 'Der Rosenkavalier' by a cast that will be long remembered in musical history.



11



A MODERN BED-TIME STORY

"NO BED-TIMESTORY—no sleep." This was the ultimatum two-year-old Simon Wiseman laid down to his father recently. And for the Wisemans, of Nelson Road, Highams Park, E.4, it proved to be quite a headache.

For Mr. Robert Wiseman, a civil servant, was often unable to get home in time to lull young Simon off to sleep with a fairy tale. And on these occasions, Simon let his displeasure be known — very forcibly.

Things looked black. But like all good stories, this one has a happy ending, and the solution to this particular problem was found with a miniature Fi-Cord tape recorder.

Now Mr. Wiseman puts his bed-time stories on tape. And if he isn't around at Simon's bed-time — his voice is. And that's all that is needed to send young Simon to the Land of Nod quickly, quietly — and happily.



NOVEMBER POPULAR HI-FI NOW ON SALE

THIS MONTH'S ISSUE INCLUDES NIGHTS FOR NOSTALGIA MY KIND OF MUSIC (Joe Loss) IMPROVING 208 RECEPTION 2000 A.D.

Plus a complete programme guide to Radio Luxembourg and a handy detachable supplement of new gramophone record releases.



Only with **FI-CORD** can you have it both ways-really HI-FI and really portable

Don't be misled by the compact size. The **FI-CORD** is a high fidelity instrument of advanced scientific design assuring true-to-life recordings.

Frequency 50-12,000 c.p.s. \pm 3db. Tape speeds 7 $\frac{1}{2}$ i.p.s. and 1 $\frac{1}{4}$ i.p.s. Twin track record/playback, using standard 3 $\frac{1}{4}$ " spools.

Wherever you go, you can take your FI-CORD with you, it is ideal for adding the realism of sound to movie films.

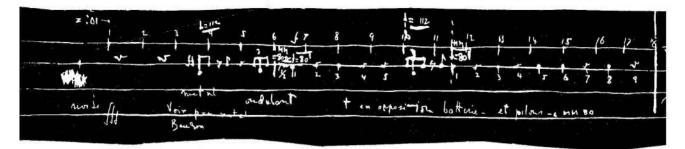
The **FI-CORD** weighs only $4\frac{1}{2}$ lbs., measures $9\frac{1}{2}$ " x 5" x $2\frac{1}{2}$ ", operates in any position (lid open or shut) and requires no power point. It runs on 4 batteries, rechargeable from the automatic charger supplied.

Built-in speaker. Full playback volume. Extension speaker socket. Dynamic microphone with stop/start switch.

CATCH IT-AND KEEP IT-WITH

Write for name and address of your nearest stockist to:-FI-CORD Ltd · 40a Dover St · London · W1 Tel: HYDE PARK 3448









THEINTENTION of these articles is to show how Electronic Music and Musique Concrète can be composed with simple equipment; little more than a tape recorder, a microphone, some splicing tape and a sharp pair of scissors. The techni-cally minded have not been forgotten though, for methods which offer still greater scope in composition will be described.

THE COMPOSER OF ELECTRONIC MUSIC OR MUSIQUE CONCRETE HAS LITTLE NEED TO OFFER A JUSTIFICATION OF HIS WORK. HE CAN REGARD IT AS AN EXPERIMENT IN AN UN-EXPLORED FIELD AND CAN SUPPLY MUSICAL MOTIVE BY POINTING TO THE FASCINATION OF CREATING NEW SOUNDS.

The most striking difference between electronic and traditional music composition is that the former cannot be per-formed in public by musician(s). The composite sounds are each produced and transformed separately during the process of recording or by tape cutting and splicing techniques. In the Philips 'Cain and Abel' ballet (electronic music) the recordings were put together with the aid of several tape recorders and checking aids such as metronomes, etc., the Fig. 1. Part of a composer's score for an electronic music composition.

Daphne Oram, a young pioneer of the "New Music", is seen at work in her Electronic Music Studio at 'Tower Foliy', Nr. Wrotham, Kent. (left) (Photograph by courtesy of 'Oramics' Limited.)

whole work being finally transcribed on to a master tape

whole work being finally transcribed on to a master tape from which discs or copy tapes could be made. Since there are no musicians to 'play' electronic music and equally few able to compose, there is ample opportunity for original creation. Composers of this new type of music associate their work with magnetic tape and set down the musical thoughts they wish to express by creating new music signs and notations (Fig. 1). The scope for interpretation is in the making and mixing of the acoustic layers indicated in the score, as well as the consideration of other details such as those of relative sound intensities, etc. In the production of the Electronic Poême, which was featured at the 1958 Brussels Exhibition, difficulties arose because of the deficiency of a suitable 'language' in this field; the lack of words to express what was intended and so on. Varêse the composer, frequently indicated his wishes by explaining to the recording engineers that he wanted his

so on. Varêse the composer, frequently indicated his wishes by explaining to the recording engineers that he wanted his expressions 'more nasal', 'less biting', or 'more rasping' and to define the necessary operations, resort had to be made to coined or 'onomatopecic' words such as 'wow-wow', 'poo-whip,' tick-tock' and 'choo-char,' etc. It should be mentioned here that a composition need not be confined entirely to electronically produced sounds, but may include 'concrete' sounds, picked up by a microphone, e.g., piano chords, bell chimes, choral and solo singing, drum beats, workshop and traffic noises, etc. Such sounds can be

beats, workshop and traffic noises, etc. Such sounds can be considerably modified by electronic treatment or by tape manipulation which apart from cutting and splicing, may include reversing, retarding and accelerating the tape during or after recording.

USING THE TAPE RECORDER

Two or more domestic tape recorders can be adapted for quite complex electronic music composition. The procedure is to record on one machine and transfer the recording, with added material, to the other machine. A method of recording from one track to the other on a single machine was des-cribed in the July issue of Amateur Tape Recording magazine. Whilst it is obviously advantageous to have and use more than two recorders, much can be accomplished with only two or even one machine. The writer was awarded first prize for an Electronic music composition produced with only two recorders. Here is an opportunity for groups of club members to pool resources. The tape recorder plays the greatest part in the production of electronic music and musique concrête. It is the only media through which it is quickly and easily possible to transform, transpose and assemble all the different parts of a composition.

ELECTRONIC MUSIC SOUND SOURCES (Ref. 1) The simplest electronic sound source conceivable is the 'audio sinewave generator' used by engineers for testing audio equipment. A loudspeaker connected to such an instrument delivers a pure tone, rather like a clear whistle which being practically devoid of harmonics, sounds strange and ethereal. The pitch of the tone from this type of generator can be continuously varied by turning the frequency control

How to make modern music with a Tape Recorder

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

and by this method, glissandi or gliding tone can be produced at will (Fig. 2). Its greatest virtue, however, is that it does offer a simple means of obtaining accurate notes with various intervals, i.e., any desired scale. One could, therefore, deliber-

ately depart from the conventional 'equal temperament scale' which divides the octave into 12 equal intervals. It is appreciated that this type of equipment is expensive and that few readers are likely to possess an audio sinewave generator. A very adaptable substitute is a frequency test tape

generator. A very adaptable substitute is a frequency test tape or gramophone record from which the same range of tones can be obtained. Details of these two very convenient pure tone sources will be given later. The counterpart of the audio sinewave generator is another familiar electronic device which is widely used as the basic tone generator for simple electric organs. This is called the 'multi-vibrator' and produces a sound containing harmonics up to about the thirtieth but which may be modified by up to about the thirtieth but which may be modified by means of electrical filters or 'shaping' circuits. A circuit and other details for a variable frequency multi-vibrator will be given later for the technically minded readers, who may wish to construct one.

(Pure tones or sinewaves can also be shaped by simple filter circuits and we will later include details of these also.) 'White noise' offers yet another source of sound which differs from all other known sounds in that it has a contin-uous spectrum. By itself it is not particularly interesting, since there is nothing that can be varied, except its intensity. It sounds rather like the hissing of steam from a railway engine. Used in conjunction with filters, however, it can be 'White noise,' filtered into useful frequency bands, can be

obtained pre-recorded on tape (details later). In the electronic sound sources mentioned above, the frequencies of the vibrations, with all their components are determined by known electronic circuits. In another rather hybrid group of electronic sound sources, the frequencies are determined by mechanical means, although the vibrations only become acoustically effective through the medium of a loud-speaker. Two kinds belonging to this group were used in the production of the Philips recording 'Cain and Abel'. These were the 'Electronic Drums' and an 'Electronic Clavichord'. Another hybrid instrument consisted of a number of steel strings, the vibrations from them being picked up at a specific position by piezo-electric crystal (crystal microphone). The modern electric guitar may also be included in this group.

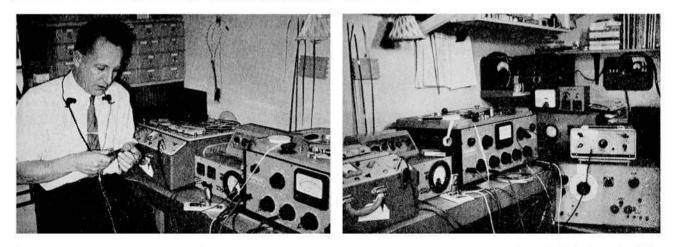
The modern electric guitar may also be included in this group. An earlier paragraph mentioned that 'concrete' sounds picked up by a microphone were used in an electronic music composition (Electronic Poême). Some distinction should be made between 'purely electronic' music and 'musique con-crête', for the latter is a form of music produced from everyday sounds. Some composers use the two forms simul-taneously and since there are no rules for composition you too have the choice of using both sources together. Your efforts may be confined entirely to sounds that can be recorded wis a microphone or you may use only electronically produced via a microphone or you may use only electronically produced tones and sounds such as those described earlier. An entire composition may in fact be produced from one single sound recorded via a microphone.

The following articles in this series will explain in greater detail how simple electronic music composition may be pro-duced and how the tape recorder is used, and will include information on suitable and readily available electronic sound sources, such as those of the recorded tones and filtered white noise mentioned above.

The writer was recently privileged to work with Bruno Maderna, one of Italy's leading conductors and a well known composer of electronic music. Bruno Maderna has developed many new techniques for electronic music composition particularly in 'tape splicing'. These will be described for the first time, together with other 'tape manipulations' that can be adapted for the production of electronic music. For the technically minded, details of specially designed controlled 'attack' and 'decay' devices and other electronic methods for shaping sounds will be given. (To be continued)

(Ref. 1):

'ELECTRONIC MUSIC AND MUSIQUE CONCRETE' (A new book by F. C. Judd, A.Inst.E.). Published by Neville Spearman Limited and available early next year. Price 12s. 6d.



The writer with his "orchestra". (right) Equipment used by the writer for the production of Electronic Music. Centre: Professional re channel input mixing. Lower right hand: Audio Frequency generators for producing sine or square waves from 1.5 c.p.s. to 100,000 c.p.s. Centre: Professional recorder with four Fig. 2 (left) The writer with his "orchestra".

November, 1960

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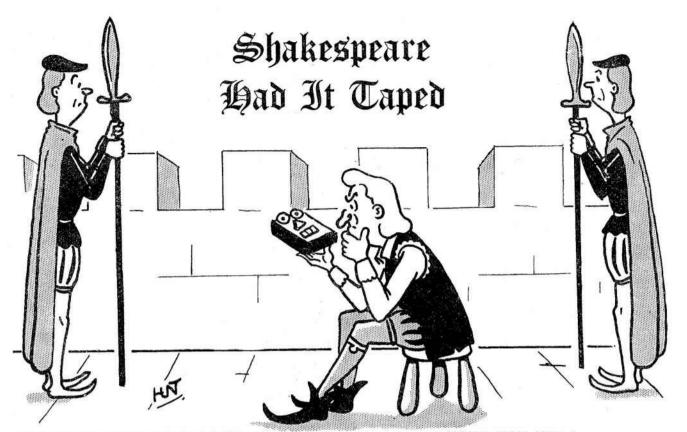
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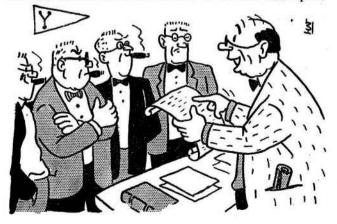


AFTER EXHAUSTIVE study by infallible experts at Yale University, during the past five years, of the manuscript discovered in a disused well at Stratford-on-Avon, it is now proved beyond doubt that Shakespeare wrote in 1599 a play prophesying the invention of the tape recorder.

Professor Schneespiel and his colleagues in the U.S. conclude that the priceless M.S. is certainly the handiwork of W.S., but that it was never performed, the players having realised that the fantastical ideas embodied in the plot would leave the sceptical British public stone cold.

But, insists the professor, Shakespeare must have known that the abandoned play contained some of his finest lines, since he subsequently lifted much of the material and incorporated it in a successful drama entitled 'Hamlet, Prince of Denmark'.

The following extract from the recovered M.S. proves beyond quibble that an entire scene from this unacted play has been shuffled about and utilised in the later masterpiece.



WHAT, YOU, WILL ?

Act I. Scene III

Within the Castle.

HAMLET pacing the floor. A heavy knocking without. HAMLET

Ah, ha !- come, some music ! Come, the recorders !

(enter VOLTIMAND, an electrical salesman.)

You come most carefully upon your hour.

O, the recorders - let me see one.

(aside) No reckoning made, but sent to my account. VOLTIMAND (plugging in a tape recorder)

What think you on't?

HAMLET

Sir, I lack advancement.

VOLTIMAND (tapping spool)

There the action lies.

HAMLET

Tis a massy wheel.

VOLTIMAND (rapturously)

O, how the wheel becomes it !

Tis as easy as lying; govern these ventages with your finger and thumb, give it breath with your mouth, and it will discourse most eloquent music (presses replay button, and a melody is heard).

It is a nipping and an eager air.

HAMLET

This is too heavy, let me see another.

(VOLTIMAND plugs in another model) VOLTIMAND (pressing erase button)

Fill wipe away all trivial fond records.

HAMLET

O, throw away the worser part of it. VOLTIMAND

Look you, these are the stops.

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17



HAMLET

Now might I do it pat (presses every button in sight). TAPE RECORDER (spilling tape in all directions) When we have shuffled off this mortal coil, (angrily) You would play upon me; you would seem to know my stops. (VOLTIMAND tidies up the mess).



VOLTIMAND (to TAPE RECORDER) Nay, then, I'll set those to you that can speak. (to HAMLET) I do believe you think what now you speak. HAMLET total in power where I shall first horin

I stand in pause where I shall first begin. I'll speak to it, though hell itself should gape, And bid me hold my peace. (presses record button and picks up microphone). 'Thine evermore, most dear lady, whilst this machine is to him, HAMLET' (to VOLTIMAND) But let this same be presently perform'd. Let us haste to hear it. (to TAPE RECORDER) By heaven I charge thee, speak ! (TAPE RECORDER repeats the message). VOLTIMAND O, wonderful ! HAMLET (modestly) I have in quick determination Thus set it down. VOLTIMAND How now, my lord ! will the king hear this piece of work ?

HAMLET

And the queen too, and that presently (enter Queen). (to TAPE RECORDER)

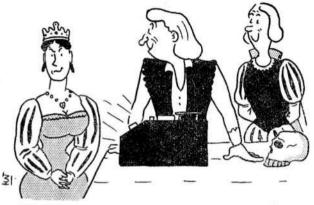
- Speak the speech, I pray you, as I pronounced it to you. (TAPE RECORDER repeats message).
- (to QUEEN) Madam, how like you this play? OUEEN

O, wonderful son, that can so astonish a mother !

(aside) O, horrible ! O, horrible ! most horrible !

If thou hast nature in thee, bear it not.

- HAMLET
- Ay, lady, 'twas my word.



QUEEN

(aside) He hath not failed to pester us with message. (to HAMLET) 'Tis meet that some more audience than a mother, Since nature makes them partial, should o'er

hear.

The speech, of vantage.

(aside) Now fear I this will give it start again. (enter KING and courtiers)

HAMLET

They're coming to the play.

(to the TAPE RECORDER)

Come give us a taste of your quality. KING

Speak; I am bound to hear.

TAPE RECORDER

BUZ ! BUZ !

HAMLET (to TAPE RECORDER) If thou hast any sound, or use of voice,





Anateur Tape Recording



TAPE RECORDER (furiously)

Words, Words, Words.

'Sblood, do you think I am easier to be played on than a pipe? Call me what instrument you will, though you can fret me, you cannot play upon me. FIRST COURTIER

These are but wild and whirling words, my lord. HAMLET

These words are not mine. TAPE RECORDER

Contagious blastments are most imminent. (emits contagious blastments).

COURTIERS (together) But stay ! What noise ? How now! What hath befall 'n? How comes it ? Do they grow rusty ? QUEEN (hopefully) Do the boys carry it away? KING (reassuringly) Heaven will direct it. HAMLET (to TAPE RECORDER) I heard thee speak me a speech once. TAPE RECORDER (aside) Stand dumb, and speak not to him. (to HAMLET) The rest is silence. HAMLET (to VOLTIMAND) The treacherous instrument is in thy hand Unbated and envenom'd. **VOLTIMAND** (unplugging the TAPE RECORDER) - cursed spite. That ever I was born to set it right ! HAMLET Break all the spokes and fellies from her wheel, And bowl the round nave down the hill of heaven, As low as to the fiends! VOLTIMAND

Each toy seems prologue to some great amiss.

- I'll lug the guts into the neighbour-room.
- HAMLET Go to, I'll no more on't; it hath made me mad.
- KING AND QUEEN (together)

This business is well ended. **BARDIS CREWE**



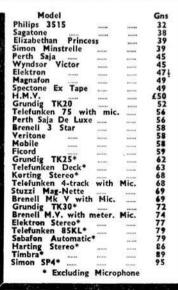
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November, 1960



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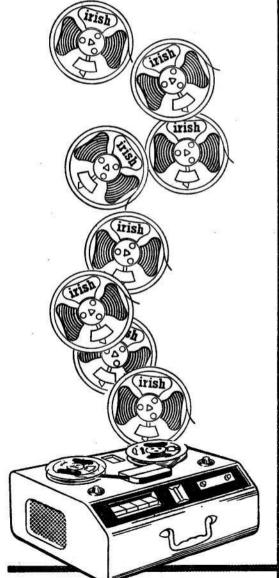
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ANNOUNCEMENT

Will Club Secretaries continue to send news to :--TERRY NURSE, 161 Stuart's Road, Birmingham 33. not later than the 20th of the month. Send plenty of news in because THIS IS YOUR JOURNAL. Interesting photographs are also invited.

SOUND HUNTING



Members of Brighton Tape Recording Club Members of Brighton Tape Recording Club took part in a history-making ceremony in the Lord Mayor's Parlour at Stoke Town Hall recently. Tape recorded messages of goodwill from the civic heads of Brighton and Lewes, congratulating the city on the golden jubilee of its formation from the 'Five Towns', were played back to the Lord Mayor of Stoke, Gordon Dale. Gordon Dale.

The tape from the Lord Mayor of Lewes, Reginald H. Yarrow, was posted to Stoke, but that from Brighton's Lord Mayor, Ald. Alan Johnson, was taken by courier and presented personally to Mr. Dale. Both tapes were played back by P. A. Quested-Harris and Ralph Vivian, President and Secretary of the Brighton Club.

In their tapes, the civic leaders referred to the historic associations of Stoke, and the famous figures born in the area. The message from Ald. Johnson was preceded by a fanfare

from 'Trumpet Voluntary'. Stoke's Lord Mayor later replied. Instead of a fanfare, he preceded his 15-minute tape with a rattle of civic crockery, thus paying homage to the city's staple industry, pottery making.

An exclusive recording of the Northamptonshire Regiment beating retreat' was recently secured by Northampton Tape & 8 mm. Cine Club. The regiment is now merged with the 2nd East Anglian Regiment.

The club also recorded a children's concert alongside a BBC Radio team. Locals who heard both versions said they preferred the club's ! A recording of a local amateur concert party has been made available to the blind.

Four members spent sixteen evenings providing music and sound effects off-stage for Northampton Drama Club's per-formances of 'Romeo and Juliet'. Another two members made recordings of the complete production for the tape club's Sound Library.

In the local library.
Following the success of Ulster Tape Recording Society in tracking-down ghosts, two members spent the night in the local repertory theatre, reputed to be haunted by the ghost of an old lady who walks the building. They were not so lucky in persuading her to make a recording, however.
The club has recorded a morning service and a children's service for the Vicar of St. Giles Church, Northampton.
Rounding-off this hectic month, members spent an enjoyable evening with their friends at the Kettering & District Tape Recording Club.
In the latest Sunday Sound Hunt, held by West Herts Tape Recording Society, three cars, with four members and a battery portable in each, set out on a tour of the district in search of sounds and descriptions of items for which clues had been set by Chairman John Grainger. Interviews with busmen and bargees, train sounds, a school clock, a waterfall, busmen and bargees, train sounds, a school clock, a waterfall,

busmen and bargees, train sounds, a school clock, a waterfall, a view from the bridge, and a description of Chalfont Church, were but some of the recordings made. One clue led the teams to interview a housewife on her family's tea drinking habits. She turned out to be the wife of Secretary Pete Holloway. Whilst they were busy recording her, she was also secretly recording them — on a recorder placed behind the door ! Later they were invited in to sample some of the tea. Another clue led the teams to the famous 'Treacle Mines' at Winkwell. Friem Barnet & District Tape Recording Club reports that its funds have increased slightly as a result of the failure of

its funds have increased slightly as a result of the failure of



a few members to produce a five-minute tape for each club-night. The competition is bringing to light much hidden talent within the club ranks.

Members of Dover & District Tape Recording Club recently visited the ITV station at Hougham, Nr. Dover. The number was restricted to ten by the authority, but those who went found the visit most interesting. At their next meeting a demonstration by Grundig will be given. Two tapes made at Whipsnade Zoo in August

were played back again at a recent meeting of The West Middlesex Tape Recording Club, for the benefit of those not having heard them before. Chairman Freddy Wescott had produced a fine sound-picture, which took listeners on a chrono-logical survey of the zoo. The meticulously edited tape opened with a comparison of the various modes of transport by which visitors made their way to the zoo.



During September the liford & District Tape Recording Society were hosts to the Walthamstow club. Led by Chair-man John Wells and Secretary Ken Perks, the visiting club competed with Ilford in a quiz, pre-recorded by Ilford Secretary Dave Bolton. The result was a victory for the visitors, who were presented with a booklet on tape editing.

A play recorded by the Walthamstow Society was followed by Ken Perks explanation of how he had obtained the many excellent effects used in the production.

Percy Ager then played back recordings of the human heart, after which Lew Jackson presented his tape of a trans-Atlantic telephone mix-up. A date is to be agreed for llford to pay a return visit to the Walthamstow & District Tape Recording Society.

A documentary tape on Waltham Abbey is being prepared by Ilford's members, and now only needs the addition of authentic music and effects. A special programme is being laid on by the Rev. H. R. Darby, and members will be there with a Fi-Cord and plenty of recording tape. At South-West London Tape Recording Society, parlour-games-on-tape were the order of the day. Each member wrote an average of the sound he would like recorded The

on a piece of paper the sound he would like recorded. The papers were then put in a hat, from which each member in

November, 1960

turn drew a slip. It was then up to him to record his interpretation of the sound thereon, in another room. The sounds were later played back for identification, and no less than fifteen different interpretations of one sound had been made on some occasions.

Tape Correspondence Secretary John James has donated a cup to the club as a prize for a competition to be held amongst Society members. This will take the form of a story in words and music, which should not exceed fifteen minutes playing time. Members are busy thinking up new ideas. The Ipswich Tape Recording Club



recently held a competition in which several interesting tapes were entered. John Cooper's entry, 'The Nightmare', won first place, and John Proctor was runner-up with his entry 'Three O'Clock in the Morning .

A quiz-tape presented by members Morris and Palmer at Rugby Amateur Morris and Palmer at Rugby Amateur Tave Recording Society was won by blind member Jack Willis. Following this a tape was played of the beautiful voice of local lad Keith Shervington singing in the Holy Trinity Church. Much regret was expressed by President George Bannister at the return to hospital of Secretary Mike Brown, and all wished him a speedy return to complete health — in which expression we should like to join. At a subsequent meeting members listened to part of a

At a subsequent meeting members listened to part of a recording made at the Federation's congress held in August. Play-back of the tape had been delayed because of important business. Next came a quiz tape, prepared by R. Goodman, which was won in a tie between E. Campden and R. Pick. A tape was then played from Cliff Ingham of Oregan, U.S.A. A tape was then played from Cliff Ingham of Oregan, U.S.A. Starting with the stirring tune 'Let there be peace', it told of the pleasures and joys of tapesponding with people in all corners of the world. Afterwards the tape being made by the Play-reading group was heard. The short instalment from this as yet unfinished production whetted the appetite of those present who are now looking forward to hearing the completed play. A humorous tape brought along by Mr. Goodman provided a pleasant finish to an enjoyable evening. The West Middlesex Tape Recording Club is trying to obtain some specially written playlets or sketches, suitable for recording, from a local author who has won several nrizes

recording, from a local author who has won several prizes with his material. If they are successful, recording sessions will be arranged. "It sounds as if the Secretary has been landed with the job of typing umpteen copies of plays out," says the Club Press Bulletin.

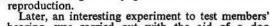
Mrs. Joyce Lawson presented a tape at Bournemouth & Poole Tape Recording Club entitled 'Teething with Teen-agers', which members thought was extremely well-produced. Consequently the club is offering to make copies available to any other club wishing to hear it. Drop a line and a blank tape to H. R. Jones, 442 Poole Road, Branksome Poole, and a dubbing will be made by club members for you.

TALKS AND 'DEMS'

Latest member to demonstrate his machine to West Herts Tape Recording Society was Dennis Millard with his Telefunken.

Afterwards, an item titled 'Talk Yourself Out of This !'

provided opportunity for members to air their views on various topics, such as 'Is 4-track preferable to 2-track?'... One member quite convinced the rest that he genuinely preferred mono to stereo





hearing, was carried out with the aid of a dog whistle. It was soon clear that some members could hear much higher than others, and that the female ear responds to higher tones better than the male. Playback of the dog whistle tape at half-speed made things clearly audible to all present ! Leicester Tape Recording & Hi-Fi Club were visited by Mr. Dakin and Mr. Lowe of Nottingham Tape Recorders

Ltd. After discussing the advantages and disadvantages of high and low speeds, and the various track systems, Mr. Dakin and Mr. Lowe delighted members by replaying commercial and privately-made recordings on a Ferrograph, used

to drive a 6in. Lowther Unit. At a subsequent 'dem', J. F. Parrington of Walter Instru-ments was welcomed back. Besides displaying old favourites like the '505' he put the new Walter 'Transistor' mains/ battery model through its paces. When connected to a column speaker, it gave a good account of itself.

The club put on a display at Stocking Farm Estate Community Centre's Arts and Hobbies Exhibition for three days during September. It was an ambitious show, during which the club demonstrated - and they claim it to be for the first time anywhere in the world - stereophony in which accurate phasing was maintained between the two channels, using completely unmodified machines. Members of the public were able to record in stereo and later hear themselves played back. John Buckler's two Ferrographs were used throughout. The show also included 'So Now You Have a Tape Recorder', a light-hearted lecture in which Chairman Dave Angrave delved into the club's tape archives and brought out tapes illustrating the enormous scope open to amateur tape recordists.

Eastbourne Tape Recording Club paid Brighton Tape Recording Club a visit recently. A demonstration and lecture given by a Grundig representative was followed by a rather amusing look at a 1900 phonograph owned by a Brighton member.

Chairman Roy Penfold welcomed some 32 members to Coventry Tape Recording Club's meeting. Several members gave their recollections of the Radio Show. Les Skingley talked for some while on the G.E.C. range of equipment (connoisseur and professional price bracket). Frank Gibson and Bill Palmer claimed that there were few outstanding exhibits in the tape recording field, although it was noticed that means provide that the source of the source that many prominent radio manufacturers are adding a tape recorder to their range, built around the low-priced mass-produced decks of Collaro, B.S.R., and Garrard. The club's dubbing machine built by the Technical Group,

was taken along by Carl Briggs. It is now available on loan to members, and will be kept in Henry Hopfinger's photo-graphic studio. The machine has no recording facilities — although it may be modified later to include these.

Playback of two of Roy Penfold's tapes caused considerable amusement, and once more proved his ingenuity. Afterwards, Roy explained how the tapes were compiled.

After the interval, during which the usual raffle took place, members settled down to listen to a second repeat of the now famous San Francisco Club tape. The task of replying has still not been undertaken, but will be tackled shortly.

Members took along their own machines to the Bournemouth & Poole Tape Recording Club for all to see and hear. No less than ten different makes were provided between them, and some members also took along speaker systems and microphones. The lady members made it a successful evening by supplying refreshments.

Other demonstrations recently given at this club have included the Return of Mr. Parrington (sounds like a movie revival !), and one by Tape Recorders of Westbourne of the Grundig TK60.

GOODWILL SERVICES

During September, Eastbourne Tape Recording Club enter-tained members of a Home for the Blind with a programme of piano music, songs, and an interview with Anna Neagle, recently recorded at a Brighton theatre by Miss Harris. The club's next visit will be to a Dr. Barnardo's Home, Roy Topham of the West Middlesex Tape Recording Club's

Programme Committee, has visited the Hillingdon Hospital to discuss ways and means of helping the inmates by recording messages to and from their folk in the outside

Amateur Tape Recording

world. They have obtained permission to carry out their work in non-visiting hours, so as to ensure maximum peace and quiet.

John Grainger of West Herts Tape Recording Society visited Mr. James Hayter (now appearing in 'My Fair Lady') at his home in Hemel Hempstead, to secure material for the Society's 'Newsletter to the Blind', Mr. Hayter recounted some of his experiences in Show Business, and said that he himself had been using tape recorders for a number of years. It is not generally known that Mr. Hayter plays the ukulele with considerable skill.

The Hull & District Tape Recording Club has contacted all three local Hospital Management Committees, all of which have accepted the club's offer of assistance. Details of services to be provided will be arranged at some future date.

CLUB TAPESPONDENCE

Friern Barnet & District Tape Recording Club has completed a tape to the Eastbourne Tape Recording Club.

The Bournemouth & Poole Tape Recording Club is concentrating increasing effort into its tapespondence. Tapes have been sent to clubs in Rugby, Birmingham, and Southall, all of whom have agreed to participate in a quiz-tape, and to exchange ideas.

In the Midlands, the round-robin tape of the Midland's Clubspondence Convention continues its journey around clubs in the region. The tape has now left Stafford, its first 'port of call', and arrived in Nottingham.

call', and arrived in Nottingham. **'Tapeorama'**—the only independently-issued magazine-ontape — continues to gain popularity. This programme is fulfilling a most useful function in disseminating news about tape — on tape. It is the magazine which is setting the pace in this exciting new form of sound-journalism. Details can be obtained from Mike Renshaw, 6 St. Vincent's Close, Girton, Cambs.

NEW CLUBS AND COMMITTEE CHANGES

The main activity of the newly-formed Hull & District Tape Recording Club is, of course, at present 'organisation '! Chairman Ken Fulstow told members at the second meeting, that posters and leaflets were now ready for distribution to local dealers. No less than 10 local dealers had been approached, and in all cases had offered all possible help and co-operation—one of them, in fact, had actually duplicated the leaflets.

Suitable permanent accommodation has now been found at a local dealers shop, and a happy and informal atmosphere has been established amongst the fifteen members. Ilford & District Tape Recording Society Chairman Percy

llford & District Tape Recording Society Chairman Percy Ager, who in company with Jeff Langley brought the Society into being, is leaving the club owing to his moving from the district. This follows close on the loss of their Treasurer through the same reason.

Fifteen members were present at the first meeting of **Harrow Tape Recording Club** held in St. George's Hall, North Harrow. Ken Peters (no relation to our own Deputy Editor), was elected Chairman; Toni Fisher, Secretary; and Don Fisher, Treasurer. Meetings will be held fortnightly.

Don Fisher, Treasurer. Meetings will be held fortnightly. The Secretary of Bristol T.R.C. is now M. E. Hollier, 27 Dean Lane, Southville, Bristol 3, and meetings are now held every other Wednesday at the 'Ship Inn', Redcliffe, Hill.

FORTHCOMING EVENTS

The first Anniversary Dinner of the York Tape Recording Society will take place at the City Arms Hotel, Fawcett Street, York, at 7 p.m. on Monday, 7th November. The cost is 12/6d. to members and £1 to the public. An open invitation is extended to other clubs who might wish to send representatives to this



HIGH QUALITY TAPE RECORDER SPECIALISTS!

ALLOWANCE	NGE e on your presi	VORTEXION ENT TAPE RECORDER-	★ BRENELL ★ WYNDSOR -HI-FI EQUIPMENT
MONO RECORDERS Verdik 45 gns. Geloso 26 gns. Kuriand Hi-Fi 56 gns. Breneli 3 Star 58 gns. Breneli 3 Star 29 gns. Wandsor Victor 45 gns. Walter 101 29 gns. Walter 505 57 gns. Perth Saja 45 gns. Telefunken 75 KL-15 52 gns. Grundig TK 20 52 gns. Grundig TK 20 52 gns. Grundig TK 30 72 gns. Specto 161 49 gns. Specto 171 39 gns.	Veritone Venus Philips EL 3542 Simon Minstrelle Simon SP4 Sound Prince Sound Prince 4 track Sound Studio 4 track Fidelity Argyll Vortexion WVA Ferrograph 4 AN	66 gns. Harting HM8	86 gns. Grundig, Etc. 92 gns. TAPES 105 gns. TAPES

FREE SERVICING — FREE DELIVERY — FREE TAPE OFFERS — 150 MACHINES ON DISPLAY — OUR MAIL ORDER DEPART-MENT WILL DEAL WITH YOUR ENQUIRY BY RETURN. WRITE — PHONE — CALL FOR A QUOTATION ON YOUR MACHINE. A LARGE SELECTION OF USED TAPE RECORDERS.

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100 yards from Tooting Underground Station.

November, 1960

event. Remittances should be forwarded without delay to Mr.

H. C. Edwards, 45 Thoresby Road, Acomb, York. The Wakefield & District Tape Recording Club are holding an Exhibition and Open Day on Saturday, October 29th, from 3 to 9 p.m. at the Youth House, Marygate, Wakefield. There will be demonstrations of stereo recording and play-back in conjunction with 'The Little Theatre', local repertory group who will stage a short play for the purpose, demonstrations of tape synchronised with slide projection, and displays illustrating the great variety of tape recording activities \rightarrow outside recording, 'Tapespondence,' sound effects, etc. These and the many other items on the programme promise to make this a memorable tape occasion.

STARTING CLUBS

BALLOCH

Haldane Community Association is planning to start a Tape Recording Club at Balloch in Dunbartonshire, Scotland. All enquiries should be addressed to Mrs. E. M. Jarrett, Centre Secretary, 2 McFarlane Road, Balloch.

BATH

E. J. Fishlock of 1 Dafford's Buildings, Larkhall, Bath, is hoping to start a club in Bath within the next four weeks.

TAUNTON

Anyone interested in joining a tape recording club now being formed in Taunton should write to Mr. R. V. Smith, 83 Priorswood Road, Taunton, Somerset.

MAIDSTONE

If there is anyone interested in forming a tape recording club in Maidstone, would they please get in touch with John E. Periam, 'Treetops,' Boxley Road, Penenden Heath, Maidstone, Kent.



"Here's George, Mother. He's just dying to say a few words."

CLUBMAN REQUESTS

Robert Jackson of Annfield Plain, County Durham, has asked that an expression of his thanks be given in A.T.R. to Mr. A. Acland of Walderslade, Kent, for the beautiful recording of the song of the nightingale sent in answer to Mr. Jackson's Clubman Request.

FRANCIS OF STREATHAM	 ★ COMPLETE TAPE RECORDER SPECIALISTS ★ LARGEST SELECTION OF LATEST MODELS ★ SEPARATE HI-FI DEPARTMENT
NO EXTRA FOR CREDIT Minimum deposit and no interest or charges on HP up to 18 months. FREE service whilst under Guarantee HIRE SERVICE TAPE RECORDERS AVAILABLE on hire from 45/- per week. MICROPHONES AND MIXERS	ention and respect for your Pocket *Brenell 3 Star 58 gns. *Reflectograph 'B' 1-tr 105 gns. Brenell 3 Star Stereo 89 gns. Playback 55 gns. Cossor Cr.1602-4 Tr. 37 gns. *Saba 79 gns. Elizabethan 4 Tr. F.T.1 39 gns. *Simon SP4 75 gns. Elizabethan 4 Tr. F.T.2 55 gns. Simon Minstrelle 39 gns. Elizabethan 4 Tr. Gr.2 S gns. Stellaphon 4 Tr. 3 sp. 59 gns. Elizabethan Major 65 gns. *Telefunken 85KL 79 gns. *Ferograph 4AN 81 gns. *Telefunken 85KL 79 gns.
Lustraphone VR/65.NS Stereo Ribbon 15 15 0 Lustraphone LD/66 4 2 6 Lustraphone "Lustrette" M/C 3 7 6 Lustraphone WR/64 Ribbon 7 17 6 Lustraphone VR/64 Ribbon 7 17 6 Lustraphone VR/64 Ribbon 7 17 6 Simon "Cadenza" Ribbon 10 10 10 0 Simon Cadenza Crystal 3 13 6 Reslo Ribbon 8 15 0 AKG Stereo Dynamic D.88 19 19 0 Grundig Mixer 16 16 0 TSL 3 channel Mixer 2 2 gns. Also by Ronette, Acos, etc. We will gladly advise on the type best suited 10	Ferrograph AN/S 88 gns. Uher Universal 79 gns. Ferrograph 808 105 gns. *Uher 4-tr Stereo 102 gns. Ferrograph Stereo-Ad. 30 gns. *Vortexion WVM £93 13 0 Fidelity Argyil 29 gns. *Vortexion WVM £93 13 0 Fidelity Argyil 29 gns. *Vortexion WVM £93 gns. Gainsborough 39 gns. Walter 404 42 gns. Grundig TK20 52 gns. BATTERY PORTABLES Grundig TK30 72 gns. Grundig Clarion 25 gns. *Grundig TK60 Stereo 128 gns. Clarion Twin Set 8 gns. *Harting HM8 Stereo 86 gns. Minivox 37 gns.
to your requirements. HI-FI AND ASSOCIATED EQUIPMENT (at 181 Streatham High Rd.) Decca ffss P.U. <u>21</u> 0 0 Collaro 4T200 <u>18</u> 13 0 Rogers Junior FM <u>Lenco GL/58</u> <u>19</u> 17 6 Tuner <u>24</u> 13 5 Garrard 4HF <u>18</u> 17 8 Armstrong ST.3 <u>27</u> 6 0 Garrard 301 <u>22</u> 7 3 Dulci AM/FM <u>25</u> 15 2 Garrard 301/Strob. 23 18 4 Jason J-2.10/MK3 40 19 0 Leak Stereo 20 <u>30</u> 9 0 Jason FM <u>22</u> 15 8 Loudspeakers by- Jason FM <u>25</u> 15 0 Goodman's, etc. PRE-RECORDED TAPES TAPE TO DISC & TAPE COPY SERVICE	Marconiphone 39 gns. Fi-Cord 59 gns. Magnaton 49 gns. Stuzzi "Magnette 69 gns. Philips 4 Tr. 3541 34 gns. Steelman 55 gns. Philips 4 Tr. 3542 59 gns. Trav-Ler 29 gns. Philips 4 Tr. 3542 59 gns. Walter Travistor 55 gns. Philips 4 Tr. 3542 59 gns. Walter Transistor 55 gns. Philips 4 Tr. 3542 59 gns. Walter Transistor 55 gns. *Reflectograph 'A' 1-tr 95 gns. Walter Transistor 55 gns. * Microphone extra Tapes of every size and type by leading makers ready for prompt dispatch. Also Pre-recorded Tapes. Please mention "Amateur Tape Recording" when writing. I69-171 STREATHAM HIGH RD., LONDON, S.W.16 Between St. Leonard's Church and Streatham Station STReatham 0466/0192 Wile Date 112 Constant 121 Constant Hick Paed & W 16





(above) West Herts Tape Recording Society record 'Dial 3¹/₂, 3¹/₂, 3¹/₂'. Peter Walmsley and Jack Hill operate the recorders supplying sound effects and background music, while at the mike are, from left to right, Sid Attwood (Sgt. Tape), Peter Holloway (Insp. Tech Nichol), Vera Jackson (Lydia Spoolcase), and a visitor (Petal Sycle).

(left) Members of Brighton Tape Recording Club stop the car for a break and a 'cuppa' during their visit to this year's Radio Show.



Crawley & Sussex Tape Recording Club had this impressive recording set-up for putting every entrant's performance on to tape in the Crawley Talent Competition (see page 34)

Friern Barnet Tape Recording Club this year held a stand at the local Summer Show. For three days Charles Hooker, Leslie Cakley, and Joe Neal were on hand to demonstrate equipment, make recordings for the visitors — and enrol new members! The experience gained will enable the club to tackle even bigger things at next year's show.

CLUB PICTORIAL

by Albert Greenway



November, 1960

Aberdeen Tape Recording Club 'keep their hands in ', and do a good turn at the same time, by helping out the Aberdeen & District Cine Club at a recording session when sound effects and music where added to the film 'A Pair of Shoes'. Directing operations from behind a three-channel mixer is Tape Club President Ron Miller, whilst willing helpers set up two recorders and turntable for a 'take'. In the background, the Cine Club's ace projectionist, Bill Boswell, prepares to lace up the magnetically striped film.





Let the British Recording Club panel of experts answer your technical queries. Answers of general interest will be published.

From Mr. W. G. JOHN, Llanelly, Carms.: I own a Philips 4-track tape recorder (59 gns.). I would be obliged if you would please advise on which tracks I should record to enable my tape pal to play back on his two track machine.

On the Philips four track, the switch positions are 1-4 and 2-3.

It would seem that it should be tracks 1 and 4. I have heard from my tape pal, stating he gets the two recordings, that is, my recording on top of his recording to me. Yet when I played this tape on my four track, I only had my recording

ANSWER.—Your problem is an interesting one and by now other users of four track machines may have dis-covered the same difficulty. When your friend records on a two track machine, both halves of the tape will be occu-pied. These will play back on your four track machine (we will assume your friend has recorded on an otherwise unused tape).

When you record, on tracks 1 and 4, you will only erase on those tracks, leaving a half of the half track recordings on the tape (these would be your tracks 2 and 3). In fact on the tape (these would be your tracks 2 and 3). In fact if you played the tape through, you will still have the original half track recording, when you are switched to tracks 2 and 3. When your friend receives the tape he will have your tracks 1 and 4 plus his old recordings which are adjacent. For example, track 1 of your recording and track 2 left unerased by your recorder. When he turns the tape round he will hear your tracks 3 and 4 together. When you make a tape to him you must be careful to erase on all tracks before recording on tracks 1 and 4 for his machine. See A.T.R. August issue for track description.

his machine. See A.T.R. August issue for track description.

R. A. BROCK of Bath, says: Thank you very much for your answer re. my recent enquiries regarding component values of the Pre-amplifier (July issue). I have constructed this and have tested it with a high impedance head and it works very well. However, I wish to use it with Collaro low impedance. May I trouble you once more as to the type of transformer I should use? The recording head impedance is 30k ohms at 10 kc/s. ANSWER.—A 30 ohm microphone transformer with about a 100-1 ratio should take care of matching a low impedance

a 100-1 ratio should take care of matching a low impedance

record head to the A.T.R. pre-amplifier. You could obtain one from most radio component dealers or from Lustraphone Limited, St. George's Works, Regents Park Road, London, N.W.1.

L. E. HEYWOOD of Manchester has a couple of problems : Recently I bought a Philips four track tape recorder model No. EL 3542.

I wonder if you could answer the following points: 1.—I have an ACOS HI-G pick-up but when I record direct from it the music seems to have too much top. The same thing happens when I play records using the tape recorder as an amplifier. Could you recommend a pick-up or cartridge that will match the impedance of the tape recorder ?

2.—When recording from the radio I use a Philips Philette Transistor Portable (16½ gns. model) by connecting two wires to the speaker. Will this harm the transistors in any way?

ANSWER.-The pick-up requires high frequency de-

emphasis before being connected to the recorder. Write to Cosmocord Limited, Waltham Cross, Hertfordshire, and ask for their recommended correction circuit for the Acos Hi-Ġ pick-up.

There is nothing wrong with the impedance match or the pick-up; you would get the same results with any other pick-up, unless you use a frequency correction circuit between it and the recorder.

You will do no harm to the transistors by recording off the loudspeaker terminals of your radio receiver.

F. J. THOMPSON of South Harrow, Middlesex, says :

I know how to get echo using extra heads. What I would like is a circuit of the electronic way of producing, not a lumpy staggered echo like tape heads give you, but a clean echo like that of a church.

ANSWER .- You can obtain echoes, similar to those one would get in a church hall by the use of three or four extra play-back heads, each fed back through a controlled amplifier. This method is of course both expensive and not

amplifier. Inis method is of course both expensive and not very practicable with domestic type recorders. The only method is to feed the input signal simul-taneously to a loudspeaker, via an amplifier. A microphone coupled back into the recorder is placed some distance from the speaker. To get resonant echoes both speaker and microphone must be situated in a very long narrow room or a large hall. This is how the B.B.C. method works, for which they have a special sche above the provide the speaker is do a which they have a special echo chamber. There is also a rotating play-back head system whereby the return of echoes can be controlled to almost any degree.

R. J. BURGESS of Ipswich tells us: I own a Grundig TK.20, also a Bush SRG.33 Radiogram, both 1959 models. The TK.20 stands on top of the radiogram both 1959 models. The TK.20 stands on top of the radiogram and when switching on to tape a radio programme there is a very prominent 'humming' noise through the radio, mainly on the medium wave length. This noise makes recording almost impossible, but the interference disappears when switching to V.H.F. Can this be eliminated, please? ANSWER.—You may have created a hum loop via the common connection of recorder and radiogram to the

common connection of recorder and radiogram to the supply mains. Try reversing the mains plug of one of the instruments.

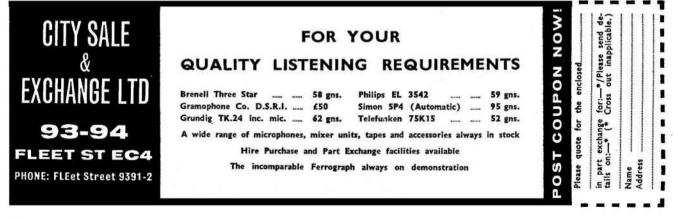
You may also need a direct earth connection to the recorder and the radiogram. D. A. MINSON of Hammersmith, London, W.6, informs us :

I have purchased a war surplus throat mike (American type) for use with a 'Wyndsor' Viscount. I have connected 2 yards of co-axial cable and the necessary jack plug, but there is no response at all. This mike is of low impedance. If you could give me any information on this subject I would very much obliged.

ANSWER.—The Wyndsor Viscount has a high impedance microphone input which is quite unsuitable for use with war surplus type throat microphones. These are low im-pedance magnetic devices and would require a matching transformer.

You will be disappointed in the quality of speech how-ever, since these microphones were designed to work into special communication equipment. Speech through a normal amplifier or tape recorder will sound distorted and deep.





November, 1960



Specto

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SPECTO ΠΠΠ

Coin a word ! that's the only way to describe the spectacular new SPECTONE 171 tape recorder — a new high in quality for a new low in cost ! Fitted with the famous GARRARD deck and a new concept in recording —the tape cassette. Just drop in and away you go—no complicated threading ! Plus ! loads of fun giving features including : —

- Easy operating via two simple operating controls.
- * Monitoring mixing and superimposition facilities.
- * Provision for separate amplifiers and speakers.
- * Can be used as a straight amplifier.
- * Modern, compact, neat and with super sound reproduction.

Windsor 1241

39 gns.

Ask for a demonstration at your local dealer or write for colour folder NOW.

28

VALE ROAD, WINDSOR, BERKS.

e,

PLAYS ON TAPE (PART 3)

IN THE TWO previous articles in this series (February and March A.T.R's), Harold Rottesman investigated the varied use of the microphone in recording plays on tape. With this basic information it is possible to commence practical attempts without fear of wasting time.

The first essential is to gather a group of interested people to provide your cast and technical staff. In this connection care should be taken to avoid any 'recruit' gaining the impression that his support will be rewarded with any particular part. Simple as this may seem, it is surprising how frequently any petty disputes and ill feeling can be traced back to a member of the group who expected to play the lead finding himself cast as the butler. Although there will invariably be keen rivalry to play the lead it is rare to find any unpleasantness arising providing everyone is kept occupied. Keeping people occupied is also important as anyone with nothing to do is likely to attempt to lend a hand elsewhere, usually with disastrous results.

Once the group has been formed, choice of play must be a primary consideration. At this stage it is wise to avoid the easiest course. Select a piece which has a reasonably large cast and a moderate range of sound effects. The choice of such a piece will probably result in mistakes being made, but at this stage mistakes are an asset providing they are overcome and the lessons they teach well learned, as they will enable you to avoid similar errors when you attempt more serious recordings. Avoidance of a limited cast will also enable you to make a better assessment of the talent available within the group, and will help to limit the number of people left uncast and feeling that as far as they personally are concerned the group is a waste of time.

TRIAL RECORDINGS

Once scripts have been distributed the members should read the section to be attempted at least twice in order that they can appreciate the story and the significance of each character. Once this has been done trial recordings can be made changing the cast around each time. As yet the technical excellence (or otherwise) of the recordings is relatively unimportant but it is a good opportunity to encourage the 'Chief Technician' to experiment, as otherwise he will undoubtedly decide that some trials are necessary at a far less convenient moment.

The various tests and discussions will probably completely occupy the first meeting and the producer will thus have the opportunity of casting the play in private with the aid of the audition recordings. As far as casting is concerned faults of expression and timing can be disregarded providing they are not too marked, as these can be cured during rehearsal, but great care must be taken to eliminate anyone who is inclined to use a 'stage-voice' as this tendency is usually extremely hard to correct. Once the cast has been decided, the problem of keeping occupied those without a part must be solved. Disappointment will naturally result wherever anyone has to be omitted from the cast but a job behind the scenes will usually ensure that the disappointment is quickly forgotten. Sound effects and background music are of great assistance in this connection but each person should be given a



Tape enthusiasts on the Rose Bruford College Tape Recording Course, rehearse a sound play around a Reslo ribbon mike on a studio stand.

definite duty for which he is responsible. If Jack is asked simply to help John, then Jack will probably end up by getting in John's way.

COMMENCING REHEARSALS

Once all have jobs to keep them occupied, rehearsals can begin. Concentrate on the production side and leave the technicians to experiment. If they wish to move someone's mike position then encourage them to do so. It will have little effect on the rehearsal and will prevent frustrating delays at a later stage.

The most frequently used microphone for this type of recording is the ribbon-type and at this stage the easiest seating arrangement is two groups each sitting in a semicircle facing each other across the microphone position. With an omni-directional microphone, such as a crystal, the cast can, of course, sit around in a circle.

The points to watch need not trouble us in detail as yet. The first consideration is to get the play running in a smooth flow, character to character, in order that the cast can really sense and appreciate the meaning, the sequence of events, the general story, and the part they play in that story.

The rehearsals will enable the technical side to make some trial recordings from which they can learn the best microphone positions and the relative volumes at which each character speaks. These recordings will also help the producer to note individual faults that require correction.

If you now feel ready to attempt this fascinating aspect of tape recording you have sufficient information to commence activities. Your group can be drawn from your personal friends, can be an activity of your local Tape Recording Club, or you can be fairly certain of a hearty welcome from your local Dramatic Society. If you commence activities now you should be ready to examine progress and take proceedings a stage further by the time you read the next article. The enjoyment and satisfaction to be obtained from producing plays on tape is ample recompense for the small effort involved in getting things started.

STEPHEN ROSS

DIRECTORY OF LOCAL TAPE CLUBS

THIS DIRECTORY of Tape Recording Clubs, part two of which will appear in the December A.T.R., is believed to include every flourishing club in the U.K. and Eire. Any club not listed should contact us at once. We also have on hand lists of Clubs in Formation, Number

of members in individual clubs, clubs willing to tapespond with other clubs, club press secretaries, clubs affiliated to the BRC, and the meeting dates and places of some 50-odd clubs. But we will not inflict these on you now — details are available on application, as are various other sundry items on tape club topics, such as benefits of affiliation to the BRC, advice on the formation of a club, specimen constitution, suggested activities for tape clubs, etc. Naturally any specific enquiries or problems from clubs, or about clubs, are dealt with individually as they occur. This is just part of the service which the National Voice of the Tape Recording Movement gives.

Tape Recording Clubs, Societies, and Groups in the United Kingdom and Eire

Part I: A-M

Aberdare Tape Society: Dyfrig Roberts, 1 Aman Street, Cwmaman, Aberdare, Glam., South Wales. Aberdeen Tape Recording Club: William Hobben, 22 Ruthrie

Terrace, Aberdeen. Acton & West London Recording Club: Dave Wiseman, 8

Acton & West London Recording Club: Dave Wiseman, 8 Woodhurst Road, Acton, London, W.3.
Alpha Tape Recording Club: A. R. Dyer, 59 Tannsfield Road, Sydenham, London, S.E.26.
The Authentic Circle: C. D. Bushnell, 19 Harps Avenue, Minster-in-Sheppey, Kent.
Barnsley Tape Recording Club: Eric Clegg, 12 St. Barts Terrace, Park Road, Barnsley, Yorkshire.
Bedford Tape Recording Group: Bill Summerfield-Turner, 131 London Road, Bedford.
The Birmingham Tape Recording & Audio Club: Mrs. Dawn

The Birmingham Tape Recording & Audio Club : Mrs. Dawn

The Birmingham Tape Recording & Audio Club : Mrs. Dawn Knee, 3 Knipersley Road, Sutton Coldfield, Nr. Birmingham.
Blackburn Tape Recording Club : Dave Birtwistle, 11 Pilking-ton Street, Blackburn, Lancs.
The Blackpool & Fylde Tape Recording Club : J. Bootle, 34 Rackes Parade, Blackpool, Lancs.
The Bournemouth & Poole Tape Recording Club : Hedley R. Jones, 442 Poole Road, Branksome, Poole, Dorset.
Bridgwater Tape Recording Club : Jill Sherman, c/o 34 Lakeside, Taunton Road, Bridgwater, Somerset.
Brighton Tape Recording Club : Ralph Vivian, 37 Ditchling Road, Brighton_Susser.

Brighton Tape Recording Club: Ralph Vivian, 37 Ditchling Road, Brighton, Sussex.
Bristol Tape Recording Club: M. E. Hollier, 27 Dean Lane, Southville, Bristol 3.
British Round Robin Club: (Southern Rep.), R. M. Stimpson, 769 Oxford Road, Reading, Berks. (Northern and Midland Rep.), Barry Jefferson, 60 Langford Road, Burley & Wharfedale, Nr. Ilkley, Yorkshire.
Brixton Tape Recording Club: L. J. Walker, 124 Branksome Road, Brixton, London, S.W.2.
Caledonia Tape Recording Society: R. A. S. Fields, C.P.O's. Mess, H.M.S. Caledonia, Rosyth, Fife, Scotland.
Catford Tape Recording Club: Derek C. Harker, 62 Barmes-ton Road, Catford, London, S.E.6.
Cheese World Tape Network: Bill S. Richardson, 'C' Flat, Avonmore Mansions, Avonmore Road, London, W.14.

Avonmore Mansions, Avonmore Road, London, W.14. Chesterfield Tape Recording Society: R. J. Darby, 191 Highfield Lane, Newbold, Chesterfield, Derbyshire.

Clacton Tape Recording Society : A. Ings, 18 Coopers Lane, Clacton-on-Sea, Essex.

The Cotswold Tape Recording Society : Kenneth G. Tomes, 41 Barnwood Road, Gloucester.

Al harmwood Road, Gloucester.
 Coventry Tape Recording Club: Roy Victor Reynolds, 1 Thurlestone Road, Radford, Coventry.
 Crawley & Sussex Tape Recording Club: R. C. Watson, 32 Southgate Drive, Crawley, Sussex.
 Derby Tape Recording Club: R. J. Cartledge, 40 Balaclava Road, Derby.

Dewsbury Tape Recording Club : A. Mercer, 31 North Park Street, Dewsbury, Yorkshire.

Doncaster & District Tape Recording Club: Charles K. Young, 28 Chelmsford Drive, Wheatley, Doncaster, Yorks.

Loung, 20 Cheminatora Drive, wheatley, Doncaster, 1075.
 Dover & District Tape Recording Club: G. R. Newey, 2 Westcliffe Cottages, Westcliffe, Nr. Dover.
 Dundee Tape Recording Club: Charles W. Aitken, 59 Strathmartine Road, Dundee, Angus.
 Eagle Tape Recording Club: W. C. Walker, 252 Plashet

Grove, East Ham, London, B.6.

Eastbourne Tape Recording Club : Brian Whattingham, Clare-mon House, 89 Pevensey Road, Eastbourne.

Edinburgh Tape Recording Club : John F. Penman, 22 Lauris-ton Place, Edinburgh 3.

English Speaking Tape Respondents' Association : Robert Ellis, Schoolhouse, Whitsome, By Duns, Berwickshire.

B.T.E.S.S.A. Tape Recording Club: G. P. Jones, c/o O/C Details, Room 2, G.P.O. Cable and Wireless, Electra House, Victoria Embankment, London, W.C.2. Family Circle Tapespondents: Dennis Osborne, 75 Millmead

Road, Birmingham 32. Friern Barnet & District Tape Recording Club : Anthony S. Andrews, 13 Hartland Road, Friern Barnet, London, N.11. Glasgow Tape Recording Club : D. Craig, 55 Ledaig Street, Glasgow, E.1.

Grantham & District Tape Recording Club : R. S. Pearson,

45 Swinegate, Grantham. Gravesend Tape Recording Club: Valerie Loft and Linda Palmer (joint Secretaries), c/o 46 St. James Avenue, Gravesend, Kent.

Harrogate Tape Recording Club : D. Bryer, 2 Park Side, Follifoot, Harrogate, Yorks.

Follifoot, Harrogate, Yorks.
Harrow Tape Recording Club: Mrs. Toni Fisher, 5 Gloucester Road, North Harrow, Middlesex.
Hazells Printing Works Social Club (Tape Recording Section): L. W. Powell, 31 The Avenue, Princes Rieborough, Bucka.
Hove & District Tape Recording Group: Bert H. Guernsey, 44 Hogarth Road, Hove 3, Sussex.
Huddersfield Tape Recording Society: George R. Parks, 175 Newsome Road South, Newsome, Huddersfield, Yorks.
Hull & District Tape Recording Club: Ken Fulstow, 17 Lowfield Road, Anlaby, Hull, E. Yorks.
Ilford & District Tape Recording Society: Dave Bolton, 13 Gloucester Road, Manor Park, London, E.12.
The Ipswich Tape Recording Club: Malcolm Wilding, 31 Darwin Road, Ipswich, Suffolk.
Irish Sound Recording Association: Barry J. Hardy, 6 Capel Street, Dublin, Eire.

Street, Dublin, Eire. Irish Tape Pals : Edward T. O'Neill, 'Mandalay,' 12 Mayor-

ston Park, Limerick, Eire. Jarrow & District Tape Recording Society : John Rippington,

30 Breamish Street, Jarrow, Co. Durham. The Jersey Tape Recording Club : Graeme A. Ahier, 'Santa Barbara,' Maufant, St. Saviour, Jersey, Channel Islands. John Shinn Recording Club : John Shinn & Sons Ltd., Town

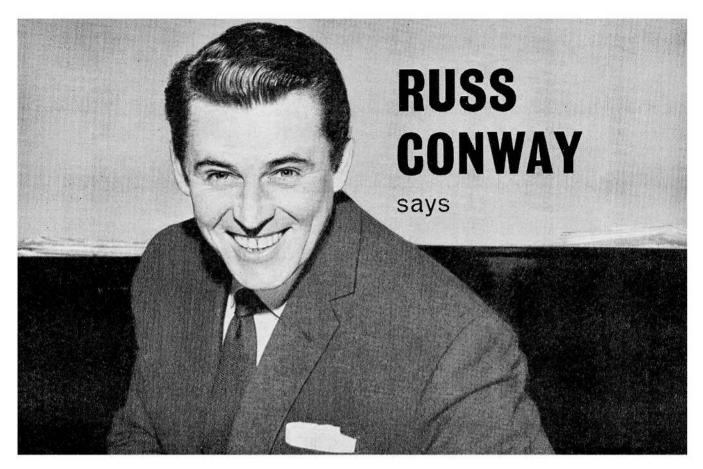
John Shinn Recording Club : John Shinn & Sons Ltd., Town Centre, Leigh, Lancs.
Keighley Tape Recording Club : K. Wells, 318 West Lane, Keighley, Yorkshire.
Kettering & District Tape Recording Club : Tony M. Webb, 93 Regent Street, Kettering, Northants.
Leeds & District Tape Recorder Club : Terence Quigley, 52 Station Road, Horsforth, Nr. Leeds, Yorkshire.
Leicester Tape Recording & Hi-Fi Club : Peter J. Starie, 56 Minehead Street, Leicester.
London Tape Recording Club : Frank McManus, 39 Crescent Lane, London, S.W.4.

Lane, London, S.W.4. Luton Tape Recording Society : Roy Thody, 25 Salters Way, Hockwell Ring, Leagrave, Luton, Beds. Manchester Tape Recording & Hospitals Society : Joe Kerrs, 20 Naylor Street, Hulme, Manchester 15.

Merthyr Tydfil Tape Society: Colin Francis-Griffiths, 4 Garden City, Penydarren, Merthyr Tydfil. Middlesbrough Tape Recording Club: G. H. Stephenson, 22 Lothian Road, Middlesbrough.

Millom & District Tape Recording Society: Kenneth H. Thompson, 'Freya,' Haverigg, Millom, Cumberland.

Amateur Tape Recording



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telling you the hundreds of ways to enjoy music and have fun with one of these first-class tape recorders.	NEAREST TOWN

Do You Know ?

-THAT MAGNETIC TAPE is composed of a clear plastic base having a standardised width of $\frac{1}{2}$ in. for domestic and professional recorders? One side of the tape is usually shiny and the other side dull. It is the dull side which is the very thin coating of magnetic emulsion and which is the very thin coating of magnetic emulsion and which colours the tape a reddish brown, otherwise the tape is generally transparent like clear celluloid. The magnetic coating is very finely powdered iron oxide (Fe₂O₃) which on the modern thin long playing tape is about 0.4mils. thick. It is the fine granules of iron oxide that become magnetised during recording and which create minute electric currents in the tape head when

the tape is replayed (Fig. 1). Since the minute particles in recording tape can be per-manently magnetised by the electrical field method (the recording head) they can also be de-magnetised by a similar process. The additional alternating (bias) current used for pre-magnetisation during recording can also be used to return the particles to a steady state of magnetisation, i.e., the par-ticles are relieved of the magnetisation produced by the sound currents. They are in fact returned to a state whereby all the polarities are in one direction.

The bias current used for this erasing process is generally used for recording as well and is conveniently taken from the same generator or oscillator which is usually integral with the recording amplifier.

A tape containing a recording can also be returned to a state of pre-magnetisation by holding a strong permanent magnet near the tape. Whilst this has the desired effect of returning all the particles to a 'one direction' polarity and therefore erasing the sound recordings, the method is not recommended as the pre-magnetisation state will become audible as noise when the tape is replayed.

Do You Know

- that microphone placement is all important in making good recordings? Optimum conditions exist when the microphone is in one room and the recordist can monitor the signal in another so that only the sounds picked up by the microphone are heard. Try to avoid hand holding a microphone. Micro-phone stands are preferable and there are many inexpensive models available for the home recordist. Remember that most microphones are somewhat directional and you can take advantage of this characteristic to help keep extraneous noises out of your recording. When recording from more than one source with only one microphone, this characteristic can be used to some extent to achieve a proper balance. Test recordings should always be made first to determine

the proper microphone distance and volume control setting.

Fig. 2. Swiss Shortwave Radio. Some SBC announcers: from left to right, Pamela, Barbara, John Gorry and Philip Kelleher.



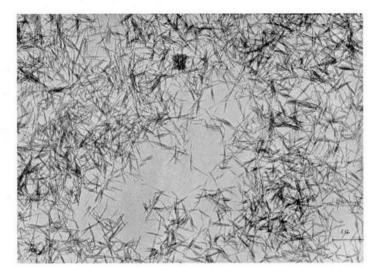


Fig. 1. This is what Magnetic Tape looks like when viewed with an Electron Microscope.

Don't place the microphone on the same table with the recorder, or on the piano, radio or TV. It may pick up motor noise from the recorder or cabinet resonance from the piano or TV . . . Extracts from 'How to Make better Tape Recordings', a booklet which is obtainable free of charge from Wilmex Limited, 70 St. Stephen's House, Bridge Street, Westminster, S.W.1.

Do You Know

- that quite a number of useful sound effects can be produced by simple items, many of which may be found at home? For example, the sound of rain can be obtained by rolling dried peas around inside a fine mesh sieve. A piece of silk pulled across a board of soft wood will produce the realistic sound of wind, the intensity of which may be controlled by the force at which the silk is moved and by slowing down or speeding up the recording during playback. Very effective thunder may be produced by gently shaking a large sheet of thin tin plate or by recording chords of deep notes on the piano and then playing them back at half speed. To obtain the sound of crackling flames, gently squeeze some screwed up cellophane close to the microphone. For a ship's siren blow across the top of a bottle containing water,

ship's siren blow across the top of a bottle containing water, the pitch will depend on the amount of water in the bottle. Very effective footsteps on a gravel surface may be obtained by screwing up old recording tapes and squeezing them rhythmically in front of the microphone at the correct speed. Finally for the hoof beats of walking or running horses, the well-known effect produced by two half coconut shells hardly needs commenting upon. If however, the coconut shells are covered with a cloth the effect of the hoof beats on the soft ground in a forest or a horse galloping across the field may ground in a forest or a horse galloping across the field may be quite realistically produced . . . B.A.S.F. News Letter for all Recording and Tape Users.

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Amateur Tape Recording

Do You Know

— that there are many interesting new programmes you can 'tape' if you have a receiver that tunes to the shortwaves? For instance the Swiss Shortwave Service broadcast special programmes in English (Fig. 2), such as Disc of the Day; Accordion music, Symphony Hour, presenting leading Swiss orchestras, etc. Write to the Swiss Shortwave Service, 23 Neuengasse, Berne, Switzerland, for details of programmes and wavelengths.

Radio Sweden offer a similar service and transmit special programmes in English for tape recording enthusiasts (Fig. 3). Write to Radio Sweden, The Swedish International Broadcasting Corporation, Stockholm, Sweden. They will send you programme and wavelength information and will also send you an attractive card for confirming reception of their programmes.

Radio Nederland, Hilversum, Holland, transmit programmes in English — Window on Holland — News — Happy Station Show — Jazz in Holland — Latest Discs and Concerts from the Concertgebouw. For details write to : Radio Nederland International Service, P.O. Box 222, Hilversum, The Netherlands. They also send attractive reception confirmation cards.

Radio Norsk (Radio Norway) also transmit on shortwaves and send out attractive picture cards confirming reception. Many shortwave listeners collect these cards by reporting reception of shortwave stations all over the world. Here is a new opportunity for tape recording enthusiasts. You can send an actual recording if you have a shortwave receiver and at the same time tape many new and interesting programmes.

an actual recording if you have a shortwave receiver and at the same time tape many new and interesting programmes. If you want full details of the Shortwave Stations of the World, a copy of the World Radio Handbook provides everything you need to know: station calls, international signals, wavelengths, times of transmission, programmes in English, etc. This book also provides many useful hints on shortwave listening and collecting 'confirmation of reception' cards. It is published by O. Lund Johansen of Copenhagen, but can be obtained in this country from The Shortwave Magazine, 55 Victoria Street, London, S.W.1, price 16s. 6d. (1960 edition, 198 pages, packed with information on the world's broadcast stations).

Do You Know

— that if you want to operate your mains recorder in the car you will need a DC converter? This will allow you to take your recorder into the country, to the seaside or into town to record all those sounds that you cannot get at home. Valradio manufacture a wide range of converters to operate from 6, 12 or 24 volt car batteries.

Write to Valradio, Browells Lane, Feltham, Middlesex, for their latest list which specifies a converter for most of the well-known makes of tape recorder.

Fig. 4. One of the Control Rooms at Radio Norway.



November, 1960



Fig. 3. Radio Sweden. American reporter Claude Stephenson edits a tape recording.

RECORD REQUESTS

Do you want your favourite record played on Radio Luxembourg? The British Recording Club now has its own Record Request Programme every Friday evening at 7.15 on '208', the Station of the Stars. Send a postcard to Friday's Requests, Radio Luxembourg, London, W.1, giving the title, artist, disc number (if known) and the reason for your choice. Perhaps your tapespondent on the Continent is getting married, or a Club member is in Hospital; maybe you know someone having a tape anniversary, or a blind friend you would like to greet in this way. Whatever you put on your card, remember to mention that you are a member of the B.R.C.

Don't forget, tune in to 208 metres every Friday at 7.15 p.m.

Talking of records, B.R.C's other magazine, POPULAR HI-FI, is the perfect way to keep up-todate in the world of discs. All the latest releases, reviews and recommendations are to be found in each issue, together with details of all Radio Luxembourg programmes, news and reviews of Hi-Fi equipment, radios and television sets. Famous people talk about their likes and dislikes in music, Pop Club features its own Top Ten, readers are taken behind the scenes of recording sessions — these and many other features all appear within the pages of POPULAR HI-FI. It is on sale now, price 2/-. If you cannot get a copy from your local newsagent or W. H. Smith bookstall, write to 145 Fleet Street, London, E.C.4.

TAPE-TO-FAME

LAST MONTH'S cover for AMATEUR TAPE RECORD-ING showed Cliff Richard considering one of the entries in the Stuzzi Tape Recorder Nationwide talent Competition. Well, the judgments have all been made and the winner is now known, or rather winners, for it takes two to form a duet.

stuzzi Tape Recorder Nationwide talent Competition. Well, the judgments have all been made and the winner is now known, or rather winners, for it takes two to form a duet. Bob and John Allison, of Parson's Green, have been singing together since they were tiny tots. Now at 18 and 20 they are pretty good — so good in fact that they have won this Competition in the face of the keennest opposition produced by a tape contest — 550 entries !

by a tape contest — 550 entries ! The brothers made the tape recording that got them into the finals in the Stuzzi Recording Studio at the Boys and Girls Exhibition at Olympia. Youngsters who heard them thought they were great and mobbed them for autographs immediately after their audition. The judges, Cliff Richard, Tito Burns and Gerald Marks, editor of 'Disc', also thought so and Bob and John went through to the finals.

Tito Burns and Gerald Marks, editor of 'Disc', also thought so and Bob and John went through to the finals. The finals were held at Wembley T.V. Studios, where Tito Burns, Gerald Marks and Singer, Jimmy Lloyd, heard the six best entries live. Unanimously they selected Bob and John as the outright winners. The boys thus won a recording test, a long week-end in Vienna as guests of the Stuzzi Company and a Stuzzi Magnette. On the same day that Bob and John won the competition

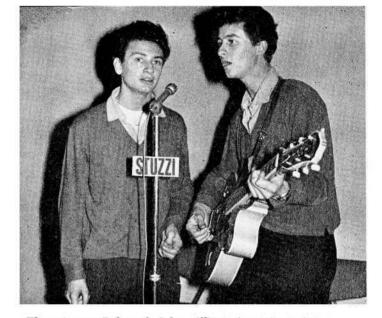
On the same day that Bob and John won the competition they were invited to appear on T.V. with Bert Weedon in Associated Rediffusion's programme 'Lucky Dip', and when they get to Vienna they will be invited to appear on Austrian T.V. and Radio.

Singer Derek Jolly of Leyton and pianist Chris Holmes of Manchester were the runners-up and they were both presented with a Stuzzi tape recorder.

B.R.C. JUDGES

The Crawley Talent Contest run by the 'Crawley Courier' in conjunction with the Crawley and Sussex Tape Recording Club was divided into six sections : solo singing, solo instruments, musical groups, choirs, sketches and over 60's. The winners of each section were chosen by the singer Bryan Johnson who listened to the tapings made by the Crawley and Sussex Tape Club of all the contestants. Thus there were six entries for the final judging for the award of the Nicolas van Slocum Perpetual Trophy and the 'Courier' £10 cheque. The three judges were Alec Alexander (B.R.C. Club Secretary), Jan Phillips (our Tape View reporter), and Dave O'Gorman (the man who auditions all light entertainment for A.T.V.). They gave a unanimous decision in favour of the Sarah Robinson Opera Group who thus became the outright 1960 winners.





The winners Bob and John Allison from Parson's Green. Bob on the left is 18 and has just left school and John aged 20 is a trainee draughtsman. For these talented brothers stardom could be just around the corner. Already they have made their television debut and E.M.I. are going to give them a recording test.



Dickie Henderson and his daughter were among the many stars who visited the Stuzzi Recording Studio at the Boys and Girls Exhibition. Our exclusive picture shows Dickie being interviewed by disc jockey Ricki Howell.

Throughout the Boys and Girls Exhibition stars of radio and T.V. showed their interest in the up-and-coming youngsters of to-day by looking in on the contest. Vera Day, Dickie Henderson, Bernard Bresslaw, Barbara Lyon, Johnny Angel, Terry Dene, The Shadows and Jimmy Lloyd being but a few.

We hope that the enthusiastic response to this contest will encourage other manufacturers to hold similar competitions, for everyone connected with tape recording either as a hobby or a business benefits from such events.

We have asked Mr. K. Short of Stuzzi Recording Devices Ltd., to comment on the tapes received for their contest to guide entrants for similar future competitions. He has kindly done so under the significant title 'Tortured Tapes'.

The Competition

Together with 'Disc' the well known record magazine we recently arranged the 'Stuzzi Talent Competition' on a Nation wide scale to see if young people would come forward to compete for attractive prizes and with the object of becoming stars in the field of entertainment. We invited them to send us tapes of their efforts or to come to a professionally equipped recording studio we had built at the Boys and Girls Exhibition where we provided a band and all the technical equipment necessary to make really first class tape recordings. Approximately 550 entries were received in this way and over half of them came in the form of tapes through the post. These provided an illuminating insight into the standard of recordings achieved by the competitors with their various tape recording machines.

Wide Range of Equipment

It had been anticipated that the tapes received would have been made to differing standards of speeds, tracking sense, etc., and, being manufacturers ourselves, we provided from our laboratory a wide range of equipment so as to enable the judges to hear the entries under the best possible condi-tions. We therefore catered for tape speeds of 15in., $7\frac{1}{2}$ in., $3\frac{1}{2}$ in., $1\frac{1}{2}$ in. and 15/16in. per second. We also provided facilities for adjusting speeds to all intermediate values. Further-more we were able to scan full track, half track, monitor track recordings as well. We could reproduce to the Inter-national or old Continental recording standards and we soon discovered that all these facilities were in fact needed and some entries could not have been played to the judges unless such a wide range of equipment had been made available. In the event we were able to play every tape entered.

Differing Tape Speeds 65% of the entries were made at 3[‡]in., about 20% at 7[‡]in. and the remainder at all sorts of non-standard speeds. This clearly demonstrates the popularity of the lower tape speeds. Only one entry came at 15in. Only 50% of all the tapes sent in had the speed marked correctly, the remainder either did not mark the speed at all or wrote on the coupon "don't hnow" or may incorrect or meaningless information Unbeknow" or gave incorrect or meaningless information. Unbe-lievable as it may seem a high proportion of competitors apparently do not even know what tape speed is and quite a number quoted such figures as 33¹/₂, 45 and 78 r.p.m. In some cases this may have been explained by their using adaptors fitted on to gramophone turntables to convert those into tape recorders, but even then the r.p.m. should have been converted into tape speed. However in many cases quite standard tape speeds were employed but the user clearly did standard tape speeds were employed but the user clearly did not know. Also surprising was the large number of people quoting non-standard tape speeds such as $3\frac{1}{4}$ in., $3\frac{1}{4}$ in., $7\frac{1}{4}$ in., etc., whose recordings were nevertheless made at perfectly ordinary standard speeds, mostly $3\frac{1}{4}$ i.p.s. Quite a problem was posed by entries made on machines running at non-standard speeds, i.e., tape recorders not employing capstans, certain types of cheap battery machines, etc. Means of con-tinuously varying tape speeds were available but it was not always easy to guess at which speed the competitor had made his tape. Perhaps in order to avoid possible errors in judg-ment, future competitions may have to specify certain standard recording speeds. standard recording speeds.



Tracking Problems

By far the largest number of entries were of course made to the standard tracking sense but some were clearly made on early type Continental machines or other recorders with Continental tracking sense. A surprisingly high proportion of people had apparently not bothered to rewind the tape after making their recordings. This meant that the tape had first to be respooled before it could be played and judged. We are not clear whether this was brought about by the fact that they were using machines without fast rewind facilities or whether they did not even bother to distinct to were or whether they did not even bother to listen to their own recordings, or what the reasons were. A great deal of time had to be spent on respooling as about 10% of the entries were in this state.

Home Made Tape Spools It may seem quite incredible but we did receive a number of entries without spools. One entry had the tape wound on a spool and then it was tied with string. Another had been wound on to a card rather in the same way as one might buy ribbon in a shop. One competitor had made his own spool out of bits of cardboard glued together and another one had used two half reels of dissimilar makes glued together. It took considerable time and patience to rewind these tapes on to spools.

Gramophone Records

Two competitors sent in their entries on discs. One of them with the remark that he could not afford a tape recorder. These were the only entries that were disqualified, for this was, after all, a tape recording talent competition.

Poor Recording Quality The average standard of quality of the recordings sent in must truthfully be described as very low indeed. It is of must truthfully be described as very low indeed. It is of course recognised that many entries, especially where groups were involved, were handicapped by lack of equipment such as multiple microphones and mixers, but far better results could in many cases have been obtained with the ordinary means at the disposal of anyone possessing a tape recorder. There is clearly a universal lack of appreciation of micro-phone technique, and how to make the best use of existing conditions and it many appreciation the performance of the set of th conditions and it seems amazing that the performers were satisfied with the tapes that they had made, sufficiently satis-fied indeed to enter them in a competition. Since all of them listen to gramophone records and the wireless it can be taken as read that they know what recorded sound should really be as read that they know what recorded sound should really be like and one might have thought they would strive very hard to get as near as possible to that ideal, within the limitations of their equipment. Such was not the case; indeed two com-petitors sent in spools which contained no recorded subject matter, so presumably they were accidentally erased without the competitor knowing anything about it. Careful tests have shown beyond reasonable doubt that they had not been erased in tenziet. It therefore comme that they had not been erased in transit. It therefore seems that there is a great lack of 'know how' on tape recording and we feel that everything possible should be done to encourage tape recorder users to make themselves more familiar with their medium and to raise the technical standard of their recordings. This includes the care of machines, for on a large percentage of them the wow and flutter content seems to be so high that it sometimes masks the true nature of the instrument used entirely. A percentage of these cases was undoubtedly caused by the use of cheap and inherently unsatisfactory machines particularly a certain battery recorder, while on others the capstans and guides are probably filthy and the heads dirty.

Judging Difficulties.

We went to a great deal of trouble to try and make the best out of these entries and present them to the judges in a form where they could at least make a reasonable guess at the possible talents of the performer, but every competitor would do well to remember that however patient the engineers and the judges might be, he must always improve his chances if he takes the trouble to produce an 'untortured' tape.

"And you're going to sing for us?" Another A.T.R. exclusive shows Ricki Howell inter-viewing a very young contestant before her audition at the Stuzzi Recording Studio.

TETE-A-TAPE

Further deliberations on frustrations imposed, and opportunities offered, by tape recording,

by David Lazell

Presenting the Ladies!

JUST A FEW WEEKS AGO, I attended an area conference of a national ladies' organisation, to record the proceedings! The meeting was to be recorded in order that it could be "played back" to other groups of ladies, as an example of effective and efficient organisation. Naturally, I trembled at the prospect of being the only male present, although I was assured that the ladies were most sociable, and would aid my work.

Ah, well, I ambled along to the community centre, and was greeted by a somewhat phlegmatic painter who was "doing up" the passage in a bilious yellow. My recorder was protected from this almost radioactive colour scheme by its canvas-case; otherwise, I fear to think what might have happened. This overalled decorator enquired what the purpose of my visit might be, and I explained gently and carefully. He seemed unimpressed, and commented that I was too early, since everyone was out to lunch. I said that I would wait. He shrugged his shoulders and shuffled away, presumably to deal some further blows to interior decoration. I inspected the room where the meeting was to be held; as usual, the power point was in the farthest corner and almost inaccessible (I am generally of the opinion that those electricians who wire the halls to which I take my recorder have ensured that I will be put to the greatest possible inconvenience!!). So I moved all the furniture, closed all the windows (because of the traffic—see the June "Tete-a-Tape") and set up the equipment. By this time I was considering the possibility of finding some recorder's apprentice to accompany me to similar meetings in the future. However, the ladies began to arrive and settle themselves in the wooden chairs around the shaky table. Madam Chairman eyed the recorder carefully, and the Secretary, a short-sighted lady, managed to trip over the flex on the floor. Everybody else talked; one lady bustled around selling raffle tickets. I felt very much out of place,



like a radio fan at a meeting of television enthusiasts. I was very relieved when the meeting started!

Alas! this had been going only for a few minutes when a sound rather like a passing herd of elephants thrust itself upon our eardrums. The sound came from the room above us, so I nipped along to see the warden of the community centre.

"Forgot to mention it", he explained. "But the room upstairs is being used for an afternoon meal for a party of school-children!"

"Can we have our meeting somewhere else?" I enquired. "Afraid not", was the reply. "Everywhere else is being redecorated". I remembered the bright, bilious yellow paint and sighed. In any case, I don't think I would have been able to work in a room with walls *that* colour. I explained to the ladies that they would have to speak louder, so that I could lower my recording level. The meeting resumed, whilst the heavy footed, scuffling school-children upstairs scraped their way through the meal. The machine's magic eye winked alarmingly every minute or so, as an extra-over-modulated thump thundered through the ceiling.

All this had a somewhat bemusing effect on the Chairman, who suddenly called upon me to address the meeting. This was very unexpected, of course, but I managed to ramble on for ten minutes or so. (Amateur tape recordists, please note! You, too, may be suddenly asked to explain what you're doing!!)

By the time that I resumed my seat once more, the "party" upstairs seemed to have quietened; I wondered if the suet pudding had had a stunning effect. So I looked at my recorder with fresh hope. Perhaps, after all, I would take something useful to the other ladies who would later hear the recording. But, at this point, an argument broke out between the ladies, who disagreed about the time and place of the next meeting. Apparently, the tired looking lady in the back row should have booked a room, but hadn't done so. As the vocal shuttling of blame continued, I pondered on the uses and abuses of tape recording. And here the tape ran out. It was three days before I summoned up enough courage

It was three days before I summoned up enough courage to play back that recording. I must say that it has some virtue. The stamping on the ceiling has a peculiar rhythmic effect, so that you can listen to it when the ladies' conversation begins to sag. The meeting itself has many bright moments, although it is difficult to realise that it was all done quite *seriously*. And for husbands, it could be a good object lesson on what wives do with their afternoons! But I don't know whether I will ever be able to take the tape to another ladies' group, and say, "Ladies, this is what you sound like". After all, only fools rush in where angels fear to tread!!

Conversation with an Orchestra

MY TAPESPONDING FRIEND, in Texas, likes to talk with a musical background (a la Hollywood spectacular). I suppose that the cinema, with its accentuation of music as an accompaniment of speech, makes us all inclined to believe that an orchestra is just concealed behind the wall, under the aspidistra or up the chimney. Anyway, I had a tape from my Texas friend recently; his drawl came with a selection from "Porgy and Bess". The orchestra won, and, except for a discussion on the forthcoming American Presidential election (coinciding with "It Ain't Necessarily So"), I couldn't understand more than a few minutes of the tape. Trouble is, I can never figure out if this background music is intentional or not; perhaps he's accidentally left the TV on. In fact, an earlier tape was such a confusion of sounds, baffling me completely, that he had to explain that he had the record player on, and his children were watching TV (a Western, loud and clear) in the next room. This gets a bit annoying at times, especially if the subject is really interesting, e.g.:—

earlier tape was such a confusion of sounds, baffling me completely, that he had to explain that he had the record player on, and his children were watching TV (a Western, loud and clear) in the next room. This gets a bit annoying at times, especially if the subject is really interesting, e.g.:— "Hello, Dave . . (blast from TV Western in next room) . . you asked about . . (loud music, Mexican style) . . . well, I'd like to say . . . (gunfire and screams, also—one hopes from the TV) . . . but if you really . . . (further orchestral selection) . . . then I will . . . (wife comes in to remind him that coffee is getting cold) . . . so long, Dave".

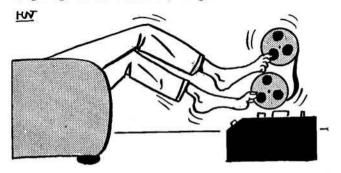
I wonder if anyone else has the same trouble. As for me, I'm going to have my radio, TV, record player, vacuum cleaner and portable violin going before I start talking to that Texan again. Anything he can do, I can do (better?).

New Ideas for Designers

BEING A MAN who likes his armchair, I have learnt

Amateur Tape Recording

how to manipulate my tape recorder with my feet, so that I can lean back in the upholstery and relax, when the recorder is on the floor. In fact, there is much to be said for this method. I can now use the instant stop, and the tone and volume control with my big toe, right foot. In due course, I hope to be able to switch spools, also with my feet. When that bright day arrives, I may be able to make carpets and carry out my tape recorder activities at the same time. I wonder if I could get an insurance against getting my foot wedged against the erase head, though?



Another bright idea for recorder designers biffed Mr. Lazell as he wandered along a noisy road quite recently. Why not cross a vacuum cleaner with a tape recorder, to produce a machine that sucks up noise? That way, I could get some peace and quiet on Sunday afternoons. By the way, having just moved into a new house, I have been turning my attention to the possibilities of house design. It seems to me that fireplaces should be in the corners of rooms, and not in the centre of one wall. This change being made would facilitate their being used as loudspeaker baffle enclosures (and who knows how short a time it may be before some bright character produces a loudspeaker and radiant—or convector heater combined?).

This is probably quite enough for the design industry this month (but look out for further bright ideas!). By the way, if readers have any comments on the above, I would be pleased to have them.

Does Dress Matter ?

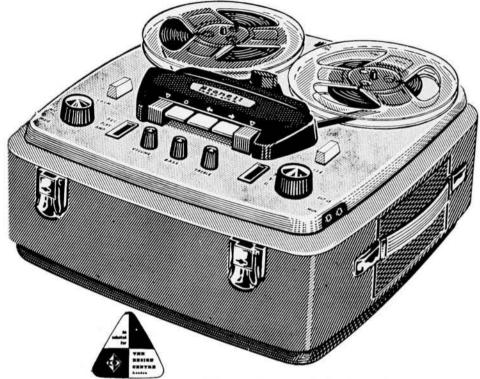
MY BROTHER bought a bowler hat for threepence in a jumble sale, and I tried it on for size. It was a large bowler hat, suitable for espionage agents who want to keep a portable tape recorder in their lid. Thus, this fine hat fell over my ears and eyes, effecting some improvement to my features but not facilitating any movement. It's the sort of hat that I could recommend to someone who happens to be fed up with tape recording and the telly!!!

All this led me to the formulation of another theory. Does dress matter when one is tape recording? I believe that it does. You just cannot be academic if you're wearing a white shirt with little blue elephants printed all over it. Neither can you be objective if you are sitting in an armchäir with your jeans and fluorescent socks on. For that matter, it is hard to be casual if you wear a morning suit with a particularly stiff collar. Therefore, I suggest that we should dress ourselves for our tape recording sessions for the very best results. This may mean some quick changes if you are going to make, in the same evening, a tape for Cyrus K. Hamberger, an American friend who expects you to be casual; a tape for Mr. Keith Dussbinn, an eminent and most standoffish modern poet; a tape for your Aunt Flo, who likes to think of you in your Boy Scouts outfit, and a tape for a friend who is interested solely in amateur dramatics. Mind you, I *always* change when I make my recordings. As a matter of fact, the wife just will not let me wear my Wellington boots in the front room, where the tape recorder is!



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TECHNICAL PROGRESS AND PRICE STABILITY

Every Brenell tape recorder is equipped with an advanced new type of main motor. An HYSTERESIS SYNCHRONOUS MOTOR ... more efficient than any other for tape recorder operation. It brings 'wow and flutter' down to below .1% at $7\frac{1}{2}$ i.p.s.

Although this motor entails a considerable increase in the production cost, the demand for Brenell tape recorders enables us to maintain the prices of all models unaltered.

3 STAR • 58 gns including 1200 ft. of tape, empty spool, microphone, and

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PRINTED CIRCUIT AMPLIFIER Output 4 watts. Can be used independently of the recorder, with microphone, radio or pick-up.

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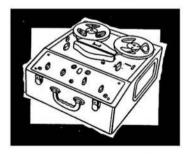
Cathode ray indicator clearly shows the peak level at all times, so that unvarying recording quality can be maintained.

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A headphones socket is provided for the monitoring of any recording operation. On playback, this output is suitable for feeding to an external amplifier.

4-Track model available.

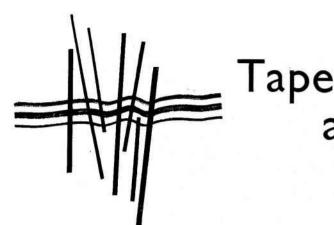
MARK 5 DECK · 28 GNS 3 STAR RP STEREO · 89 GNS MARK 5 RP STEREO · £99.12.0 MARK 5 · 64 GNS



Amateur Tape Recording

38

- GD485



and disc review

by Stanley R. White

'Join Bing and Sing Along' Warner Bros. WS1363. Stereo : WS8021.

This album offers ideal entertainment for almost any occasion. Thirty-three songs are featured in the package, and all are in the family key, so if you feel like singing, here is your chance, and to make things easier, a song sheet containing the words of all the numbers is supplied with the record.

The bulk of the singing is carried out by a very efficient vocal chorus backed by suitable orchestral sounds. Come to think of it, you will probably be so busy listening that you'll forget to sing anyway.

The finishing touch to the whole thing is supplied by the one and only Bing Crosby. Bing ' pops in and out ' throughout the whole record, taking a chorus here and a whistle there, and adding a final happy touch to the music. Bing also gives some of his best recorded performances into the bargain, in my opinion. I cannot list all of the numbers here, but they range from 'K-K-K-Katy' to 'On The Road To Mandalay'. 'Operetta For Theatre Organ'

Fontana-Fortune Z4017.

This 12-inch LP sells for the bargain price of 22/6. It features American organist, Leonard Maclain, a seasoned star of the console in the Philadelphia area of America.

The organ which Leonard Maclain features on this record is located in the 'Tower Theatre', Upper Darby, Philadelphia, and although the record sleeve does not give the details of the organ, it is in fact, a very fine 3 manual, 15 rank Wurlitzer.

The music featured on the record is by Victor Herbert, Sigmund Romberg and Rudolph Friml.

The titles are 'Every Day is Ladies' Day with Me'; 'Because You're You'; 'The Street Of New York'; 'Moonbeams'; 'Gypsy Love Song'; 'Song Of Love'; 'Girls, Girls, Girls'; 'Vilia'; 'The Merry Widow Waltz'; 'Indian Love Call'; 'Thine Alone'; 'The Desert Song'; 'Riff Song'; 'Kiss Me Again': 'Auf Wiedersehen'; 'Your Land and My Land '; 'Sympathy '; 'Giannina Mia'; 'Stouthearted Men'; 'Wanting You'.

Maclain does a good job of work with this music, and produces some very effective theatre organ playing. He makes good use of the four sets of chorus reeds which this instrument possesses, and the post-horn is also prominent.

When playing the record, I suggest that if you have good equipment, the bass should be boosted a little to obtain the true sound of this Wurlitzer.

While talking of the organ, it is worth mentioning the very nice percussion department, which Maclain uses to advantage several times in the course of the recital.

I would say the record is worthy of any collection - the reproduction quality certainly does not suffer through the



Bing sends cordial good wishes to A.T.R. Readers

low price of the disc - and the resulting sound is clean and undistorted.

JACKIE BROWN

Many readers of 'Amateur Tape Recording' expressed their interest in the series of theatre organ articles published some months ago. A number of readers are members of organ clubs.

The picture of organist Jackie Brown was taken at the 'Gaumont State', Kilburn, London, N.W.6 on June 12th, when Jackie was playing a recital on the theatre's 4 manual, 16 unit Wurlitzer organ.

Jackie Brown often broadcasts with his own Quartet, using an electronic organ. He was once a full-time cinema organist

and was well known and liked on the circuits he worked. Many readers will be unaware that Jackie is a key man behind the famous Sunday Lunch time programme 'The Billy Cotton Band Show'— broadcast on the B.B.C's Light Programme. Jackie Brown is actually a musical director and



conductor for the programme. When the above picture was taken, Jackie had just rushed over from the B.B.C. 'Wakey, Wakey' studios—to play at this private recital for 'The Theatre Organ Club'.

We felt that many readers would enjoy seeing this unusually angled shot of this famous personality in action, which is reproduced by permission of The Theatre Organ Club.

PANORAMA OF MUSIC AND ...

Here is a pre-recorded tape that every recording enthusiast has been waiting for. A comprehensive presentation containing exciting selections of popular music on one track and on the other a series of unique demonstrations, new sounds, new music and interesting methods used in recording.

By special arrangement with *Bi-Tapes Limited*, this fascinating recording has been produced specially for readers of 'Amateur Tape Recording' magazine and is presented by the *British Recording Club*.

For the popular music fans PANORAMA OF MUSIC contains everything from Rock 'n' Roll to Latin Moderne; selections by 'all star' performers, Kenny Powell, Pat Ryan, Lis Welch and Mike McKenzie and a new Rock 'n' Roll discovery Mike Dalton are packed into the 15 minutes of Track 1. The selections are evidence of the excellent quality of the recording by Bi-Tapes Limited and admirably illustrate the full range of their pre-recorded tapes. Recorded on track 2 is EXPERIMENT IN SOUND, which

Recorded on track 2 is EXPERIMENT IN SOUND, which we feel sure will excite the imagination of all recording enthusiasts, for this track contains a series of experiments in recording that were carried out with non-professional equipment. EXPERIMENT IN SOUND was produced to demonstrate the full use of the tape recorder and the fascinating new Electronic Music and Musique Concrête techniques. The recording took over a hundred working hours to make and was produced by A.T.R's Technical Editor, F. C. Judd.

recording took over a indicat working nous to have and was produced by A.T.R's Technical Editor, F. C. Judd. From simple superimposing and mixing to the composition techniques of Electronic Music—fifteen minutes of experiment that every tape recorder owner can carry out with the most modest of equipment. Mixing speech and music creating special sounds—recording from the telephone recording trains and everyday sounds—a journey into outer space; itself a panorama in sound.



'THE IDEAL CHRISTMAS GIFT'

What a wonderful gift a year's subscription for AMATEUR TAPE RECORDING will make for your friends — or members of your family. They will enjoy its distinctive features — and month by month every new issue will remind them of your good wishes.

The nearest W. H. Smith & Son shop or bookstall will be pleased to arrange this gift subscription for you. When you book the subscription, W. H. Smith's will give you a greetings card for you to advise the person for whom you have arranged the subscription that this year your Christmas gift will be AMATEUR TAPE RECORDING for a whole year.

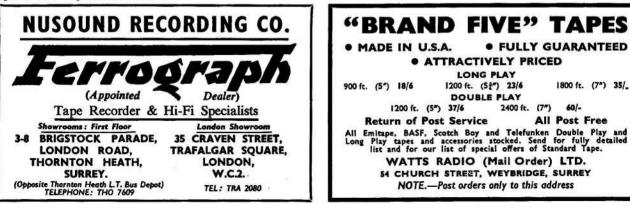
United Kingdom rates, including postage, for one year (12 issues) £1.7.0.

The tape contains examples of multiple recording and finally takes the listener into the techniques of Musique Concrête and Electronic Music. These subjects are each wonderfully illustrated by recordings which lead the listener from the initial production of the sound to complete composition.

It is here that we should like to mention the series of articles by Mr. Judd on Electronic Music, the first of which appears in this issue of A.T.R. With these articles in mind he has produced the Musique Concrête and Electronic Music section of EXPERIMENT IN SOUND to serve as working examples of an entirely new field which is open for exploration by every owner of a tape recorder. If you have grown tired of recording pop music or the voices of the family and friends, here is something really new and exciting to experiment with. The creation of these new forms of music can be enjoyed by groups and clubs for there is no limit to the amount of equipment that may be used. On the other hand recordings need not be limited by available equipment. Everyone with a tape recorder, a microphone and some splicing tape can experiment just as the B.R.C. recording EXPERIMENT IN SOUND shows.

PANORAMA OF MUSIC and EXPERIMENT IN SOUND are all on one tape; a full half hour of entertainment and instruction for only 18s. 6d. The tape is available only from Bi-Tapes Limited, 78 Upper Berkeley Street, London, W.I.

NOTE.—The recording is at 3[‡] i.p.s. and is not available at any other speed. It is recorded on Irish long play tape and is distributed on a standard 3in. spool. **P.K.**





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.

HARRY DAVIES, Linesman, 2 Bank Top Cottages, Birchin Lane, Nantwich. Motor racing, magic, wood-work. Traditional jazz, pops. Elizabe-than Princess, 7 in. $1\frac{2}{3}$, $3\frac{2}{3}$, $7\frac{1}{2}$. Anywhere.

PETER J. STALDER, Musical En-

PETER J. STALDER, Musical En-quiry Clerk, 238 Streatham Road, London, S.W.16. Record collecting, goonery. Light orchestral, pops, not rock 'n' roll. Brenell 3 Star, 3 in. or 7 in. 3½ and 7½. U.K. J. MURRAY, Guard, British Rail-ways, 7 Winton Place, Worthing, Sus-sex. Music, general. Classical. Philips, 3 in., 7 in. 3½. U.S.A. DAVID J. F. VERNON, Warehouse-man, 3 Kensington Road, Staple Hill, Bristol, Glos. Football, travel, corres-ponding. Religious, pop, piano, musical comedy. Philips Twin Track, 5 in., 7 in. 3½. Anywhere.

comedy. Philips Twin Track, 5 in., 7 in. 34. Anywhere. Mrs. CHRISTINA B. HALE, House-wife, 4 Rissington Road, Tuffley, Gloucester. Short story writing, play-writing. Modern, jazz, light classical. Sound Studio, 54 in. 14, 34, 74. All parts, mostly U.S.A. and Canada. HARRY CLARIDGE, Tool Maker, 1592 Robinwood Avenue, Cleveland 7, Ohio, U.S.A. (British born from Har-row, England). Dramatics, music. Musi-cal plays, popular classics, straight pop.

row, England). Dramatics, music. Musical plays, popular classics, straight pop.
 Webcor "Royal", 3 in., 7 in. 7¹/₂, 3¹/₃.
 England, Russia (in English).
 DOUGLAS MALCOLM NOYES,
 Showroom Manager for T.V. Radio, tape recording and domestic equipment,

tape recording and domestic equipment, 4 Froxfield Avenue, Reading, Cine and tape recording, still photography, elec-tronic engineering, camping, home life when possible. All breeds of music. Various, from 3 in., 7 in. $1\frac{2}{5}$, $3\frac{3}{5}$, $7\frac{1}{5}$. World wide with English speaking subjects.

ROBERT WILLIAM PANTING, Maintenance Engineer, 33 Rupert Street, Reading, Berks. Photography, budgies, fishing, etc. Versatile. Walter 101, 5 in. 3‡. Africa, Italy or any English speak-ing outside British Isles.

November, 1960

Inter-tape directory

ROBERT DOUGLAS MARTEN KOBERT DOUGLAS MARTEN KOOMEN, Assistant Manager, T.V., radio, tape recorders, etc., 27 Selcourt Close, Woodley, Reading. Cine and tape recording. Various. Various, from 3 in. to 7 in. $1\frac{2}{3}$, $3\frac{1}{4}$, $7\frac{1}{2}$, 15. Holland and any part of the world.

PETER BARTON, Aircraft Engineer, 106 Elizabeth House, Gosbrook Road, Caversham, Reading. Flying model air-

Caversham, Reading. Flying model alf-craft. All types of music. Grundig, up to 7 in. 3²/₄, 7⁴/₂. Anywhere. ARTHUR GILLSON, Engineer's Buyer, 40 Cedar Road, Bedford, Eng-land. Traditional songs, light music, oil painting, collecting art reproduc-tions old on stime band

oil painting, collecting art reproduc-tions, old ragtime jazz, brass bands. Interested in anything unusual. Studio Sound, up to 7 in. 7½, 3½, 1½. English speaking parts everywhere. Mrs. D. E. WELLINGTON, Business woman, "Allways", Kings Lane, Wrecclesham, Farnham, Surrey, Eng-land. 8 mm. Cine film, learning French, travel, music and particularly interested in other business women's activities. in other business women's activities, especially U.S.A. Classical, light or modern. Ferrograph 808, mainly 3 in. up to 8 in. $3\frac{1}{4}$, $7\frac{1}{2}$. U.S.A. and French business women, Australia or New Zealand.

ROBERT RICHARD DOUGHTY, Engineer - Draughtsman, 237 Watling Street, Towcester, Northants. Classical music, opera, trad. jazz, clarinet, Beethoven. Simon SP4, up to 7 in. 3¹/₄, 71. Germany, Italy, America, Australia, New Zealand, Austria, Switzerland, or anywhere else. (Knowledge of German

anywhere else. (Knowledge of German and Italian.) BARRY WATSON, Schoolboy, age 16, 6 Elm Gardens, London, N.2. Sport, tape recording. Popular, particularly rock 'n' roll. Elizabethan De Luxe, 7 in. 3½, 7½, 15. France, U.S.A. and U.K. S. H. NOYCE, Regular Soldier (Bandsman), age 19½, Band 4/7 Rdg's, Bourlon Lines, Catterick Camp, Yorks. Scootering, science, photography. Light classical, classical (Richard Strauss). Ferrograph Type/AN, any, 7½, 3½. Any. SIDNEY LEWIS, Printing, 26 Manorgate Road, Norbiton, Surrey. Girls, dance, variety. Dance, modern jazz. Ferguson 441, 5½ in. 3½. Britain, America.

America.

HOWARD MITCHELL, Schoolboy, age 13, 3 Nevelie Street, Newton Heath, Manchester. Popular music, photo-graphy. Popular. Grundig TK25, 3 in. and 53 in. 13, 33. Any English speaking country, U.S.A.

MARGARET MORRIS, Secretary, 67 Sandhurst Avenue, Birmingham, 34. Opera, literature, history. Opera, classical. Baird, 7 in. 15, 71, 31. Anywhere in English. Am learning Italian and would like an opportunity to practise.

Mrs. D. LANG, Bus Conductress, 103A Mount Pleasant Road, Lewisham, London, S.E.13. Recording, do-it-yourself, C. & W. music, motoring, people, anything. Pops, general and country and western. Regentone RT50, Clarion Transitape, 3 in., 5¹/₄ in., 7¹/₂ in. 1²/₈, 3¹/₈, 71. Anywhere in English, except London. All tapes answered promptly, male

or female, and any C. & W. fans. GERALD LUFF, Progress Chaser (Apprentice), age 20, Gladfield Gardens, (Apprentice), age 20, Gladfield Gardens, Dudbridge, Stroud, Glos. International Friendship League, Tape recording, magic, music, etc. Anything but rock, Nina & Frederik fan. Brenell MKV, up to 84 in. 14, 34, 75, 15. Denmark, Aus-tria or anywhere English speaking. A. P. DEVESAR, Indian Foreign Service (B), 30 Brookside Road, Golders Green, London, N.W.11. Electronics. Light western music, Indian and Orien-tal music. Elizabethan Essex. 34, 15.

Light western music, Indian and Orten-tal music. Elizabethan Essex, 3‡, 15. Commonwealth and Germany, Japan. ROY R. BRADLEY, Lab. Worker, 190 Liverpool Road, Reading, Berks. Motorcycling, dancing, speech, one-set plays on recorder, amateur acting, holiday camps, etc. General except the very hot jazz. Grundig TK 20, 5[‡] in. 3[‡]. Anywhere English speaking. ROBERT HEMSWORTH, Scholar,

ROBERT HEMSWORTH, Scholar, age 16, Albany Hotel, Gloucester Street, Sheffield 10, Yorkshire. Colour photo-graphy, swimming. Rock 'n' roll, jazz, some classical—' the lot '. Telefunken 85, 7 in. 3[‡], 7[‡]. Continent, U.S.A. R. L. PRESTON, Bus Conductor, 4 Queens Road, Barming, Kent. Radio, photography. Light and organ music. Saja M40, 5[‡] in. 3[‡]. Abroad, anywhere.

The Club suggests that in all instances it is advisable to first contact a prospective tapespondent by letter on the following lines :-Dear Mr. X.

I am a member of the British Recording Club and I would like to tapespond with you. I own a X machine and use X in. spools playing at X i.p.s. Yours sincerely, My interests are as follows :-NOTE .- Enclosing a s.a.e. usually ensures a prompt reply.

ALAN B. GOSNELL, Tech. Assis-nt, 14 Willow Gardens, Ruislip, tant, 14 Middlesex. Photography, music, some sport, e.g., tennis, people, general in-terests. All music except jazz—chamber to pop. Philips EL3515, up to 7 in. 3¹/₂. Home and abroad, especially Germany, Holland (am learning German—any help gratefully received !) 20/30 age group.

D. K. BEECH, General Labourer, 17 Union Crescent, Margate, Kent. Stamps, tape recording, ships. Pops, modern music, military bands. Elizabethan 'Bandbox', 3 in., 3½ in. 1¼, 3½. New Zealand, Canada, Gibraltar or Australia

BRENDAN SHEEHAN, Progress BRENDAN SHEEHAN, Progress Clerk (Commercial Engineering), Asst. Buyer, 8 Hale Gardens, Acton, London, W.3. Folk square and Scottish country dancing, first aid, camping, Territorials (Royal Signals), scootering, all aspects of the cinema, workable command French, past happy experiences in Scouting, youth work and amateur dramatics, technically minded but no Einstein. Light classical (Proms. type), good dance and musical (Proms. type), good dance and musical comedy. Eliza-bethan Princess, up to 7 in. 17, 37, 77. Canada, British Isles, New Zealand, U.S.A., Germany.

DENNIS ARMSTRONG, Shoe Re-pairer, age 19, 38 Proudfoot Drive, Bishop Auckland, Co. Durham. Tape recording and anything else. Trad. jazz, pop and classical. Grundig TK20, 3 in., 5¹/₄ in. 3¹/₄. Great Britain.

W. G. KNOWLES, Assistant Inspector, 60 James Hammett House, Dorset Est., London, E.2. Recording, sport. Popular, light music. Elizabethan, 5 in., 7 in. $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{7}{4}$. U.S.A.

7 in. 72, 33, 14. U.S.A. JOHN BICHEND, Carpenter, age 28, 60 Edinburgh Road, Freshwater, I.o.W. (married—girl 9 years, boy 4½ years). Tape recording and family. Pop, not jazz. Philips AG8109, 3 in., 5 in. 3½. Anywhere English speaking only. (Would like someone around own age.)

JOHN F. GRIFFITHS, Insurance Clerk, c/o Kierans, 388 Perth Road, Dundee, Scotland. Music and sound reproduction, travel, chess, table tennis, football and cricket. Mainly classical, particularly orchestral. Stella ST.450, up to 7 in. 1²/₄, 3¹/₄, 7¹/₂. United Kingdom, though also other Western European Countries, particularly Scandinavia, though only English spoken.

DAVID F. MILES, Electrician, age 20, 182 High Street, Smethwick, 41, Staffs. Electronics (especially radio), films, German, general. Light classical, show music. Wyndsor Viscount, up to 7 in. 15, 7½, 3⅔. Anywhere English spoken.

ROBERT H. THOMPSON, 'Top Locks,' 'Tonnage House,' Crescent Row, ' Top Runcorn, Cheshire. New to tape recording (advice welcome), family affairs, general discussion. All except jazz. Grundig Cub, Philips EL 3542 (4-track), 3 in. to 7 in. 17, 37, 77. Anywhere, but would be pleased to hear from overseas. Young family especially. (English only spoken.)

PAUL WADEY (still at school), age 15, 70 Baranscraig Avenue, Patcham, Brighton 6. Photography and tape re-cording. Anything from Rock 'n' roll to classical. Grundig 'Cub', 3 in. 3¹/₄. Anywhere

ANTHONY WILLIAM JACKMAN, Building Surveyor, 10 Herrongate Close, Enfield, Middlesex. Building and architecture, naturopathy, current affairs, driving, pianoforte and photography, Classical and swing. Grundig TK 25, 5 in. 17, 37. Great Britain or France. RAYMOND PAGE, Butcher, Patford

RAYMOND PAGE, Butcher, Pattord Marina Park, Hoo, Kent. Cars, judo. Pops and classical and some opera. Grundig TK 25, 7 in. 3¹/₄, 1³/₄. England. JOHN PACKER, age 24, Master Butcher and amateur actor, 2 Marlowe Drive, Didsbury M/C 20, Gt. Britain. All aspects of the theatre. Ballet, opera, light classical musical comedies Grunlight classical, musical comedies. Grun-

All aspects of the meatre. Ballet, opera, light classical, musical comedies. Grun-dig TK 30, up to 7 in. 3‡, 7‡. Anywhere in the world. Only French spoken. E. L. T. RICHARDSON (Ted), Accountant, P.O. Box 401, Blantyre, Nyasaland. Tape recording, 8 mm. cine photography. Popular (especially Scot-tish, Irish and South Pacific). Veritone Venus, up to 7 in. 3‡, 7‡. All over the world, but particularly Austria, Ger-many, Norway, Sweden and Japan. ANTHONY JOHN ASTLEY (nick-name 'Ant'), age 17, Schoolboy, 41 McLean Road, Oxley, Wolverhampton, Staffs. Electronics, but not really inter-ested in T.V work. Trad. jazz, some rock music, some classical. Collaro 'Studio' Deck, Home made amplifier, up to 7 in. 1‡, 3‡, 7‡. Mainly U.S.A. and U.K. I only speak English, no need to write to me first, just send a tape, which will be answered. Boy or girl. which will be answered. Boy or girl. A. J. MACDONALD, Salesman, 275

Edward Street, Wagga, N.S.W., Austra-lia. Hi-fi, music, photography. All types of music. Clarion, 3 in. 3]. All (English). PETER F. HEATON, Railway Clerk (Estate), 35 Dunbar Road, Hillside,

Southport, Lancs. Photography (b. and w. and colour), tape recording. Light classical, some 'highbrow', Fidelity

 w. and Colour), tape recording. Light classical, some 'highbrow', Fidelity Argyll, Motek KG home made, up to 7 in. 1²/₈, 3²/₈, 7¹/₂. Any English speaking. MICHAEL ADLER, age 16, Scholar, 7 Neville Drive, Hampstead, N.2. Football, pops, tape recording. All pops, light classical. Grundig 'Niki', 3 in. 3²/₈. England.

STANLEY HARRIS, Doctor of Medicine, 404 Mansfield Road, Nottingof ham. Photography, humour, travel, motor cars. Modern jazz, e.g., Oscar Peterson. Ballet—modern and otherwise. Ferrograph 4AN, up to 7 in. 3‡, 7‡. U.S.A., Canada, France, Switzerland, Italy. All tapespondents will be answered.

GEORGE H. WALKER, Storeman, 10 Council House, Islington, St. Ger-mans, Kings Lynn, Norfolk. Amateur radio, all sport. Classic and modern. B.S.R. 3 in., 5¹/₂ in. 3¹/₂. Europe. TED GAMMON, Export Packer, 4 Towers Road, Hemel Hempstead, Herts.

Photography, tape recording. Country, western, trad., guitar. Grundig TK5, 5³/₄ in. 3³/₄. Anywhere English speaking.

ROGER MANLEY, age 17, Insurance Clerk, 557 Budshead Road, Waitleigh, Plymouth, Devon. Y.M.C.A., rugby, youth work, English literature. Good music of any kind, i.e., very little popu-lar. Elizabethan Princess, 3 in., 7 in. 14, 34, 74. Any (English speaking at first).

ANTHONY J. WILKS, Television Service Engineer, 264 Prince of Wales Lane, Birmingham 14. Plec. guitar, hi-fi (sound effects recording). Trad. jazz, Flamenco, satire (Lehrer, etc.). Mainly

Philips, any. All parts. JOHN W. G. MACBRYDE, age 15¹/₂, Public Schoolboy, 51 West End Lane, Pinner, Middlesex. Music (listening and flute and piano playing), radio, science, general. Chamber, orchestral including modern and opera. Veritone Portable, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$. France ('O' level French), and English speaking people anywhere abroad.

D. WILDING, Draughtsman, 7 Clan-ricarde Gardens, London, W.2. People and places. Classical and trad. jazz. Philips EL 3542, 7 in. 17, 31, 71, Anywhere, particularly Australia and New Zealand.

ALAN WARD, Musical trade, 30 Roundtable Road, Downham, Bromley,

Koundtable Koad, Downnam, Bronney, Kent. Tape, early jazz, no revival. Goods, Freburg, anything funny. Stella ST 450, 7 in. 34, 74. Great Britain. MICHAEL BULLOCK, 1923923 Cpl., Telegraphist, 'A' Watch, 264 S.U., B.F.P.053. Middle East, music (classical to modern not pops), motoring. Any classical and prefer modern jazz. Sierra, classical and prefer modern jazz. Sterra,
 7 in. 14, 34, 72. U.K., Middle East.
 Answers may be in either English,
 Arabic, Assyrian or Kurdish.
 ROBERT E. LUNT, age 38, Royal
 Canadian Air Force, 133 Bushell Park,

Moose Jaw, Sask., Canada. Photography, people and places, anything. Flamenco, Spanish guitar, light classical. Gram-deck, 5 in. 7½. Anywhere except Canada and U.S.A.

JACK THOMSON, Ambulance Driver, 1 Weensland Road, Hawick,

Driver, 1 Weensland Road, Hawick, Roxburghshire, Scotland. Hypnotism, leathercraft, camera. Yodel, hillbilly, opera Negro spirituals, hi-fi. AG 8108 Philips and EL 3515, 5 in., 7 in. 17, 37, 71. U.S.A., Canada and England. PATRICK C. BRENNAN, Royal Navy, 2 D Mess, H.M.S. Bulwark, c/o G.P.O. London. Films, table tennis, chess. C/Western, Irish and Scots dance and from the shows. Philips 3542, up to 7 in. 14. 37, 75. English speaking.

7 in. 17, 37, 75. English speaking. BEVERLEY JOHN RICE, Store-keeper (motor trade), 67 Taverners Road, Peterborough, Northants. Boy Scouts, amateur theatre, motors. Gilbert and Sullivan, musicals, operas. Eliza-bethan Escort, 7 in. 17, 37, 71. Anywhere.

ROBERT F. ABBOTT, age 17, Ship-ping Clerk, 98 Halbutt Street, Dagenham, Essex. Foreign travel, tape recording, piano, guitar, violin, stamp collect-ing, Pops and some classical, Latin American tempos. Grundig TK 20, 5‡ in. 3‡. U.S.A., New Zealand, Australia, Continent S. America or countralia Continent, S. America or anywhere. English only spoken. Teenager preferred.

PETER HOWELLS, age 16, Student, 'Swevenings', Dunley, Stourport-on-Severn, Worcs. Cars, tape recorders and boats. Popular music. Philips El 3527, up to 5 in. 3[‡]. British Isles.

KEITH PEACOCK, age 20, Shop Assistant, 13 Kearsley Terrace, Leeds 10, Yorkshire. Railways, photography and watching motor sports. Classical, popular, rock, light orch. and some jazz. Elizabethan 'Avon', 5[‡] in. 3[‡]. North America (wish to learn 'Beat Talk' (secondary importance)) and Yorkshire (male or female).

ANTHONY KEITH HATTERSLEY, age 21, Metallurgist, 43 Powley Road, Sheffield 6. 35 mm. photography and electronics. Latin American, light and some popular. Philips EL 3524, 7 in. 7¹/₁, 3¹/₄, 1⁷/₅. Any English speaking part, including U.K.

A. B. McNAUGHTON, Commercial Traveller, 15 Scott Street, Perth, Scot-land. Tape recording, church work, motoring. Country dance and folk songs. Argyll (BSR) 7 in. 3[‡]. Anywhere talking English. Perth, Australia, for instance. ROBERT PARSONS, Cinema Man-

ROBERT PARSONS, Cinema Man-ager, also Partner in Import & Export Co., 3 Ruvigny Mansions, The Embank-ment, Putney, London, S.W.15 Films, travel, importing and exporting, film. Lush-type orchestral, Mexican, guitar, piano, light classics, musical comedy. Harting H.M.5 up to 7 in. 3‡, 7‡. Any-where in the world where English is spoken. Just tape right away. All tapes welcome welcome.

J. NORMAN JONES, Pharmaceuti-cal Chemist, 46 Malpas Road, Wallasey, Cheshire. Photography — all types in-cluding 8 mm. cine. Freelance writing. General. Classics, light operetta, ballet, Gilbert & Sullivan. Saja, $5\frac{1}{2}$ in. $3\frac{1}{2}$, $7\frac{1}{2}$. Anywhere but only English spoken. All tapes answered, no need to write. Pre-ferably in 30-50 age group.

DONALD E. NOBLE, Costing Clerk, 14 Melbourne Court, Welwyn Garden City, Herts. Evangelical, countryside, alpine plants, photography, modelling, printing, children. Classical, church organ music, bands, children's choirs. Wyndsor Viscount, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$, 15. Any English speaking country.

RALPH BINKS (Cpl. R.A.F.), Royal Air Force, 4 Dale View, Headley, Nr. Epsom, Surrey. Hi-fi, stereo, model rail-ways. Pop to Bach. Brenell 3-star and Collaro Deck, up to 7 in. $1\frac{2}{3}$, $3\frac{3}{4}$, $7\frac{1}{2}$. All parts. PHILIP

PHILIP COCKROFT (wife Anne, daughter Andrea 6 months), Cinema Business, School Teacher, 11 Newstead Avenue, Wigston, Leicestershire. Family tapesponding, many and varied, foreign travel. Everything except chamber music and jazz. Grundig TK5, 5[‡] in. 3[‡]. Any-where English speaking. No need for letter - all tapes answered. Age group 25 to 40.

Cpl. G. F. WARDEN, M.T. Driver/ Operator, 18 AM Qts., R.A.F. Hospital, Ely, Cambridgeshire. 35 mm. photo-graphy and soccer. Pops. Philips AG108, 7 in. 1²/₄, 3³/₄, 7⁴/₅. Australia, New Zealand, U.S.A., Canada.

R. C. EMMERSON, age 26, Electri-cian's Mate, 24 Millfield Road, Burnt Oak, Edgware. Books and music, amateur musician. All modern jazz, some pops, some classics. Amplion A.224, up to 51 in. 31. Anywhere, either sex. (Only English spoken.)

CEC TAYLOR, age 29, Welder, 15 Chester Road, Blackpool. State-side travel, roller, Derby. Western Hillbilly, etc. EAP Princess, up to 7 in. $7\frac{1}{2}$, $3\frac{3}{4}$, $1\frac{2}{8}$. U.S.A. only.

BRIAN HOLLOWAY, age 30, Instal-lation Hand, 96 Bawtry Road, Sheffield 9. Photography, woodwork. Pops and light classical. Grundig TK 20, 5‡ in. 3[‡]. U.S.A., Canada, or anywhere English spoken.

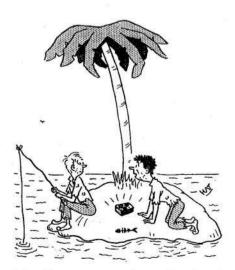
Mr. LAMONT PHILLIPS, Sorter, 193 Highbury Quadrant, London, N.5. Religion, music, photography. Light classical, Latin American, pops. Brenell 3-star, up to 7 in. 1²/₅, 3¹/₂, 7¹/₂. Anywhere. BARRY REDGRAVE, age 16¹/₂, Elec-trician (New Theatre), 40 Marston Street, Ifflex Road, Oxford. Motor cycl-ing, recording modelling. Pone Walter

ing, recording, modelling. Pops. Walter 303, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$. France or Spain or both (all tapes answered).

D. G. HUGGINS, Hotel Waiter, 37 Shadwell Road, North End, Portsmouth, Hants. Travel, T.V., films and Ray Con-niff Orch. All sorts (not jazz). Philips EL 3542 4-track, up to 7 in. $1\frac{2}{3}$, $7\frac{1}{2}$. Africa and England (speaking English).

RAYMOND BREWER, age 17, Shop Assistant, 6 Gomer Place, Teddington, Middlesex. Cacti, tape recording. Popu-lar. Philips 3527, 5 in. 3[‡]. Anywhere, preferably Great Britain.

WALKER H. C. KINGHAM, Wood Machinist, 26 Church Road, Tottenham, London, N.17. Natural History, 35 mm. colour photography, historical buildings, general chats. Anything but highbrow. Clarion, 3 in. $3\frac{3}{4}$. Anywhere at all. No need to write first. All tapes replied to.



"See if you can catch an electric eel; the batteries are running down !"

HAROLD BRUNYEE, Salesman, 32 Grattan Street, Kimberworth, Rother-ham, Yorks. Stamps, photography. Modern. Grundig TK 25, 5[‡] in. 3[‡], 1[‡]. Canada, Channel Isles.

ROBERT IAN BELSHAM, Senior ROBERT IAN BELSHAM, Senior Dental Technician, 60 Grange Road, Purley Oaks, Sanderstead, Surrey. Mainly composing comical tapes. Pop and light. Sound A.20, up to 7 in. 15, $7\frac{1}{2}$, $3\frac{3}{2}$. Any English speaking country. Do not know much about anything really but willing to reply to all tapes received — any understandable subject. Who is came for a laugh? Who is game for a laugh?

PIUS O. EHIAGWINA, Radio En-gineering, Technical Workshop, Kingsway Stores, Freetown, W. Africa. Danc-ing, story telling. Classics as well as pops (general taste). Grundig, 5½ in. 3½. U.S.A. (Washington D.C.). Any part of the U.K. and S. Africa.

T. GILBERT, Electrical Engineer, 'Woodcote,' Box Trees Road, Dorridge, Warwickshire. (Member of Warwick & Learnington A.T.R. Society), 8 mm. cine, motoring, building radio equip-ment. Light music. Ferrograph, Clarion and home stereo, up to 84 in. 34, 74.

G. HARRIS, Clerk, 20 Albert Street, Warwick. (Member of Warwick & Learnington A.T.R. Society.) Home written plays, unusual and weird sounds. Jazz contem., classics and folk. Philips AG 8109, Philips AG 3515, up to 7 in. 31.

34. MISS E JONES, School Teacher, 26 Hampton Street, Royal Learnington Spa. (Member of Warwick & Learning-ton A.T.R. Society.) Concertinas, 8 mm. cine and 35 mm. travel. Classical and folk. Stella, Fi-Cord, 7 in. 1²/₄, 3¹/₄, 7¹/₂. T. WELLS, Shopkeeper, 534 Tach-brook Road, Royal Learnington Spa. (Member of Warwick and Learnington A.T.R. Society.) Church work, photo-

A.T.R. Society.) Church work, photo-graphy. Anything except jazz. Telefungraphy. Anything except jazz. ken, Clarion, up to 7 in. 3¹/₄, 7¹/₂.

ken, Clarion, up to 7 in. 34, 74. T. DRAPER, Electrical Salesman, 13 Newnham Road, Royal Leamington Spa. (Member of Warwick & Leaming-ton A.T.R. Society.) Music. Trad. jazz and light classics. Philips AG 8108 and AG 8108G, up to 7 in. 14, 34, 74. B. J. RACE, Secretary, 30 Ashford Road, Royal Leamington Spa. (Member of Warwick & Leamington A.T.R.

of Warwick & Learnington A.T.R.

of Warwick & Leamington A.T.R. Society.) Travel, photography, ballet, opera. Classical. Philips EL 3750, Stuzzi 'Magnette', up to 7 in. 1²/₄, 3¹/₄, 7¹/₂. C. BARNACLE, Field Test Engineer, 61 Wathen Road, Royal Leamington Spa. (Member of Warwick & Leaming-ton A.T.R. Society.) Photography, boats, sound. All kinds of music. Harting Stereo and Stuzzi 'Magnette', up to 7 in. 3¹/₄, 7¹/₂.

JOB DOUGLAS, Schoolmaster, 31 Lingwell Road, London, S.W.17. 35 mm. Grundig TK 30, 7 in., 5 in. 7½, 3½. English speaking countries.

FRANK WALKDEN, Self-employed, 255 Wallasey Village, Wallasey. Classi-cal music and general topics. Very wide. Grundig TK 20, 5[‡] in. 3[‡]. Anywhere.

ARTHUR ROE, Accountant, 43 South Drive, Chorltonville, Manchester 21. Tape recording, photography, motor-ing, caravanning, organs. All, but light electronic organ preferred. TK 8, TK 60 Stuzzi, up to $7\frac{1}{2}$ in. $1\frac{2}{4}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere.

VIVIAN BOAST, Engineer, Home-land, Colegate End, Punham Market, Nr. Diss, Norfolk. Electronics, photo-graphy, motor cycling. All types, pre-ferably light music. Elizabethan 36, up to 7 in. $1\frac{2}{5}$, $3\frac{1}{2}$. Any part where English is spoken.

DENNIS R. SHEPHERD, Watch-maker, 142 Edmund Road, Sheffield 2. Contacting fellow tradesmen anywhere. Pretty general (except trad. jazz). Eliza-bethan Escort, 7 in. 1²/₅, 3¹/₄, 7¹/₂. Home, Canada, Australia, U.S.A., English only spoken.

VICTOR GRAHAM JAMES, age 21, Continental Travel Clerk, 23 Elms Road, Clapham, London, S.W.4. People, travel, most things. Definitely lighter music. Regentone RT 51, 7 in. $1\frac{2}{3}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere.

S. DIXON, Clerk, 41 Scarborough Street, Thornaby-on-Tees, Yorks. 8 mm. cine, stereo. Dance, pop, some classical. Philips AG 8108, 7 in. 17, 37, 77. England, Germany or anywhere Continental, English speaking.

S. WHITE, Mining Engineer, Loona Colliery, Jharia P.O., Dhanbad District, Bihar, India. Sport, 8 mm. cine. All except opera. Maestrovox Majestic, 7 in. 15, 71, 31. Anywhere.

LEONARD RAYMOND HEATH, Hospital Lab. Porter, 70 Oaks Fold Road, Lowershiregreen, Sheffield 5, Yorkshire. Evangelism, Gospel broad-casts, English and German, learning German, S.A.S.R.A. A little 35 mm. col-our photography. I prefer Gospel and Sacred music but do not mind other good music. Philips AG 1808, 7 in. 1²/₄, 3¹/₄, 7¹/₄. Stellaphone 5 in. 3¹/₄. Germany, in English (or preferable slow simple in English (or preferable slow simple German to help improve mine), also S.A.S.R.A. serving members anywhere.

D. R. FIRTH, Professional Form-Filler (N.H.S.), South Bestwall House, Filler (N.H.S.), South Bestwall House, Wareham, Dorset. Vintage cars, motor-ing, medicine, travel, 35 mm. colour stills, taping everything. Pops to classi-cal, with melody, rhythm and romance. Elizabethan Avon, 5‡ in. 3‡. All. I hope to contact Vintage and Veteran Car enthusiasts anywhere in the world. I sneak English and French speak English and French.

KEITH FRENCH, age 34, Bus Driver, 40 Cherry Tree Grove, Mastin Moor, Chesterfield, Derbyshire. J.W., camping, photography, cine. Popular light and classics and shows. Philips EL 3542 4 track, up to 7 in. $1\frac{2}{3}$, $3\frac{1}{4}$, $7\frac{1}{4}$. Anywhere.

J. WHITTINGTON, Self-employed Greengrocer and Fish Caterer, 2 Council House, Mountfield Road, Wroxall, I.W. General topics, Methodist Church, sea G. & S., organ. Wyndsor Viscount, up to 7 in. 3¹/₂, 7¹/₂, 15. Any English speaking country.

Tpr. WHITLEY 22775255, 10th Royal Hussars, B.F.P.O. 30. All kinds of music. Grundig Stereo TK 60, Ferro-graph /AN, 8[‡] in., 7 in. 3[‡], 7[‡]. U.K. and Holland.

and Holland. NORMAN A. ELLIOTT, Company Director, 42 Whitelake Avenue, Flixton, Nr. Manchester. (Tel. URMston 7240.) Travel, photography. Pops, light classi-cal. Grundig TK 20, 5[‡] in. 3[‡]. Canada, U.K., W. Indies. ALEC DAVIDSON, Solicitor, 27 Kilworth Avenue Shenfield Esser Poli-

ALEC DAVIDSON, Solicitor, 27 Kilworth Avenue, Shenfield, Essex. Politics, reading. Light classical, satirical songs. Grundig TK 20, 5‡ in. 3‡. Any country except Great Britain.

HAROLD TURNER, Warehouseman (Foods), 20 Woodcote Road, Fishponds, Bristol. Social service. Light, piano, un-usual sound. Grundig TK 5, 5¹/₂ in. 3¹/₂. Anywhere English speaking. Replay mes-sages to blind. DAVID ANTHONY ROEBUCK, age

20, Trainee Manager, No. 1 Flat, Crown 20, Trainee Manager, No. 1 Flat, Crown Hotel, Market Square, Bawtry, Yorks. Jazz, 35 mm. slides, food, dramatics, body building, yogi-type. Ray Charles, Bo Didley, C. & W., Chuck Berry, Colver to Monk, Broonzy, Wynone Harris, etc., Ravel, Holst (Crazy, man). Grundig TK 25, up to 7 in. 3¹/₄, 1¹/₄. U.S.A., Canada, U.K., Cheam.

WILLIAM CHADWICK, Driver, 255

WILLIAM CHADWICK, Driver, 255 Parr-Lane, Unsworth, Bury, Lancs. Re-cording, T.V., driving. Modern, pops, olde tyme. Grundig TK 30, 7 in. 34, 74. England, America. All tapes returned. SYDNEY F. BUSH, Petrol Installa-tions Fitter and Mech., 42 Nott Street, Norville, Bundaberg, Queensland, Aus-tralia. Anything and everything. Folk, popular to light classical. A.W.A. Magictane', up to 7 in 34, 74 Engpopular to light classical. A.W.A. 'Magictape', up to 7 in. 34, 74. Eng-land, U.S.A.

Mrs. BERYL JOYCE TURNER, Wireless Telegraphist, 49A Empress Avenue, Ilford, Essex. All subjects, general, travel, reading, people and foreign countries. Latin, light classics, all modern music except jazz. Stella, Col-laro, up to 7 in. 13, 34, 74. Anywhere English — far afield in preference. Miss DORINDA THOMAS, Man-

ageress photographic shop, 16 Llantwit Road, Neath, Glam., South Wales. Still photography. Popular, all types including light classics. Elizabethan Avon, 51 in. 3¹/₄. Italy or anywhere speaking English and Italian.

RONALD COLEMAN, Schoolteacher, rasshopper Green, Church Walk, Grasshopper Green, Church Walk, Charlton Kings, Glos. Teaching topics, woodwork, 'do it yourself', art discus-sion, design (furniture, etc.), child psychology, travel, history (especially craft history). Some pops, classical. Stella-phone ST 450. up to 7 in. $1\frac{7}{8}$, $3\frac{1}{2}$, $7\frac{1}{2}$. Tape exchanges with young family in Denmark, France or Germany (preferably English speaking). Also teachers in U.K

JOHN BARRIE GALE, Apprentice Marine Engineer, 18 Tennal Grove, Har-borne, Birmingham 32. Youth Hostelling. Jazz, all sorts except Chris Barber. Cossor CR 1601, up to 7 in. 1²/₈, 3¹/₄, 7¹/₂. Anywhere.



"All right! So you can hear a funny noise downstairs! What do you want me to do? Get up and record it?'

HARRY H. FOLEDER, Quantity Surveyor's Assistant, 11 Vere Bank, Wimbledon Park Road, London, S.W.19.

Wimbledon Park Road, London, S.W.19.
Sound effects, camping, outside recording. Light orchestral, show tunes, stereo. Tandberg Stereo and Stuzzi Magnette, up to 7 in. 14, 34, 74. English speaking.
BERNARD PEPPER, age 20, Bank Clerk, Victoria Hotel, May Bank, Newcastle, Staffs. General, travel. Most except heavy classical. Grundig TK 35, up to 7 in. 74, 34, 14. Anywhere.
F. J. HUGHES, Drayman, 12 Willesby Road, Spalding, Lincolnshire, Swimming, body building. Victor Sylvester dance music. Spectone 161, 7 in. 34, 74, 15. U.S.A., Canada.

15. U.S.A., Canada. CLIVE BOUGHTON, Civil Servant,

CLIVE BOUGHTON, CIVIT Servant, 72 Cornwall Street, Grangetown, Car-diff, S. Wales. Philosophy, psychology, recording sound effects, oil painting, Sherlock Holmes, poetry. Anything but rock 'n' roll. Philips EL 3515, up to 7 in. 31. Anywhere.

HARRY CALMAN, Principal of School of Motoring, 41 Beaconfield Avenue, Epping, Essex. Amateur dramatics, 8 mm. films, Apiarian, dance band. Light to modern, novel records. Philips AG 8108G, 7 in. 14, 34, 74. England, Italy, New Zealand. (Married with three children under six years, would like to tapespond my children with others. Have own business—car rallying—stage effects.)

R. C. WATSON, Foreman Confec-tioner, 32 Southgate Drive, Crawley, Sussex. Tape, music, organising. Any-Sussex. Tape, music, organising. Any-thing but pops. Walters 303, Sovereign (Collaro), 7 in. 3¹/₂, 7¹/₂. Any New Town in G.B. and with anyone from New Zealand or places South.
A. HUGH SINCLAIR. Toolmaker, 24 O'Neill Street, Guildford, N.S.W., Australia. Radio programmes. Popular classics good iazz Jimmy Shand El-

classics, good jazz, Jimmy Shand. El-con, 7 in. 7¹/₂, 3¹/₄. Scotland, England, anywhere English speaking. CHARLES GEORGE NEWMAN, Postman, 43 May Road, Lowestoft, Suf-folk Becord, collecting, and taperpend-

folk. Record collecting and tapespond-ing. Country and western, Hillbilly and folk music. Philips AG 8108, up to 7 in. 17, 31, 71. U.S.A., Canada, and anywhere English is spoken.

GERALD ARTHUR CRASKE, Time Clerk, age 23, 97 Tennyson Avenue, Motspur Park, Surrey. Y.H.A., Cycling, camping, 35 mm. colour photography. Hi-fi. Trad. jazz, swing (Benny Goodman), classical (not chamber music). Verdik S.1, 7 in. 3¹/₄, 7¹/₂. America, France, Switzerland, Australia. (Little French and German spoken.)

DAVID GLYN DIAMOND, Postman, age 21, 42 Mount Ash Road, Sydenham, London, S.E.26. Tape recording, records. Anything but not classical. Elizabethan Princess, up to 7 in. $1\frac{2}{5}$, $3\frac{1}{5}$, $7\frac{1}{2}$. Prefer Australia, but any English speaking country.

JOHN WRIGHT, Watchman, 52 Bengal Street, West Bowling, Bradford 5, Yorks. Songwriting and tape recording. Classical, ballads, pop music, etc. Sound Prince, $5\frac{1}{4}$ in. $3\frac{2}{3}$. Anywhere (English spoken only.)

GEORGE FOULKES, age 18, Student, 69 Kings Court, Wembley Park, Middlesex. Photography, humour. Popular. Grundig TK 20, 5¹/₄ in. 3¹/₄. English or Spanish speaking countries or Yugoslavia.

MICHAEL BROWN, Travel Agent, 219 Clifton Road, Rugby, Warwicks. (Tel. Rugby 3973.) Travel, photography (35 mm.), music, motoring, tape club movement and general interests. All except jazz. Wyndsor Viscount, Philips AG 8107, 7 in., 5 in. $3\frac{1}{4}$, $7\frac{1}{2}$, 15. Regret that present commitments must limit to U.K. only.

U.K. only. DERRICK HENMAN, Charge Hand Fitter, 71 Upwell Road, Luton, Beds. Motor and motorcycle racing. Mainly popular. Saga Standard 5¹/₂ in. 3¹/₂. U.S.A., Canada. LEONARD TAYLOR, Engineering Draughtsman, 'Kia-Ora', Parkgate Road. Newdicate. Docking Surray

LEONARD TAYLOR, Engineering Draughtsman, 'Kia-Ora', Parkgate Road, Newdigate, Dorking, Surrey. Tape recording, electronics, photography, model aircraft and motoring. Trad. jazz, light classics and ballet. Music from shows. Home built using Collaro MK 4 Transcriptor, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$, 15. Australia, New Zealand, Canada or U.S.A. (English speaking).

B. W. SMITH, age 26, Fitter (Mechanical), c/o 2 The Berea, Links Road, Leven, Fife, Scotland. Photography, motor sport, travel, outdoor life. Modern jazz, anything except the opera, ballet and pops. Telefunken Magnetaphone 76, $5\frac{1}{2}$ in. $3\frac{1}{2}$, $1\frac{4}{2}$. Anywhere. U.S.A., Canada, New Zealand, Scandinavia (only English spoken). Male or female.

Miss GWYNETH M. JONES, age 30, self-employed, 30 Greenfield Terrace, Abercynon, Glamorgan, S. Wales. Philately, other people. Light and popular. Philips Major, 3 in. to 7 in. $1\frac{2}{4}$, $3\frac{2}{4}$, $7\frac{1}{2}$. All over the world with people my own age, and particularly in Griffith, New South Wales and Pittsburgh, Pennsylvania.

JOHN F. MARTH, Salesman, 2208 Siegfried Avenue, Northampton, Penna, U.S.A. Photography, tape exchange, fishing. Modern, folk, all kinds. Wilcox Gay, 7 in. 3³/₄, 7¹/₂. World wide. H. HANSON KERSHAW, Radio T.V. Engineer, 10 Walker Avenue, Prestwich, Nr. Manchester, Lancs. Hi-fi, recording. Light classical, not jazz. Telefunken KL 85, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere English spoken.

DAVID BOYNS, Ships Carpenter, Merchant Navy, 12 The Ridgeway, Gillingham, Kent. Photography (b. and w. and colour slides), recording, radio. All types except jazz. Grundig TK 20, up to 5¹/₂. 3¹/₃. Anywhere, English only.

DOUGLAS F. LEIGH, Depot Manager, 'Bath View,' Belgrave Terrace, Bath. Travel, motoring. Son aged 12. Keen to make French contacts. Light orchestral and pops. Philips AG 8108G, 7 in. $1\frac{2}{3}$, $3\frac{1}{3}$, $7\frac{1}{3}$. Australia.

Mr. SHOKY KALEEL, age 22, General Retailer, 7 Wingham, N.S.W., Australia. Photography, tennis, part time Commonwealth Citizens Armed Forces (C.M.F.), Apex International, a young man's Service Club, affiliated with Round Table, 20-30 and Kinsman, of which I have been a member for 4 years. Religion—Greek Orthodox. Languages—Arabic and Australian. Evergreens and popular and instrumental. Philips 4 track, 3 speed, 7 in. $1\frac{2}{5}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Lebanon (preferably Christian, in Arabic and in English), Boston, Mass., U.S.A.

MICHAEL JOHN SMALL, Mattress Maker, 19 Deacon Road, Kinson, Bournemouth. Family life, photography. Musical shows, pops, some classics. Philips AG 8109, 5 in. 3¹/₄. U.S.A., Canada:

ALLAN LINDBORG, age 18, Staithman, 56 Trevelyan Avenue, Blyth, Northumberland. Boxing, music. Pops, Dixieland jazz. R.G.D. Mark 103, any size, $1\frac{2}{5}$, $3\frac{1}{7}$, $7\frac{1}{2}$. U.S.A., Scandinavia.

KENNETH BRYANT, Progress Chaser, 'Glan Howy,' Park Place, Tredegar, Mon. Music, photography, books. Classical and trad. jazz. Philips AG 8107/00, 5 in. 3[‡]. Anywhere (in English).

M./E. BURGH, T.P. Regular Aircrew, Sgts. Mess, Kinloss, Forres, Morayshire, Scotland. Any kind of sport. Old and modern jazz, modern, small groups pref. Philips, up to 7 in. 1_4^2 , 3_4^2 , 7_2^4 . Anywhere (but English only spoken).

ROBERT STEEMSON, Printer, 129, Hall Lane, Chingford, E.4. Social life, local interest, D.I.Y., angling. Light to classical. Collaro Studio Deck, Mullard Circuit, up to 7 in. $1\frac{2}{3}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Commonwealth, U.S.A., Europe.

RICHARD GEORGE M. LEECH, age 22, Work Study Officer, 1 Sunnyside, West Hill, Gravesend, Kent. Numismatics, swimming, golf, theatre. Musical shows, dance and military bands. Wyndsor Victor, 7 in. $1\frac{1}{8}$, $3\frac{1}{4}$, $7\frac{1}{2}$. British Isles, Norway, Sweden, France. English speaking only. Preferably young female tapespondent.

D. HUGHES, age 23, Photographic Engineer, 44 Somerset Avenue, Rochford, Essex. Scootering, photography. Trad. jazz. Stellaphone, 7 in. $1\frac{2}{5}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Anywhere. PETER ERNEST RAYMOND CROSS, age 18, Student, 3 Cambrian Close, West Norwood, London, S.E.27. Trad. jazz, photography. Trad. jazz. Grundig TK 30, up to 7 in. 3¹/₂, 7¹/₂. Germany. I wish to tapespond with a female.

J. H. L. BRIDGE, Engineer, 61 Masefield Avenue, Southall, Middlesex. Very wide—scientific, technological, philosophic—but can be light. Modern and old time dance, pop, light and classic. Not jazz. Reflectograph A, up to 8¹/₄ in. 7¹/₂, 3³/₄. Anywhere, English only. J. K. SMITH, Maintenance Engineer,

J. K. SMITH, Maintenance Engineer, 7 Broadoak Avenue, Penketh, Warrington, Lancs. Chess, cricket, general. Piano, trad. jazz, swing, classics (light). Philips EL 3536 stereo 4 track, up to 7 in. $1\frac{2}{5}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere English speaking.

speaking. J. C. BROWN CAMPBELL, Market Research Field Auditor, 60 Garngour Road, Lesmahasow, Lanark. Motoring, sport, singing. Jazz, pop, light classics, choral, opera. Elizabethan Princess, up to 7 in. $1\frac{7}{5}$, $3\frac{3}{7}$, $7\frac{1}{2}$. Home or away. All tapes answered.

H. SYDNEY BALLINGHAM, Male Nurse, Male Nurses Residence, North Staffs. Royal Infirmary, Stoke-on-Trent, Staffs. Ornithology, Archaeology, Y.H.A. Jazz, musical shows, modern, most kinds. Elizabethan Princess, up to 7 in. 1²/₄, 3¹/₄, 7¹/₂. Anywhere, English speaking. IAN STEPHENSON, Insurance Agent, 435 Queens Drive, Liverpool 13, Longe Almost aventhing Classical

Agent, 455 Queens Drive, Liverpool 15, Lancs. Almost everything. Classical. Telefunken KL 85, 7 in. 3¹/₄, 7¹/₄. Anywhere except Gt. Britain.

LESLIE SOLOMON, age 16, Student, 10 The Crescent, Newcastle 7, Tape recording, light reading. Lighter classics, trad. jazz. Philips, 5 in. 3[‡]. Russia, Sweden, Canada. (Females preferred.) Slight knowledge of French.

MAURICE KELLNER, Clerk, 131 Thornton Road, Rusholme, Manchester 14. Modern jazz (M. Davis, T. Monk, M.J.Q.). Grundig TK 5, 5¹/₄ in. 3¹/₄. Anywhere.

IAN BAYNE, Chemistry Technician, 20 Bruce Street, St. Andrews, Fife, Scotland. Science fiction, humour, cycling. Jazz (modern and trad.), folk, classical, pop. Wyndsor Victor, up to 7 in. $1\frac{7}{8}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Anywhere (English only).

G. E. GREGORY (and Sons), Foreman Steel Works, 13 Angerstein Road, Ashby, Scunthorpe, Lincolnshire. Fishing, pigeon showing, etc. Anything. Grundig TK 25, $5\frac{1}{2}$ in. $3\frac{1}{2}$, $1\frac{3}{4}$. Anywhere, England, Scotland. Reply to all letters and tapes.

TONY HAZELDINE, Happy Marriage, 5 Gentry Grove, Waiouru, New Zealand. Amateur theatre, vintage motoring, scientology, outdoor life. Classical, and modern up to 1939. Simon SP2, 3 in. up to 84 in. 34, 72. England or English speaking European.

ALAN G. BONE, Civil Servant, 33 West Road, Avondale, Salisbury, S. Rhodesia. 35 mm. photography, recording, travel, etc. All types of music. Telefunken 76 K 4 track, 5½ in. 3¼, 1¼. Anywhere—some French spoken.

PATRICK CHRISTIANSEN, Wire-less Mechanic M.o.A., Cambrai Cottage, Middle Wallop, Stockbridge, Hants. Photography, radio construction, phil-ately. Musical shows, light and classic, no rock. Collaro Studio, 7 in. $1\frac{2}{3}$, $3\frac{1}{4}$, $7\frac{1}{2}$.

Anywhere, English only spoken. Mrs. C. M. LESTER, Instructor (Couture), 12 Tennyson Street, Swindon, Wilts. French, general topics. Light classics, modern. Grundig TK 25, Fi-Cord, 3 in. 3¹/₂, 1²/₃. France, or with ony-one learning le langue francaise.

PETER GIBSON, Electrical Engineer (Public supply), Flat 12, Cavendish Heights, Jardines Lookout, Hong Kong. Photography, cars, travel. Jazz (trad.), light music, some classical. Telefunken 85KL, up to 7 in. 3¹/₄, 7¹/₂. Anywhere. A. A. CORBY, Shipping Cashier, 4

Leyswood Gardens, Newbury Park, Il-ford, Essex. Ships and shipping (Royal Mail Lines, Ltd.). Middle-brow. Philips AG 8108G, 7 in. 1²/₄, 3¹/₄, 7¹/₄. Anywhere —particularly the Argentine.

JAMES MEAKIN, age 25, Painter and Decorator, 13 Alexander Street, Tyldesley, Nr. Manchester, Lancs. Rugby League, harmonica playing, tele-vision, singing (pops). Popular and some Vision, singing (pops). Popular and some classics and any harmonicas. Philips AG 8108G, up to 7 in. $1\frac{2}{8}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere. A. FIELD, age 39, Engineering, 32 Bellevue Road, Ealing, W.15. Theatre, contest, films. Organ, band, ballroom dancing. Walter Portable, 5 in. $3\frac{1}{4}$.

U.S.A. A. G. WATKINS, Writer, 61 Central

Avenue, Bognor Regis, Sussex. Theatre, drama, railways. Classic (not too heavy), opera. Ferrograph, Philips, up to 8½ in. 7½, 3¼, 1%. S. India, New Zealand, Australia.

WARE & DISTRICT TAPE RE-CORDING CLUB, c/o 3 Chadwell, Ware, Herts. Varied interests-mainly club. All types of music. Various machines, up to 7 in. 3¹/₄, 7¹/₄. Anywhere. G. STEPHENSON, Engineer, 'Sun-dials,' Reigate Road, Hookwood, Surrey. Wish to improve my German Volk and Wish to improve my German. Volk and Wanderlieder. Stella ST 450, up to 7 in. 4.75, 9.5, 19. Germany. All tapes answered.

H. ANTHONY GORDON, Sales Representative (office and recording Representative (office and recording equipment), 12 Lily Court, 6th Avenue, Florida, Transvaal, S. Africa. World affairs, motoring with a 2.C.V. Citroen, selling. Classics, Oriental, Latin Ameri-can, Calypsoes, Gregorian Chant. No rock 'n' roll. Telefunken KL 85, up to 7 in. 3[‡], 7[‡]. France, West Indies, North Africa, Japan, Hove, Sussex. All ex members of Desert Locust Control. Would like to settle in France and Would like to settle in France and would be pleased to tapespond with someone in Paris, Marseilles, Nice and Toulon.

Toulon. A. LOMAS, Clerk for motoring or-ganisation, 2 Hamer Hill, Blackley, Manchester 9. Art, gardening, serious and general subjects, including novelty taping and script writing for tape sketches, etc. Light classics, trad. jazz— wide tastes. Grundig TK 20, up to 54 in. 34. Anywhere English speaking.

PATRICIA EGERTON, age 19, 9 Laburnum Grove, Winchmore Hill, N.21. Travel, singing, cinema. Popular and light classical. Philips, 5 in. 3[‡]. Italy, England, Australia. English speak-

ing. D. S. HANKINSON, age 16, Appren-tice Electrical Engineer, 2 Bowers Cres-cent, Tweedmouth, Berwick-on-Tweed. Swimming, camping. Pops and musicals. Amplion A 224, 3 in., 5¹/₄ in. 3¹/₄. France or Éurope.

ALAN DOBSON, age 18, Student, 42 Masefield Road, West Melton, Nr. Rotherham. Sport, books, travel. Classics, Spanish, pops. Elizabethan Princess, 7 in. $1\frac{7}{4}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere, particularly English, Spanish or French speaking and U.S.A.

A. K. ASTLEY, Civil Servant (Clerk), 108 Buxton Lane, Caterham, Surrey. Printing, radio and general, Japanese ways and customs. Gilbert & Sullivan, light music. Elizabethan Avon, 5[‡] in. 3[‡]. Japan, Australia, India and Pakistan, Switzerland.

G. J. BARTLETT, Building, 7 King-ston Road, Leytonstone, London, E.11. Football, motor travel, films, shows. Popular and not too highbrow classics. Philips, 5 in. 31, 11. Any English speaking

JOSEPH T. CARTWRIGHT, Company Accountant, 45A High Street, Broom, Alcester, Warwicks. Church his-tory (C. of E. and Roman), architecture and music. Pitman Shorthand, garden-ing, chess. Early polyphonic, instru-mental, choral, classical, romantic and modern composers, organ and orchestral, little opera. Reflectograph B, up to 84 in. 34, 74. U.K., anywhere (pref. France or abroad).

Miss PAT WALL, age 19, Shop Assis-tant Seed and Corn Merchants, Front Street, Aldborough, Boroughbridge, York. Bell ringing, pets, dancing. Varied music. Grundig TK 5, 5¹/₂ in. 3³/₄. Any English speaking.

NICHOLAS McCARTHY, Mason, 57 Morrisson's Avenue, Waterford, Eire. Table tennis, all sports. Best of popular, classical, opera, brass bands. Grundig TK 820, 7 in. $7\frac{1}{2}$, $3\frac{1}{2}$. Anywhere.

JOHN DAVIES, Fitter and Turner, 14 Balmoral Road, West Hartlepool, 14 Balmoral Road, West Harlepool,
Co. Durham. Photography, motoring.
Pops, swing, show music. Grundig TK
20, 5¹/₂ in. 3¹/₂. U.S.A., Canada.
J. H. LANGSTON, Military, 44 voie
'F', Cite Americaine, Grigny (S. & O.),
France Popular and semiclassical

France. Popular and semi-classical. Philips and Grundig, 7 in. $1\frac{2}{4}$, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere.

Anywhere. STUART TRINICK, Newsagent Bookseller, 59 Sydney Road, Manly, N.S.W., Australia. General. Light classic, musical comedy. Telefunken 76, up to 5[‡] in. 1[‡], 3[‡]. U.K., Europe. RUDY V. BURBY, Centre Lathe Turner, 6 Evelyn Terrace, Rich-mond Photography travel Country and

Turner, 6 Evelyn Terrace, Rich-mond. Photography, travel. Country and western, pops, Hawaiian. Telefunken KL 85, 7 in. 3¹/₂, 7¹/₂. U.S.A., Canada, U.K., Australia, Union of South Africa, Hawaii.

JOHN R. PARRY, Retired, Denmark Court Hotel, Exeter, Devon. Teaching, English, Spanish, French. Classics of concertos, operas, ballet, symphonies. Philips EL 3542, up to 7 in. $1\frac{1}{4}$, $3\frac{1}{2}$, $7\frac{1}{2}$. Spain (fluent Spanish), or Latin America

DAVID G. ELLIOTT, age 18, Solici-tors' Clerk, 39 Gosberton Road, Lon-don, S.W.12. Music, camping and gen-eral. Any music. Regentone RT 51, 7 in.

Howard Mitchell, age 13, $3\frac{1}{4}$, $7\frac{1}{2}$. Anywhere, HOWARD MITCHELL, age 13, Schoolboy, 3 Nevelie Street, Newton Heath, Manchester. Photography, science. Popular music, unusual records.

science. Popular music, unusual records. Grundig TK 25, 5 $\frac{1}{2}$ in. 1 $\frac{1}{5}$, 3 $\frac{3}{4}$. Any English speaking country. RALPH J. ABBOTT, Warrant Officer, Royal Army Ordnance Corps, The Regimental Depot R.A.O.C., Dettin-gen Barracks, Blackdown, Nr. Alder-shot, Hants. Travel, music, general topics. Light classic, military bands. Ferrograph, 7 in. 15, 7 $\frac{1}{4}$, 3 $\frac{3}{4}$. Anywhere in the world

Ferrograph, 7 in. 15, 7½, 3½. Anywhere in the world. 4239921 S.A.C. BRINDLE, age 20, Airframe Mechanic, 15 Earl Street, Clayton-le-Moors, Nr. Accrington, Lancs. Hi-fi and tech. drawing. Pop, jazz, film music, LP records, no classics. Philips EL 3542 4 track, 7 in. 1¼, 3½, 7½. Singapore, Japan, U.S.A., Australia. VICTOR MULLINER, Chief Cinema Projectioniet, 7 Alder Grove, Crackley

Projectionist, 7 Alder Grove, Crackley, Chesterton, Staffs. Films, dancing. All kinds of music. R.G.D., 7 in. 3¹/₂, 7¹/₂. France.

France. H. J. H. VAN OMMEREN, Repre-sentative, 4 Wenlock Close, Sedgley, Nr. Dudley, Worcs. Magic, football, motor-ing, general interests. Popular music, light opera, jazz (no rock 'n' roll). Philips 4 track, up to 7 in. 3[‡]. (Machine no obstacle to tapesponding with half-track users). Anywhere as long as Eng-lish, Dutch or German is spoken. MICHAEL SILVER, age 17, School-boy, 39 Canonbie Road, London, S.E.23. Angling, cycling, sport, books. Rock 'n'

Angling, cycling, sport, books. Rock 'n' roll, pops, classical. Ferguson 441, 5‡ in. 31. Anywhere. GEORGE W. H. WOODING, Elec-

tronic Design Engineer, 27 Honeysuckle Close, Weeds Wood, Chatham, Kent. Motoring (D.I.Y.), 8 mm. cine, physics,

Motoring (D.I.Y.), 8 mm. cine, physics, amateur band leader (jazz). Any, espec-ially Dixieland. Home made (Truvox deck), up to 7 in. 3‡, 7½. Anywhere (a little French spoken). KENNETH MICHAEL DRISCOLL, Radio T.V. Salesman, 16 Dryden Avenue, Hanwell, London, W.7. Stereo, short wave, pre-recorded 4 track tapes. Popular, light, sound effects. Tandberg Model 5, 4 track, Clarion Transitape, 3 in., 5 in., 7 in. 1¼, 3½, 7½. Norway, Hong Kong, U.S.A., Australia, Germany. W. J. TOMLINSON, Press Telegra-phist, 62 Beacontree Avenue, London, E.17. Motorist, walking, easy climbing. Light orchestral music and general in-teresting talking matter. Philips EL 3538A, Telefunken 65 TSB, up to 7 in. 74, 3½, 1¼. Founder member Waltham-stow & District T.R.S. Commonwealth contacts welcomed if possible with the contacts welcomed if possible with the

link of being ex-Londoner. Overseas Radio Communications station personnel. Remoter parts Scotland and Ireland.

R. L. A. LATHAM, A.M.I.E.E., age 35, Transformer Designer, 215 Tixall Road, Kingston Hill, Stafford. Camping, Road, Kingston Hill, Stafford. Camping, photography, (still and cine)., small cars.
Latin American, folk, jazz (not pop and rock). Truvox MK III (plus Type C Amplifier), Clarion Transitape, up to 7 in. 3¹/₄, 7¹/₂. Anywhere.
LESLIE KNIGHT (Blind), Tobacconist and Confectioner (own business), 89 London Road, Mitcham, Surrey.
Amateur radio (G5LK), bird song, soccer (amateur) Light instrumental non

cer (amateur). Light instrumental, pop. Rep, 7 in. 15, 7¹/₂, 3³/₄. Any English speak-

ing. JOHN ing. JOHN WILSON ROBERTSON, Hospital Porter, 1 Marguerite Villas, Copse Hill, Wimbledon. Tape recording, education. Modern jazz, love ballads. Simon SP4, up to 7 in. 7¹/₂, 3³/₂. America. SOHRAB MISTRY, (4244493 L.A.C. Mistry), National Service, 280 S.U., R.A.F. Akrotiri, B.F.P.O., 53. Photo-graphy motor cycling records Pop to

graphy, motor cycling, records. Pop to classical. Grundig TK 20, 5[‡] in. 3[‡]. United States and France, Italy and Spain.

N. P. GOODGE, age 131, Schoolboy, 55 Byron Court, Byron Road, Harrow, Middlesex. Tropical fish keeping, fishing, model railways. Chris Barber, pops, modern groups, piano (Conway, Atwell), especially Crazy Otto, Sellers, Hancock, Freberg, Acker Bilk. Not classical. Philips EL 3527, 5 in. 3¹/₂. England. Mr. K. R. HARVEY, Progress Chaser,

master, Third Acre, Watling Lane, Dor-chester-on-Thames, Oxon. Freelance chester-on-Thames, Oxon. Freelance writing, history, archaeology, travel, philately, classical music. Classical. Grundig TK 20, up to 5¹/₄ in. 3¹/₄. Anywhere.

PETER JAMES HIGGS, Architects', Assistant, 96 Brownhill Road, Catford, S.E.6. Travel, ancient history, sociology. Folk, classical, some jazz. Philips AG 8105, 5 in. 3¹/₂. Spain, Italy, Norway, Sweden.

ALBERT GEORGE READ, Senior Clerk, 13 Blacklands, Bridgwater, Som-erset. Photography, b. and w. and col-our (35 mm.). Light classical, all modern, except rock 'n' roll. Elizabe-than Princess, up to 7 in. 17, 34, 72. Anywhere English spoken. All tapes and letters answered.

HARRY CLARKE, Bus Driver, 26 Mountcollyer Street, Shore Road, Belfast 15, Northern Ireland. Tape, people, Places. Modern, music from the shows, dance music. Philips, 3 in., 7 in. 1²/₅, 3⁴/₄, 7¹/₂. Anywhere English spoken.
 KENNETH A. WILSON, Boilerman, 21 Elm Road, Seaforth, Liverpool 21.

Tape recording, sport, music. All kinds except jazz. Saja, 5¹/₄ in. 3¹/₄. U.K. America

RONALD BOOTH, Engineer's Assistant, 31 Briset Road, Eltham, London, S.E.9. Chess, recording, Spanish lan-guage and country. Spanish, light classical, film. Fidelity Argyll, 5¹/₂ in. 3¹/₂. U.K. or Spain. English and Spanish spoken.

PETER B. TAYLOR, Car Sprayer, No. 2 Flat, Albert House, North End, Wirksworth, Derbys. Dance bands, bad-minton, T.V. Ted Heath, Glenn Miller,

minton, T.V. Ted Heath, Glenn Miller, any big band type. Walters 303, up to 7 in. $7\frac{1}{2}$. Anywhere, only English spoken. MICHAEL LEICESTER, age 16, Stockeld Park, Wetherby, Yorkshire. Reading, watching T.V. All kinds and rock. Clarion, 3 in. $3\frac{1}{2}$. U.S.A. Any-where, only English spoken. DEREK EI STON age 16 Schoolhov.

DEREK ELSTON, age 16, Schoolboy, DEREK ELSTON, age 16, Schoolboy, Lynton, Priory Road, West Kirby, Cheshire. Sailing, tape recording, golf. Jazz, pops. Collaro MK IV Deck, 3 in., 7 in. 15, 7½, 3½. Anywhere. ROGER V. SMALL, age 17, Civil Servant, 189 Okehampton Crescent, Welling, Kent. Reading, tape recording. Modern and trad jazz modern pops and

Modern and trad. jazz, modern pops and folk songs. Grundig TK 25, 5 $\frac{1}{2}$ in. 1 $\frac{1}{3}$, $\frac{3}{4}$. U.S.A., Australia, Britain or any

English speaking. NORMAN PAUL, 41 Woodland Rise, Muswell Hill, N.10. Theatre, proressional and amateur. All types of fessional and amateur. All types of music. Ferrograph, Elon, Fi-Cord, up to 8½ in. 3½, 7½. Anywhere English is spoken. No need to write first. LAWRENCE GREEN, Salesman, 250 South Street, Romford, Essex. Art, opera, films, theatre, T.V., travel. Classical and modern though not the

opera, films, theatre, T.V., travel. Classical and modern though not the extremes. Philips, 3 in., 5 in. 3¹/₂. Any-where. Would like to tapespond with other bachelors up to 40 years old with sense of humour.

ALBERT THOMAS BAKER, Clerk, 28 Tweedmouth Road, Plaistow, Lon-don, E.13. General photography. Popular to opera. Elizabethan Escort, up to 7 in. 7¹/₂, 3¹/₄, 1²/₈. Mexico, U.S.A., Commonwealth, Europe. Have a slight knowledge of Esperanto and Spanish. Physi-

cally handicapped members welcomed. LEWIS TREVOR MURPHY, Jig and Toolmaker, 216 Carlisle Street, Splott, Cardiff, South Wales. Just about every-thing. Concerto to rock 'n' roll. Philips

thing. Concerto to rock 'n' roll. Philips AG 8109, 5 in. 3¹/₂. Anywhere. WILLIAM SIMPSON, Lorry Driver, 40 George Street, Aberdeen. Variety, photographs. Scottish and Comedian. Grundig TK 20, 5¹/₂ in. 3¹/₂. BARRIE HILTON, age 16, Projec-tionist, 54 Barclay Road, Leytonstone, London, E.11. Banjo, guitar, art. Any-thing, pop, jazz, classical. Ferrograph max. 8¹/₄ in. 7¹/₄, 3¹/₄. Any English speak-ing.

ing. WILLIAM T. ALLEN, Technical Clerk, 869 Great West Road, Isleworth, Numica records, reading, Middlesex. Music, records, reading, drawing, taping. Classical and popular (all types). Philips AG 8108, 7 in. 1²/₃, 3²/₄, 7⁴/₂. U.S.A., Canada, South America. K. W. J. GINGELL, Builder (Mason),

9 Norfolk Crescent, Bath, Somerset. Gardening, scootering, sport, travel. Ella, Frank, Sarah, etc. Jazz (modern and trad.). Spectone 161, 7 in. down. 15, 71, 31. Any English speaking outside Britain.

C. SPENCER, Schoolmaster, 64 Doveridge Road, Birmingham 28. Reading, travel, people and places. Serious music and opera. Philips EL 3538, up to 7 in. 14, 34, 74. U.K., Scandinavia, Bulgaria, Holland, France, males between 30 and 50 English and French speaking.

JAMES FISHEL, Shipping Clerk, 137 5th Street N.W., New Philadelphia, Ohio. Fish, electronics, amateur radio, tropical. All kinds. Traveler, up to 1,200

ft. 34, 74. Any part. ELIN STEVEN, Student Nurse, 6 Upper Church Street, Bath, Somerset. All types of sport, people. Pops or folk. Murphy Type TR, 3[‡] in. 3[‡]. Preferably abroad

KENNETH SMITH, Lathe Operator, 67 Thomacre Road, Wrose, Shipley, Yorks. Tape records (mormon fire sides). All types. Regentone, 3 in. to 7 in. 17

3¹/₄, 7¹/₂. Anywhere. RAYMOND YOUNG, Industrial Chemist, 6 George Street, Dunstable, Bedfordshire. Archaeology, numismatics (English copper and bronze only), offbeat humour (Goons, etc.), ghost hunt-ing, young Liberals activities, trying to make income exceed expenditure. American folk song, trad. jazz, beat music. Wyndsor Viscount, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$, 15. Any English speaking, American preferred. Tapespondence with income tax inspectors not invited.

W. MEYER, Aircraft Inspector, 'Larkfield,' Drove Road, Chilbolton, Nr. Stockbridge, Hants. Recording, photography (35 mm.). Anything except rock and jazz. Minivox 'C', 3 in. 17, 32. Anywhere.

J. F. WARNES, Signalman (British Railways), 5 Coronation Avenue, Hinderwell, Saltburn, Yorks. Tape recording, 35 mm. photography (colour), aircraft. Most types of music. Grundig TK5 and Cub, 3 in. to 51 in. 31. Anywhere English speaking. MAX H. NICHOLLS, Draughtsman,

P.O. Box 40 Pietermaritzburg, Natal, South Africa. Hiking, tapesponding, general topics. Semi-classic, popular, 'off the beaten track,' documentary, historical. Telefunken and Truvox, up to 5 in. (7 in. if necessary). $3\frac{1}{2}$, $7\frac{1}{2}$. All parts of the world. All countries which want to promote peace and goodwill.

GEORGE F. Q. BROOKS, Police Constable (Diver), Police Station, Brad-V.F.O's, ham radio. Anything but rock. Elizabethan 56, 7 in. 14, 34, 74. Any-where. Senior diver/instructor of Berks. Constabulary. Frogmen team.

Constabulary, Frogmen team. S. G. HUNT, Electrical and Record-ing Engineer, 1 Broomstick Hall Road, Waltham Abbey, Essex. Cine 8 mm. live recording sound effects. Folk music, anything but no pops. Vortexion/EMIL 2, 3 in. to 84 in. 74, 34. Switzerland and Austerlin Australia.

MAURICE A. STERRY, Shop Man-ager, 'Sherwood,' 25 Poxon Road, Wal-sall Wood, Staffordshire. Records, read-ing, do it yourself. Popular and some light classical. Simon Minstrelle with Garrard Mag. Deck, 4 in. 3[‡]. U.S.A., Egypt.

ALAN PEARSON, Bus Conductor, 136 Finsley Gate, Burnley, Lancs. Read-ing, travel, cine photography. Varied. Regentone 3 in. to 7 in. 1²/₄, 3¹/₂, 7¹/₂. Anywhere.

L.-Col. JACK ARTHUR, Secretary Scottish Red Cross, Red Cross House, 204 Bath Street, Glasgow C.2. Making Red Cross training talks W. Keyed, photo. transparencies, helping meet long term invalids. Philips. 7¹/₂, 3¹/₂, 1²/₃. Scotland.

STANLEY H. BEST, Engineer Retd., 2 Old Swan Cottages, Church Street, Shoreham-by-Sea, Sussex. Music, science, motoring, photography. Mostly classical, light popular. Grundig TK 60-819, 7 in., 4 in. $7\frac{1}{2}$, $3\frac{1}{4}$, $1\frac{2}{5}$. Anywhere, only English spoken.

ALAN DAVID WEATHERLEY, G.P.O. Engineer, 3 Clarence Crescent, ALAN Sidcup, Kent. Motor cycling, recorder. Popular, classical, orchestral, except extremes. Sound 777, up to 7 in. 3¹/₂, 7¹/₂,

15. Any English speaking. CYRIL TOM EAGLE, Light Engin-eer, 13 Woollard Street, Waltham Abbey, Essex. Colour photography. Any type except modern. Grundig TK 30, 7 in.

71, 31. U.S.A. WILLIAM R. WEBB, G.P.O. Engin-eer, 121 Scotland Green Road, Enfield, Middlesex. Tape recording, hi-fi, ballet.

Middlesex. Tape recording, hi-fi, ballet. Light classics, some pops, Sinatra to Sellers. Veritone 'V', up to 7 in. 3¹/₂, 7¹/₂. Anywhere English only spoken. DAVID LARKIN, age 14, Schoolboy, 36 Mount Ash Road, Sydenham, Lon-don, S.E.26. Cycling, swimming, fishing. Anything, but mainly rock 'n' roll. Elizabethan Princess, 7 in. 1²/₃, 3¹/₄, 7¹/₂. U.K., Germany, anywhere English is spoken. spoken.

PHILIP ADRIAN STRUTT, age 16, Student, Rifleman Inn, Low Street, Sutton in Ashfield, Notts. Farming, radio and Television servicing, hunting, fadio ing, films, camping, reading and collec-ting anything of interest. Rock 'n' roll, piano playing, jazz. Grundig TK 25, 5‡ in. 3‡, 1‡. America, Australia, Africa, males and females any age, only English spoken.

F. H. BROWN, Bus Driver, 2 F. H. BROWN, Bus Driver, 2 Crouchers Cotts., Lower Hayesden, Ton-bridge, Kent. Motor cycling, general family chat. Popular (big bands), Ray Coniff, etc. Anything that is good music. Sound 444, all sizes to 7 in. 3¹/₄, 7¹/₄, 15. U.K., anywhere English is spoken. Mrs M OI UVER Telegraphist 64

Mrs. M. OLIVER, Telegraphist, 64 Siward Road, Bromley, Kent. Televi-Sion, films, gardening, golf, reading. Light and popular. Philips AG 8107/10, 5 in. 3[‡]. Canada, France.

WILLIAM EMMETT, Motor Engineer (Garage Manager), 43 Windsor Lane, Knaresborough. Swimming, motor-Ing. Any (Bing Crosby in particular). Grundig TK 60 (Stereo), up to 7 in. 31, 71. Africa. DENNIS BRYER, Radio and Televi-

sion Engineer, 2 Park Side, Follifoot, Harrogate. Swimming, motoring, elec-tronics, printing. Any, mainly pop. Home built (Motek KG Deck), up to 7 in. $1\frac{2}{3}$, $3\frac{1}{3}$, $7\frac{1}{3}$. Anywhere.

ROBERT ELLIS. Schoolmaster. Schoolhouse, Whitsome, By Duns, Berwickshire. Reading, photography. Folk music of Britain and America. Simon SP 4 and Ferrograph 3A/N, 7in. 3¹/₂, 7¹/₂. Anywhere,

E. G. FRANCES-WOODRUFF, Capt., Newsagent, 'Chancton,' Chanctonbury Road, Hove 3. Yachting, photography, badminton, bridge. The Arts Opera Ballet, music, etc. Grundig TK 9. 3[‡].

DAVID JACKSON, age 18, Wages Clerk, 43 Windsor Lane, Knaresborough. Swimming, motor cycling, drinking Coca Cola. Pop (Buddy Holly fan). Grundig

TK 20, up to 54 in. 34. Anywhere. DERRICK ARMSTRONG, Cinema Projectionist, 10 Caliwall Road, Starbeck, Harrogate. Swimming, motor cycl-ing. Pop. Philips, up to 5 in. 3¹/₄. Anywhere.

STANLEY J. BURDETT, age 17. Secretarial Assistant, 165 Walford Road, Sparkhill, Birmingham 11. Tennis, piano, music, tape, table tennis. Film themes, organ music, Ray Conniff, not opera, not too classical. Philips AG 8108 G, 3 in. to 7 in. 1²/₄, 3¹/₄, 7¹/₂. Sweden (if possible Fagersta). English only spoken.

Mr. KENNETH TURLEY, age 17, Apprentice Electrician, 89 Rokeby Ter-Apprentice Electrician, 89 Rokeby Ter-race, Heaton, Newcastle-on-Tyne 6, Northumberland. Photography, record-ing, chess, cricket. Anything but opera. Walter 303, 5 in. 3[‡]. Anywhere. Mrs. SHEILA WAKELY, Housewife (2 small children), 3 Chadwell, Ware, Herts. Stamp collecting, family life. Popular classics, not rock 'n' roll. Sym-phony up to 7 in 3[‡]. 7[‡]. Any English

phony up to 7 in. 34, 74. Any English speaking contacts anywhere. JOHN PACKER, Self Employed, 2 Marlowe Drive, Didsbury, Manchester

20. Theatre, music, International rela-tions. Opera, ballet, to musical shows. Grundig TK 30, up to 7 in. $3\frac{1}{4}$, $7\frac{1}{2}$.

Anywhere—preferably male. ANTHONY LAWS, Surveyor, 218 Mountnessing Road, Billericay, Essex. Photography (black and white and col-our), travel. Light classical, pop, etc. Philips EL 3515, up to 7 in. 3³/₂. Anyone anywhere who can speak English.

Anywhere who can speak English. JOHN EDWARD PERIAM, age 17, Journalist (junior), 'Treetops,' Boxley Road, Penenden Heath, Maidstone, Kent. Tape recording, hi-fi, cycling. Trad. jazz, classical (not opera), light music. Philips AG 8108, 7 in. 17, 32, 72. America, Australia, Britain, any other English speaking country

Miss PATRICIA EDGE, Teacher (Catering), 26 Lutterworth Road, Nun-eaton, Warwickshire. People, music, cookery, tape recording, driving. Any except rowdy rock pops. Philips, 5 in. 31. Anywhere.

W. A. FROUD, Diesel Fitter, 34 Woburn Avenue, Theydon Bois, Essex. Tape recording, motor cycle racing. All types. Grundig TK 20, 51 in. 31.

Mr. LEONARD GODRIDGE, Loco. Driver N.C.B., 161 Summer Lane, Wombwell, Nr. Barnsley, Yorkshire. Do it yourself. Anything but not highbrow.

Grundig TK 5, 5[‡] in. 3[‡]. Iceland, New Zealand, English only. FRED J. BOWERS, Ironmongers Assistant, 3 Framfield Court, Whitehawk Road, Brighton 7, Sussex. People, bowls, woodturning. Most, except extremes, Tebaldi, Satchmo, Sarah Vaughan. Simon, up to 7 in. 3½, 7½. Anywhere in English.

English. GRENVILLE SMITH, Photo-Litho Colour Retoucher, 49 New Queen Street, Kingswood, Bristol. Cinema, records, tape recording, travel, photography and Sellers and Freberg type of humour. All music with preference for light orchestral (Robert Farnon, Percy Faith, Nelson Riddle, etc.), some pops. Ella, Sinatra, Torme, etc., modern jazz and some trad. Grundig TK 35, up to 7 in. $1\frac{2}{3}$, $3\frac{3}{4}$, $7\frac{1}{2}$. Preferably contacts with sense of humour in the 25 to 35 age group.

Mr. A. A. BURWOOD, Postman, 59 Lloyd Street, Everton, Liverpool 6. Swimming. Light classics, popular (not pops). Grundig TK 25, 5[‡] in. 3[‡], 1[‡].

U.K. or abroad. COLIN C. WHITE, 90 Canonsleigh Road, Barking, Essex. Modelling, telephony. Pops and classics, etc. Argyll Fidelity, 54 in. 34. Anywhere but Eng-

glish speaking. J. F. BEDDOW, Electrical Engineer, 26 Hilton Street Wolverbautter,

J. F. BEDDOW, Electrical Engineer, 26 Hilton Street, Wolverhampton. Photography. Classical to modern, not rock or jazz. Philips EL 3452A, 7 in. 74, 34, 14. Anywhere. EDWARD C. THACKERAY, age 20, H.M. Forces, No. I.S.D. R.A.F. Gatow, Berlin, B.F.P.O. 45. Aviation, sport, dancing. Anything especially opera. Grundig TK 5, 54 in. 34. Any-where where

PHILIP P. TOWELL, Timber Sales Representative, 107 Spilsby Road, Bos-ton, Lincolnshire. Hi-fi Stereo, music,

ton, Lincolnshire. Hi-fi Stereo, music, motoring, Mainly classical (all periods). Philips EL 3536 and Fi-Cord, 7 in. 1²/₈, 3³/₄, 7⁴/₄. Anywhere especially U.S.A. FREDERICK JOHN GUBBINS, In-strument Maker, 82 Devonshire Way, Shirley, Croydon, Surrey. Family tapes, wife Violet, 3 teenage daughters, 1 son, 8 years. Pops and old time. 85 KL Tele-funken, 7 in. 3³/₄, 7⁴. America, Canada. funken, 7 in. 3¹/₄, 7¹/₂. America, Canada, or any English speaking, no need to write first.

Write Inst. M. A. SARWARI, Student, 42 May-bury Gardens, London, N.W.10. Radio and Television service and allied. Grundig TK 24. Anywhere. CHANGE OF ADDRESS

Edward Smith informs us of a change of address since his entry in the June Directory. Tapespondents should now write to him at 'Park View,' Dalsholm Road, Maryhill, Glasgow, N.W. LOST TAPESPONDENTS

Request from F. H. Thomas of 109 Raffles Road, Birkenhead (entry in June). Will gentleman in Lancashire

who sent postcard please write again. Don J. Wolanin, 595 Wentworth Avenue, Calumet City, Illinois, U.S.A., sends out an S.O.S. to Douglas Hill, Bethesda, Caernarvonshire, Great Britain for his full address.

Grampian | DP4 brings out the best in recorder any

> Even the most expensive recorder will only give its best performance if a good quality, reliable micro-phone is used. In the DP4, with a uniform wide frequency response from 50 c/s to 15,000 c/s, Grampian have developed an outstanding, moder-

ately priced instrument which will please the most exacting recordist. The DP4 is equally suitable for Public

Address, Broadcasting, Call Systems, etc. **Output Levels**.—DP4/L low impedance—25 ohms 86 dB below 1 volt/dyne/2CM. DP4/M medium impedance—600 ohms 70 dB below 1 volt/dyne/2CM. DP4/H high imped-ance—50,000 ohms 52 dB below 1 volt/dyne/2CM.

Retail Price .- DP4/L complete with connector and 18 ft. screened lead £7.11.0 (Medium or High Impedance models £1.0.0 extra) A complete range of stands, swivel holders, etc., is avail-able also. A matching Unit (Type G7) can be supplied for adapting the microphone for a Recorder having a different input impedance, or when a long lead is required. Retail Price £3.5.0

Write or telephone for illustrated literature.

GRAMPIAN REPRODUCERS LIMITED HANWORTH TRADING ESTATE, FELTHAM, MIDDLESEX

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STARTLING **STEREO** REALISM

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HEAR RECORDS, RADIO, TAPE USING YOUR OWN ORDINARY RECORD PLAYER (and existing records), RADIO, R'GRAM, MONO HI-FI EQUIPMENT, ETC., any make, any year, with a new enthral-ling stereo dimension and exciting realism. The Sterophoner will amaze and delight. Easy to connect. Manu-factured in Great Britain under licence from the inventor, DR. HERMANN SCHERCHEN, internationally-known Swiss orchestral conductor.





Thousands of music lovers have found the Sterophoner the perfect low-cost solution to stereo ambitions and has various actual advan-

stereo ambitions and has various actual advan-tages over ordinary stereo. The Sterophoner opens the door to a new world of listening pleasure, cost only £4.19.6 plus 2/6 p. and p. C.O.D. (U.K. only 2/- extra, OR SENT IMMEDIATELY FOR ONLY 20/-plus 5 monthly instalments of 19/-. Satisfaction or money-back guarantee. Fully descriptive Folder and Test Reports Free on request.

NORTHERN RADIO SERVICES (A.T.R.) LTD. 11 King's College Road, London, N.W.3



NEW SEASON'S GREAT **TAPE BARGAIN!** 7in. 1,800 ft. Polyester base. Brand New. Generally priced at 50/-

32/6 P. & P. 1/6 Send S.A.E. for our Bargain Tape list, all sizes from 3in. to 8‡in.

DEMONSTRATION MODELS ! GRUNDIG TK 35 69 gns. , TK 30 with mike 68 gns. , TK 25 with mike 52 gns. , TK 20 with mike 39 gns. , TK 5 with mike 35 gns.

We specialise in the Repair of Recorders, Mikes, F.M. Tuners, Hi-Fi Equipment, etc.

30 other Recorders including Fi-Cord, Stuzzi, Philips, Hart-ing, Ferrograph, etc., at Bar-gain prices. S.A.E. for list.

4 TRACK PHILIPS 3 speeds, 7in. spools, moving coll mike, Wonderful value 59 gns. or £6 deposit and 38 weekly payments of £1.8.6.

4 TRACK PHILIPS 31in. per sec., takes 7in. spools, including high sensitivity crystal mike. 34 gns. or £3.14.0 deposit and 38 weekly payments of 16/11.

4 TRACK STEREO/MONO KORTING 33in. per sec., 7in. spools. 68 gns. or £7.8.0 deposit and 38 weekly payments of £1.13.9. We supply ALL makes. 12 to 24 months H.P. with 20% deposit

E. C. KINGSLEY & CO.,

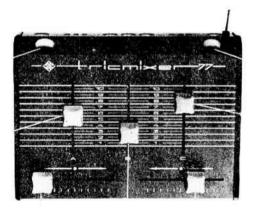
132. Tottenham Court Road, London, W.I. (Corner of Warren St.) Telephone : EUSton 6500



'COME TO CHARLIE'

(above) Charlie Chester is caught in the act of recording messages for the troops in Cyprus. He is using the new Robuk 3-speed tape recorder which comes on to the market for the first time this month (October). It is manufactured completely by Robuk Electrical Industries Ltd. and retails at 36 guineas.

SHOP WINDOW



TELEFUNKEN 'TRICMIXER' 77

This is a new dual track mixing unit for stereo microphones, monaural or stereo pick-ups, to be used in conjunction with the new Telefunken 77K 4 track stereo recorder, the portable version of which should become available in this country by the end of October. The price of the 77K portable will be 85 guineas. No price has yet been fixed for the Tricmixer.

IRISH TAPE

B

A NEW COMPANY -- Wilmex (Distributors) Ltd., has been formed and from the beginning of October will act as the marketing unit to the retail trade for all IRISH Brand products. In addition to these, this company will also distri-bute both 'BI-TAPES' and 'MUSIC-ON-TAPE' prebute both recordings.

The latest release from the IRISH factory in America is the 196 Long Play Tape.

The company explains its introduction as follows: "The ever increasing demand for popular priced tape recorders presents, to some degree, its own problem. In respect of recording tape it is felt that the purchaser of say a 30 guinea machine may not wish to invest 35/- on a 5‡in. reel of Long Play tape, but on the standard product. In the higher price-range-recorder-market our enquiries show that there are enthusiasts who for certain work may not wish to use a

P.V.C. or polyester base. "With these objects in view the IRISH 196 Long Play Tape has been introduced. The technological advancements of ORR Industries have made it possible to manufacture a 1 mil acetate tape without the disadvantages both electro-mechanical and physical which were once generally considered to be associated with this base material."

NEW TYPE MOTORS FOR BRENELL RECORDERS

WE HEAR from Brenell that they have introduced a high quality capstan motor as a standard feature of all their tape recorders. This is an HYSTERESIS SYNCHRONOUS MOTOR, a type widely regarded as the most efficient that can be employed. It has a balanced outer rotor, and is used with a heavy statically and dynamically balanced flywheel.

This double flywheel operation results in improved wow and flutter performances at all speeds. The wow and flutter figures are :

lelow	.05%	at	15	i.p.s.	Below	.1%	at	7±	i.p.s.
elow	.15%	at	31	i.p.s.	Below Below	.25%	at	17	i.p.s.

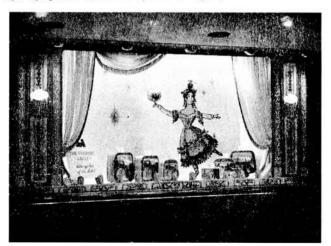
Below .15% at 31 i.p.s. Increased demands for Brenell equipment have enabled the improved motor to be incorporated without any increase in prices.

THREE STAR (Standard 1 Track)	58	gns.
THREE STAR (1 Track Model)	58	gns.
Mk. 5 (Half Track)		gns.
Mk. 5 Deck (Half Track)		gns.
THREE STAR R/P STEREO (Standard + Track)		
THREE STAR R/P STEREO (1 Track Model)		gns.
Mk. 5 R/P STEREO (Half Track)		12.0
Sole manufacturers :	201	
		and the second second

Brenell Engineering Co. Ltd., 1a Doughty Street, London, W.C.1. Chancery 5809 and Holborn 7358.

GRUNDIG'S SHOP WINDOW

The theme of Grundig's latest window display at their New Oxford Street showrooms seems to be 'Palace of Variety', which we feel is an apt title to cover the extensive range of tape equipment marketed by this Company.





SIMON 'CYMBAL'

(left) The latest model in Simon Equipment's range of tape re-corders is the Simon CYMBAL. Priced at 24 gns., the CYM-BAL offers Simon quality, fast efficient magazine loading and real eye appeal. It is simple to coverage of 70 to 9,000 c.p.s. It has the Garrard magazine loading deck and a Sin. x Sin. loudspeaker in a special acous-tic cabinet. Size 13in. x 6½in. x 9½in. Weight 22lbs.



BALMORAL TH9

(below) This is a medium priced recorder with three speeds, $7\frac{1}{4}$, $3\frac{1}{4}$ and $1\frac{1}{4}$ i.p.s., $4\frac{1}{2}$ watts output and a 7in. x 4in. high flux speaker. Controls consist of main volume, monitoring and tone control, and superimposition. It is fitted with an auto-matic mechanical switch interlock and accidental erasure catch. The quoted frequency response is 50-10,000 c.p.s. at $3\frac{1}{4}$ i.p.s. Tapedeck is the Motek K.10.

Price 39 guineas, complete with microphone and tape.



NEW 'SCOTCH' BRAND DISPLAY

Illustrated is the eye-catching six colour 'Scotch' Brand Magnetic Tape Display which should soon be brightening retailers' shop windows.



'SOUND STUDIO DE LUXE' FOUR TRACK TAPE RECORDER

This four track version of the popular 'Studio' has the following additional features :

the following additional features:— Four tracks giving up to 18 hours playing time. Amplifier frequency response 20c/s to 20kc/s at 7½in. per second \pm 7dB. Record playback frequency response 60c/s to 15kc/s at 7½in. per second \pm 6dB. Dimensions 18in. x 14½in. x 7½in. Price: 45 and complete with exactly being the second being

Price: 45 gns. complete with crystal microphone, spool of tape, spare spool, special radio/gram recording lead, etc.

Uses Mullard Valves types EM84, EF86 (2), ECL82 and EL84, with metal rectifier.



LUSTRAPHONE 'STEREOLUS'

(above) The Lustraphone Model VR/65NS 'Stereolus' microphone is a simplified version of the well-known Model VR/65 'Stereomic' Ribbon Velocity microphone. The 'Stereolus' differs only in such details as omitting the phase switching and other mechanical features incoments. switching and other mechanical features incorporated in the 'Stereomic", but the full performance characteristics of the more expensive model have been fully maintained. The fre-quency response is substantially flat between 50 and 13,000 c.p.s. Both models can be used for either Stereo or Monaural Recording.

Model VR/65 'Stereomic' for the professional and near professional stereophonic recordist. Price 30 guineas. Model VR/65NS 'Stereolus' (illustrated) for the wider

group of amateur stereo recording enthusiasts. Price 15 gns.

Who reads Ferrograph Advertising



Some have bought their Tape Recorders because they liked the look of them. Others because their price was attractively low. Still more because they didn't know much about Tape Recorders anyway and sought the advice of their friends. All these are good and valid reasons and, we hasten to add, most will probably be quite satisfied with their purchases. But the purchase of a Ferrograph falls into rather a different category. Being almost always in short supply-inevitable with a high precision instrument requiring so much individual supervision during manufacture-only a relatively small number of Dealers can be permitted to distribute it. Our advertising, therefore, seeks to overcome this handicap by appealing to those thoughtful and discerning people who are more influenced by reputation and performance than by any other consideration. That is why there are no sensational claims or grandiose statements in Ferrograph advertising. It is sober, restrained and free from exaggeration. We believe that the purchase of a Ferrograph is a serious business-that almost invariably it is bought by those who, like the B.B.C. and other broadcasting organisations and leading personalities in the world of music and drama, are capable of assessing its great qualities at their true worth.

Stereo 808 Two speeds 34/7[±]/7[±] i.p.s. For use with external Hi Fi amplifiers and Loud Speakers. The allpurpose machine for Monaural and Stereo Recording/Playback. 105 Gns. Series 4A 4A/N Two speeds 3½/7½ i.p.s. Monaural Recording/Playback. 81 Gns.

Three Independent Motors · Synchronous Capstan Motor · Recording Level Meter · Brief Stop · Interchangeable Plug-in-Heads Switched Speed Change with Compensated Correction Network · Separate Tone Controls · High Fidelity $2\frac{1}{2}$ Watts Output Stage Uses $8\frac{1}{2}$ "Tape Spools · Gear-Driven Turns Counter · Automatic Switch Cuts Motors at End of Spool · Endless Loop Cassette (Optional Extra)

The Incomparable Lerrograph

BRITISH FERROGRAPH RECORDER CO. LTD. (A subsidiary of the Ferrograph Company Ltd.) 131 SLOANE STREET, LONDON, S.W.1 • Tel: SLOane 1510, 2214 and 2215

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Visit the Showrooms & Gramophone Record Library at AUDIO REPRODUCTION CENTRE 134 UXBRIDGE ROAD, SHEPHERDS BUSH, W.12 SHE 2234	UNIQUE RADIO SERVICE The Facade, High Rd., Goodmayes, Esse Telephone : Seven Kings 8277	SERVICE IF YOU WOULD LIKE PARTICU- LARS OF ANY OF THE FOLLOWING ITEMS, PLACE A CROSS IN THE BOX PROVIDED AND RETURN THIS COUPON TO A.T.R., 145, FLEET STREET, LONDON. E.C.4.
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	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 (mains) Tape Recorders (battery) Microphones
H. C. ENGERT CO. LTD. 8-9 GRAND BUILDINGS TRAFALGAR SQUARE, W.C.2 Telephone—TRAFALGAR 2581 Bath Co-Operative Society Ltd. TELEVISION CORNER,	R.E.W. EARLSFIELD LTD. 545 GARRATT LANE S.W.18. WIM 0709 R. B. TAPES CO. LTD. 179 Stoke Newington High Street, N.16 Telephone : CLIssold 9477	Pre-recorded Tapes
SOUTHGATE STREET, BATH. 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 Office : CHIswick 5487 (Next to Mortlake Station S.R.)	Also at 89/91 Great Ancoat Street, Mancheste 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	Accessories
and Magic E extra spool. Inputs. Ext. 6in. x 4in. S guarantee. 12	 BO, ECC83, ECL82 Eye, 850ft. Tape and Mike and Radio L.S. and monitor, Speaker. Money back 2 months' guarantee Free leaflet from : To Sho Advice Details—With 8 Station Parade Sheen Lane 	
Geoffrey V. Smith	PEX TAPE RECORDERS ide that we announce we have for demonstration of Tape Recorders manufactured by to RPORATION. You are cordially invited r these fine instruments at our new Londwhere we display a representative range quality Tape Recorders available to the sen and the serious home recordist. 4-track there or Mono? Our technical and practice s at your disposal. IT PAYS TO DEAL WIT A SPECIALIST.	he to RECORDING CO. TAPE RECORDER TAPE RECORDER



by F. C. JUDD, A.Inst.E

A.T.R. Technical Editor

IF YOU DO not already possess a recorder or are contemplating buying one, it is essential to first consider, very carefully, the extent of your recording activity. Are you taking up recording seriously or are you interested only in casual recordings of voices; 'sound snapshots' in fact, of the family and friends? Is your sole interest collecting recordings of classical music or jazz, or the sounds of important events? Perhaps you are keen on live music recording or the composition and production of electronic music and musique concrête. If you are technically minded, purely reproductive quality of stereophonic sound may have captured your interest.

Choosing a recorder is almost as difficult as choosing a camera, one can buy a simple snapshot camera for very little, or pay dearly for a professional instrument whose potentialities might never be realised, chiefly because of insufficient experience in handling this type of instrument. On the other hand one may regret buying a cheap recorder when its limitations become as obvious as those of a snapshot camera. It is essential therefore, to first consider the kind of recordings you want to make and then choose a recorder and auxiliary equipment to fit these requirements.

CLASSIFICATION

Tape recorders are generally classified according to the type and quality of

recording they are intended to produce and may be placed in one of the following categories :--

1.—The professional recorder, intended for the highest possible quality of recording and reproduction and for Studio use. They are precision instruments, costing up to £1,500.

2.—The semi-professional instrument intended for high fidelity recording and reproduction by the experienced enthusiast and for portable operation by professional concerns. This type of recorder may cost £100 or more.

3.—The high quality domestic recorder intended for more general use and capable of excellent recording and reproduction with suitable microphones. Price range is about £50 to £100 with performance and facilities varying accordingly.

4.—The low priced domestic recorder which has a bare minimum of facilities and a reproduction performance that rarely exceeds that of the average radio receiver. Price range £25 to £35.

5.—This category must include all the miniature portable recorders some of which are capable of high fidelity reproduction but in the main are intended for sound collecting and business purposes. Prices of, these recorders range from about £30 to £150.

6.—One other type of recorder must be mentioned to make the list complete. This is the office dictating machine,



which operates in the same way as a conventional recorder but has special facilities for controlled playback when used by a typist. (Suitable only for speech dictation.)

Most recorders have provision for two or more speeds. Earlier recorders were designed for operating speeds of 15 and $7\frac{1}{2}$ inches per second as the recording heads then available had wide 'gaps' and consequently a poor res-ponse at the higher audible frequencies. With suitable amplifiers, the modern fine gap head will reproduce up to 15,000 At speeds lower than this the loss of c.p.s. at a tape speed as low as 3¹/₄ i.p.s. high frequency response occurs again, although quite acceptable performance may be obtained at speeds of $1\frac{7}{5}$ i.p.s. and even 15/16 i.p.s. The reader may wonder at the rather odd figures used for the various speeds. The very first magnetic recorders used a speed of 60 i.p.s. This was necessary to maintain a reasonable response at the higher frequencies, but as the design of recording heads became improved, i.e., smaller gaps, it was found that speeds could be halved whilst still maintaining the response at the higher frequencies. With still smaller gaps the speed became halved again, this time to 15 i.p.s., which is still used for professional re-cording. Continued development in the design of tape heads has made it possible to reduce tape speed to as low as 15/16 i.p.s.

The average modern recorder is provided with three speeds $-7\frac{1}{2}$, $3\frac{1}{4}$ and $1\frac{2}{8}$ i.p.s., so that the user has a choice of the following kinds of performance.

(a) At $7\frac{1}{2}$ i.p.s. the quality of reproduction will be at its best, with a frequency response to about 12,000 c.p.s., but the programme time will be limited to about 1 hour per 7 inch reel of standard tape.

standard tape. (b) At 3¹/₄ i.p.s. quality of reproduction will be favourable even for music, but the response at higher frequencies will be limited. The fall off is at about 10,000 c.p.s. for a good quality recorder. Programme time is, however, double.

Programme time is, however, double. (c) At $1\frac{2}{8}$ i.p.s. reproduction is excellent for speech but barely acceptable for music. Speed variations are likely to be more pronounced at this speed. Programme time is quadrupled. (NOTE) The four track recorder is now becoming popular. These recorders are capable of over 16 hours continuous recording at slow speeds using double play tape.

Let us now consider in greater detail the facilities of these recorders. First the cheapest recorders which are simple

A classic domestic type recorder. The Telefunken Model 85.



An entirely new popularly priced portable recorder by Ferranti Ltd. Model RT.1044.

to operate but have a restricted performance. They will generally accommodate only small spools of tape, usually not larger than 54 inches in diameter so that programme time is reduced when compared with a machine that accommodates say a 7 inch spool.

Input signal sockets are usually provided for one microphone and possibly a gramophone pick-up or radio connection and some recorders are fitted with an external loudspeaker socket. The quality of reproduction provided by the internal amplifier and loudspeaker must, because of cheapness, be limited. Some of the cheapest recorders have a frequency response which falls off rather rapidly at the high and low frequencies, a hum and noise level that could be aggravating to keen ears and a distortion content that would be quite noticeable to a critical listener. Some have a poor mechanical performance also and speed variation (wow) is likely to be very marked, particularly on music.

Most of the cheaper recorders are supplied with a simple inexpensive microphone which is suitable only for reasonable reproduction of speech and barely acceptable reproduction of music. They are useful for parties and for entertaining friends. Some of the smaller, self contained portables are also popular with the younger set for collecting 'sound autographs' (live recordings of well known personalities) which are taking the place of the hitherto popular written' autographs. Most of these recorders have only one speed, but there are some available with two or even three speeds. In some instances the reproduction can be improved by the use of an external amplifier and loudspeaker but few cheap recorders have provision for this.

Don't be persuaded into buying a cheap recorder simply because it looks pretty or because of its low price. If you intend taking recording fairly seriously, only a more expensive quality instrument should be considered. There are of course models which are conveniently priced, slightly higher than the cheapest, but a little lower than the quality recorders. These should be viewed cautiously, especially if they are announced as 'high fidelity' machines. In many cases they have only an extra facility such as a magic eye recording level indicator or some other gadget that has been added for the additional cost. The electrical and mechanical performance may be no better than a cheap machine.

DOMESTIC CLASS RECORDERS

The better class of domestic recorders vary a little in price but usually cost no more than £40 to £50 for a reasonably good one. Choice should be careful and deliberate. Most of these recorders, particularly the continental models are styled to comply with modern tastes in furniture and decor. This is the last thing that should be considered when choosing a machine that will be used for recording and not as an ornament. Most machines of this class have a number of useful facilities and are in the main, capable of good quality reproduction. With an external amplifier and loudspeaker, high fidelity in the accepted sense is possible.

Most of the higher priced domestic recorders are fitted with a well designed tape transport mechanism, a good amplifier and a loudspeaker as large as the cabinet will permit. Three speeds are the rule, rather than the exception and large spools can generally be accommodated. Many of the latest recorders have provision for mixing a microphone and a pick-up or radio channel, which does save an extra outlay for a separate mixer unit. The controls on these machines are usually more complex than the cheaper recorders but once one is familiar with them they are in no way difficult to operate. Provision is made in most cases for carrying extra spools of tape.

The microphones supplied with these machines vary considerably although many manufacturers make the mistake of supplying a cheap microphone with a good class recorder. A ribbon or moving coil microphone is essential for good quality live music and speech recording.

recording. When buying a recorder, one should insist on a full demonstration which most dealers will be pleased to arrange. They will, however, often demonstrate the instrument with a pre-recorded tape produced on costly professional equipment and whilst this will effectively demonstrate the replay reproduction, it does not prove the recording quality. Ask for a *recording* demonstration as well and listen very carefully and critically.

As the price goes higher, so also does performance, and eventually the 'semiprofessional' machines become prominent. Before discussing these, however, a few words on what can be achieved with a domestic class recorder will not come amiss. With the right kind of microphone(s) and some auxiliary equipment such as a microphone mixer, a tape editing cutter, plus perhaps, a gramophone turntable and pick-up, some very fine recordings can be made. Documentaries for instance which may re-quire live recordings of special sounds, a spoken commentary, occasional music background, can all be achieved with the equipment mentioned above. Fine quality music recordings from both live and pre-recorded sources can be taped and played back without loss of quality or the introduction of background noise.

Many excellent and lifelike recordings of everyday sounds can be captured and stored for use in recorded plays, etc. A small portable instrument is useful for this and is far easier to handle outdoors than a heavy machine. Some of the portables available to-day are capable of fidelity recording and although the playback facilities are limited, the tapes made on these machines may as a rule be played back on a standard recorder. Details of these instruments will be given later but one is well worth considering as a 'second recorder'.

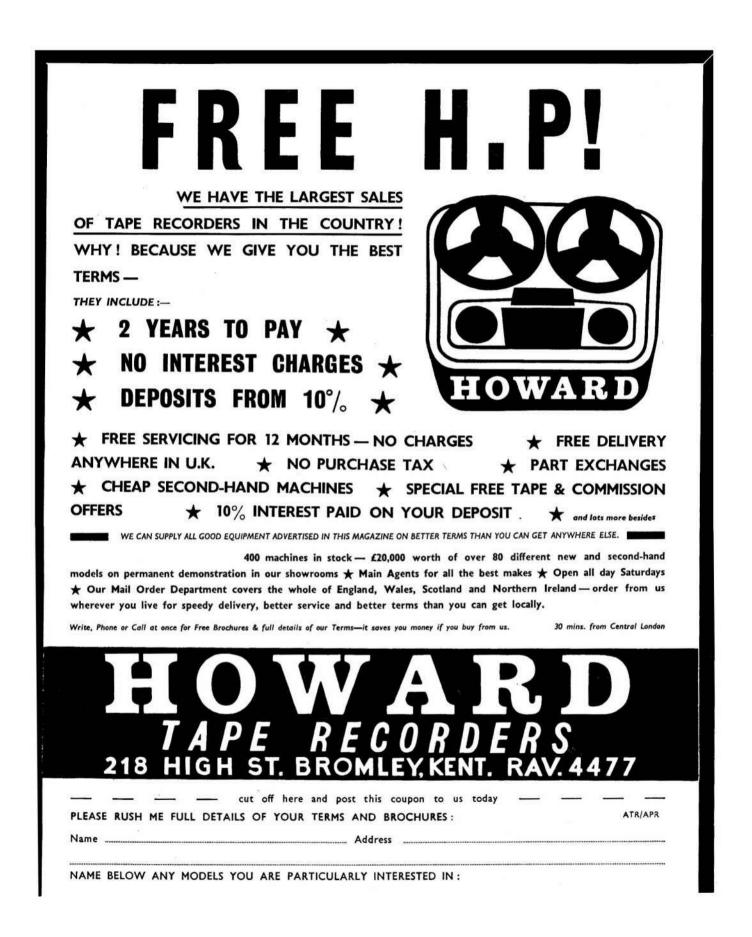
SEMI-PROFESSIONAL RECORDERS

These machines are expensive but are capable of exceptionally good reproduction. Some require an external amplifier and loudspeaker for playback since they frequently incorporate only the recording amplifier and a playback pre-amplifier. Most are available with two or more speeds and some machines have provision for monitoring an actual recording. For this purpose an additional replay head is fitted but this may require an external amplifier and headphones or loudspeaker.

The semi-professional machines are as a rule fitted with a calibrated recording level meter and not the usual magic eye indicator used for domestic recorders. The internal amplifiers are carefully designed and have an exceptionally low hum and noise level. The tape deck mechanism is normally superior and often more ruggedly constructed than the mechanism of a domestic recorder deck. Certain makes of these recorders are available in heavy cabinets which provide full protection during transport or where the machine may be moved about quite considerably as in schools or factories.

Prices range from around £80 or £90 to as much as £120 or £150. It should be made quite clear that there are also domestic machines having a similar price range. Both these and very much cheaper machines are often advertised as 'professional recorders' or as being capable of 'recording to professional standards'. It should be quite obvious that no domestic or semi-professional recorder costing even as much as £100 can provide the same standard of performance as a fully professional instrument which may cost at least £250.

Amateur Tape Recording





THE TK.24 was one of the first continental four track recorders to be introduced into this country. It is a compact, single speed machine (3¹/₄ i.p.s.) with a frequency response of 60 to 12,000 c.p.s. and will provide up to six hours' playing time using 1,800 feet of LP tape.

A new Grundig feature which goes with the TK.24 is the special tape magazine that protects and stores the tape. Track selection is by means of a single control which provides for the choice of tracks 1, 2, 3 and 4 separately, 1 and 3 or 2 and 4 together, and allows for reproduction from half track monophonic or stereophonic tapes. The recorder is supplied with an omni-directional moving

coil microphone, complete with case and if required a moni-tor amplifier and headphones are available. The monitor amplifier enables the TK.24 to be used for dual track record-ing, perfectly synchronised on tracks 1 and 3 or 2 and 4.

The recorder is finished in pale grey, has plated fittings and is supplied complete with tape, and tape magazine, spare spool, microphone, diode lead and a tape cleaning pad.

The following technical information is from the makers' specifications :-

Mains voltages Consumption Valves	AC: 110-250v: 50 c.p.s. Approximately 44 watts. EF.86—ECC.81—EL.95 plus EM.84 and 2 metal rectifiers.						
Tape Speed Frequency Response Signal to Noise Ratio Wow and Flutter Power Output	$3\frac{1}{4}$ i.p.s. 60 to 12,000 c.p.s. $+3dB - 5dB$. Better than 40dB. $\pm 0.2\%$. 2.5 watts.						
Input Sockets Output Sockets	Microphone 2mV 500K ohms Diode (Radio) 8.5mV 250K ohms. Radic pick-up 80mV 1M ohm. Extension speaker (3-7 ohms). External amplifier (700mV - 10K ohms).						
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dB 0							

Through Frequency Response-Record to Playback

Reference - 1000-05 + 048.

HOME VIEW

. **GRUNDIG T.K.24**

The full use of the four tracks makes this recorder a very flexible one and the instruction book provided is packed with information on the uses of the TK.24 written in a clear nontechnical style.

PERFORMANCE TESTS

The TK.24 was given the usual tests for frequency response, wow and noise, etc., and performed very closely to the maker's specification. Controls are all clearly labelled and smooth in operation and the mechanical performance of the machine is excellent. This includes the movement of the tape through the guides and head assembly, winding and re-winding, tape spooling and braking. Wow and flutter were found to be a bit less than 0.2% r.m.s. The frequency response of the recorder sent in for review

is within the limits quoted in the specification as Fig. 1 shows. (Note that this frequency response curve is the overall response - record to playback and not just the response of the amplifiers as some makers quote.) The hum and noise level of the amplifier was below 40dB

but I found the noise level from erased tape to be rather high. A test was made with full gain on playback which showed an after erasing noise level of about -25dB.

Track to track crosstalk is negligible and a full length recording on one track is quite inaudible when switched to another. A further test was made to check the track to track frequency response which showed that each track was within a dB or so of the other - record to playback.

As the manufacturers had supplied the MA.1 monitoring amplifier and STET 3 headphones, I took the opportunity of trying out the dual recording facility; a recording already on one track can be monitored whilst making a recording on an adjacent track. This allows perfect synchronisation and enables the user to produce some rather novel dual recordings.

In addition to these facilities the internal amplifier can be used as a 'through' system, i.e., a radio programme may be monitored whilst recording. A switch is provided for cutting out the internal speaker when using the microphone.

Reproduction from direct music sources or from the microphone is pleasing and the recorder is capable of quite high quality reproduction when used in conjunction with an exter-nal amplifier and speaker, or even with an external speaker only. As with all small recorders the bass response from the internal speaker is limited, although the recorder itself has a

internal speaker is limited, although the recorder itself has a full response down to 60 c.p.s. Like all Grundig recorders the TK.24 is well designed. Its construction and layout is typical of all Grundig machines and the neat continental style gives it a smart appearance. Performance should satisfy the keenest ear and the long playing facilities of four tracks should fulfil the most in-satiable demands for long music sessions. As usual Grundig have produced yet another successful recorder. The TK.24 is priced at 62 guineas and the MA.1 monitoring amplifier, if required, is 4½ gns. extra. The stethoscope ear-phone set No. STET.3 is priced at 3 gns. The recorder and accessories are manufactured and distributed by Grundig Limited, 39/41, New Oxford Street, London, W.C.1.

TAPE CLEANING ATTACHMENT FOR THE GRUNDIG TK 24

The Tape Cleaning Attachment now supplied with the Grundig 4-track tape recorder, the TK 24, photo-graphed with a threepenny piece to give a clear idea of size. The attachment is plastic and has three prongs, two fitted with felt round which the tape travels to remove dust and other foreign particles. It fits into three holes in the deck of the tape recorder.

FIG.1.

Amateur Tape Recording

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

2. CASIAN TRAV-LER

HERE IS a new and inexpensive transistorised portable spot' recordings of important events, the collection of all outdoor sounds, voice autographs, etc. The name '*Trav-ler*' it would appear, is coined from : *Train—Road—Aeroplane— Vessel*, plus, *Lasting—Exceptional—Recording*. It is certainly compact, easy to carry, robust, nicely finished and for its complete protection, a waterproof carrying case is available.

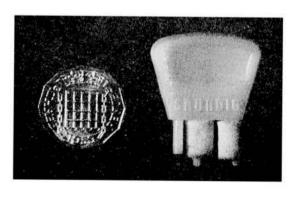
The technical specification gives the size as 10 in. x 8 in. x 5 in., weight 91bs.; recording speed $3\frac{1}{4}$ i.p.s.; frequency response—150 to 5,000 c.p.s. $\pm 3dB$; signal to noise ratio—30dB and wow and flutter 0.4% r.m.s. Measured with Kalee Flutter meter.

The technical literature also reveals that the recorder operates from a 9 volt supply consisting of 3 Vidor-max T.6009 batteries (or equivalents) and that the battery life is 40 to 50 hours. The transistor amplifier is designed around three OC68 and two OC71 transistors and has an output of 400 milli-watts available for the built-in 7in. x 4in. elliptical loudspeaker.

The replay time using a 3in. spool of double play tape is 50 minutes (both tracks) and the re-wind time is $2\frac{1}{2}$ minutes. Full re-wind, play, record, fast forward and reverse wind functions are incorporated and the loudspeaker can be used for through monitoring whilst recording. Other facilities include a simple neon recording level indicator and the Trav-ler may be operated from an external power supply. The microphone supplied with the Trav-ler is a Lustraphone

LD.66 moving coil type which does much to enhance the value of this recorder. It is a sensitive microphone and I found that if full gain was used whilst recording the back-ground noise was inclined to be a bit high. I believe the makers of the Trav-ler have made a modification which

reduces the available gain slightly, thereby preventing this risk of high noise level whilst recording. The controls are simple to operate, but I felt that the recessed tape spools make it a little difficult to thread a tape quickly, especially with spools that only have a small slot in the side of the hub. It would be well worthwhile if the makers The speed is linear so that tapes recorded on the Trav-ler can be played back on a standard machine. My only criticism is of the plastic cover over the tape spools which did not fit very securely; some kind of metal fastener might be an improvement here.



November, 1960

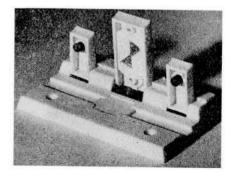


Casian Limited have done well to design and produce this neat and versatile little portable recorder for such a low price. I found its performance up to the maker's specifications and adequate for the kind of work it is intended for. The Trav-ler is manufactured by Casian Limited, 27 Grafton House, Golden Square, London, W.1, and sells at

29 gns.

THE METRO-SPLICER 3.

HERE IS a reasonably priced splicer that will interest the cine film enthusiasts as well as the tape recordists. This splicer can be used for tape cr 8 mm, film and with the new very close tie between the two hobbies, readers will no doubt see the advantages. The Metro splicer is complete with guides for in. tape that can be removed to accommodate 8 mm. film and the base is calibrated in inches and millimetres. The cutting blades are stainless steel and therefore non-magnetic and a spare blade and 'film scraper' is included. Just above the blade is a transparent window so that one can see exactly where the cut is being made. The unit is moulded in high tensile nylon and fitted with spring clips for holding tape or film. The Metro Sound Manufacturing Company who make this splicer also market Klenzatape and Metrotabs for identifying recordings on tape. The retail price of the Metro splicer is 15s. and it is available from most tape recorder dealers or from Metrosound of 19a Buckingham Road, London, N.1, who will also supply an illustrated leaflet on request.



UHER REVIEW

OUR APOLOGIES to readers and Tedelex Limited, the distributors of the Uher III four track recorder reviewed in September for omitting the following information :--The Uher III is supplied complete with a spare spool, a

recording lead and a service manual with circuit diagram. The Uher III may be used to record monaurally on any

of the four tracks as well as stereophonically on alternate tracks.

The playing time could be extended to over 16 hours at 17 i.p.s. (monaural) and over 8 hours at 17 i.p.s. (stereo) by using double play tape.

GARRARD TAPE MAGAZINE

WITH REFERENCE to the review of the Spectone 171 in our September issue we have been asked by Garrard Engineering and Manufacturing Company Limited to point out that certain advantages of the magazine loading deck were not mentioned by the reviewer. These are as follows:— 1. No threading. 2. No spilling. 3. No anchoring.

- Immediate operation.
- Instant removal of a partially recorded reel and instant-aneous replacement when wishing to continue. Easy indexing as the bare portion of the tape is the 5.
- 6. Transportation and despatch facilitated. By the use of our recently introduced tape position
- indicator a more accurate way of indexing than any other system.
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THE ROBUK RK3. Its features include a featherlight 'piano-key' operation, 3 speeds and separate gain controls for input mixing.

Three speeds 'n that!

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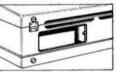
- Three speeds amplifier compensated at all speeds.
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- 4 Monitoring through speaker, with separate monitor gain control.
- 5 Superimposition facilities with switch on tape deck.
- 6 Separate on/off switch, and tone and volume controls.
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Rim Controls for fingertip S operation ! Neatly grouped ... easily identified! Simple the enough for a child to R operate ! R

Simplified 'Piano-key' Operation! Three keys complete the operating s e q u e n c e ! RECORD ... REWIND ... REPLAY !

Sliding door storage compartment for microphone and spare leads !

MANY OTHER FEATURES Incorporated in the tape deck are additional features such as pause control, position indicator, recording level indicator, accidental erasure prevention and automatic interlock to avoid tape spillage — fast forward and rapid rewind speeds. Sockets are also provided for extension speaker and external amplifier.

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