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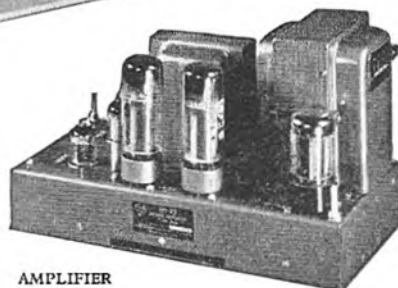
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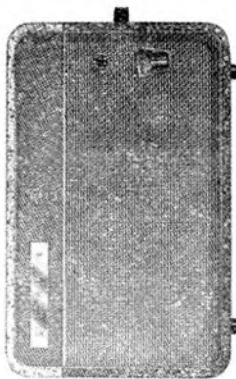
The Simon SP4 is the machine you've been looking for! Its combination of high performance and range of exclusive features has set off a chain reaction of enthusiasm throughout the hi-fi world.

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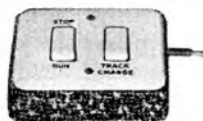


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enthusiastic!

Angus McKenzie in TAPE RECORDING AND HI-FI MAGAZINE

“ Sometimes, all too rarely, a product received for review has a quite outstanding performance and is reliable and robust. Such a product is the Simon SP4 . . . It has a superb performance in every way, with not one snag in the way of it . . . Staggering Performance . . . Any owner of an SP4 can be very proud of it. *I feel sure that this machine will go far to establishing a new standard of quality by which other machines will be judged.*”

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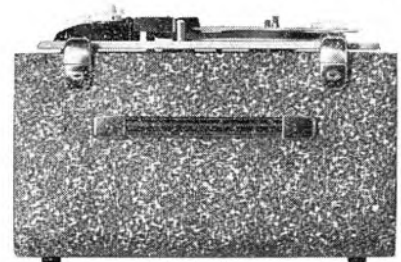
J. Moir in the TAPE RECORDER

“ The novel features incorporated in the SP4 are generally of great value to the user, and are not gimmicks . . . The Simon machine is not cheap but it has exceptional facilities, a good performance, is undoubtedly good value for money.

J. C. G. Gilbert F.R.S.A., Assoc. I.E.E., M.Brit. I.R.E. F.T.S. in MUSIC TRADES REVIEW

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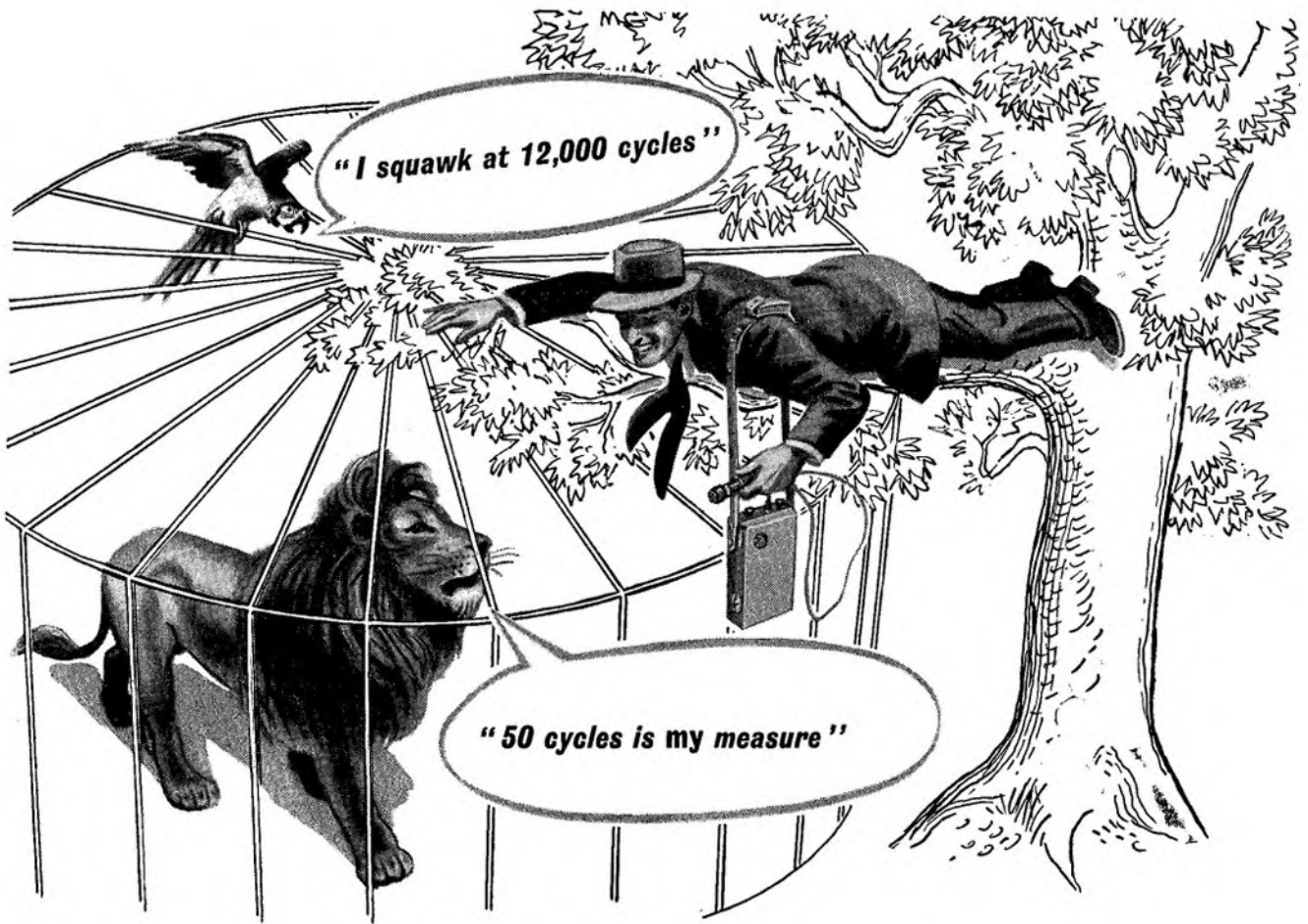
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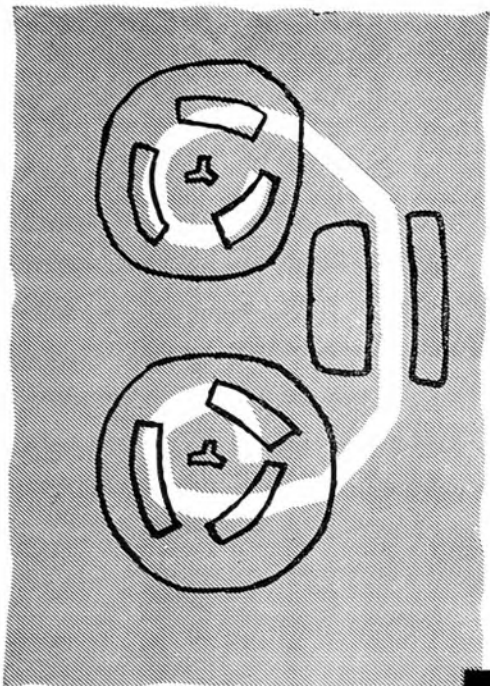
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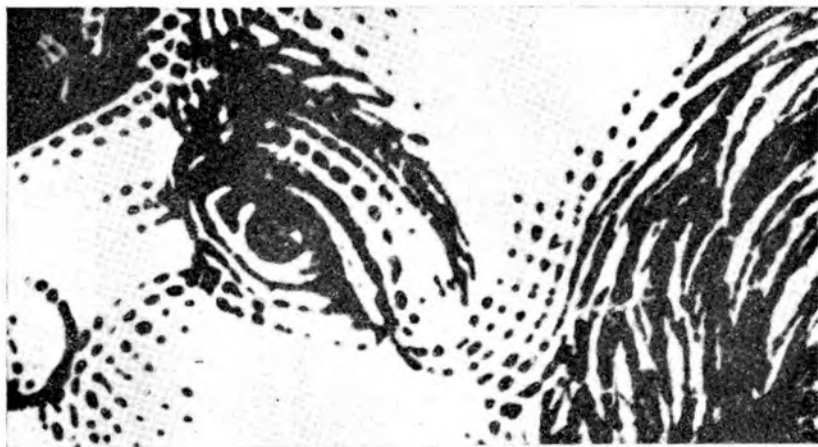
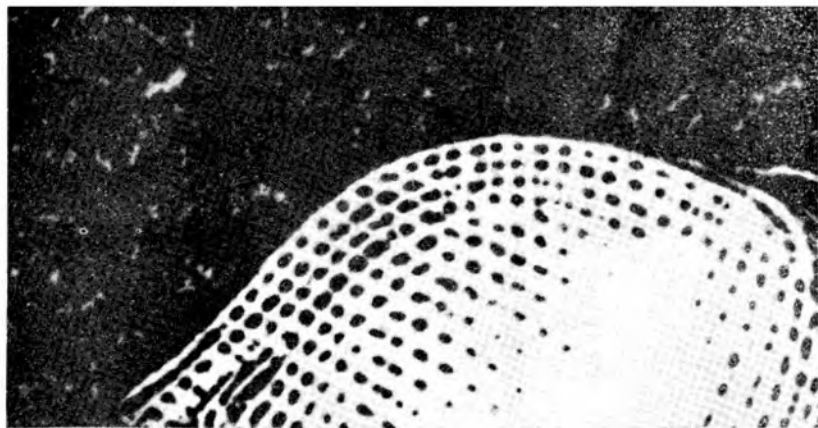
says "This 'scotch' Brand Tape certainly lives up to its reputation. It sounds perfect to me, and I'm an ear for music."

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TSL 3-Channel Mixer	2		
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Also by Ronette, Acos, etc. We will gladly advise on the type best suited to your requirements

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Jason FM	23	8	3	cartridge	26	8	3
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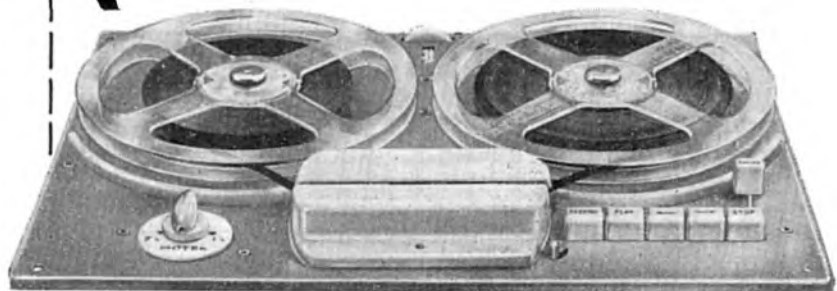
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makes a better Recorder

Motek is the core of many recording machines. Manufacturers build-in Motek—and then out of sight and mind—which is as it should be, for built-in Motek has built-up immense confidence from manufacturers and customers alike. And no wonder, with these five star features: Push Button Operation, Counter, Safety Erase Button, Pause Control, Three Speeds.



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TAPE RECORDS SUPPLEMENT

THE CLASSICS

by **Edward
Greenfield**

(recorded music critic of
the *Manchester Guardian*)



I HAVE always thought there would be more rave notices for Victoria de los Angeles' records if they had been done by the ancient "pre-electric" process, with a misty sound behind heavy surface scratch. The glorious golden quality of her voice would not have come over so well, but so many of our vocal collectors who specialise in collecting old records would have realised how easily she matches the very finest recorded sopranos of the past. With a surface hiss and tinny sound they, too, might have been persuaded to rave, where normally they keep saying that things are not what they were.

As it is, the voice of de los Angeles records particularly well by any modern process. I sometimes think that the golden quality is more purely gold on records than in the flesh. Tape collectors, at least, should be glad that a number of her finest recordings—if you can distinguish at all between such excellence—have appeared on tape. Among the complete operas, I specially recommend the wonderful recording with Beecham of Puccini's "La Bohème" and the set of Massenet's "Manon."

But the recorded tape I specially want to talk about is her operatic recital on H.M.V. HTA19.

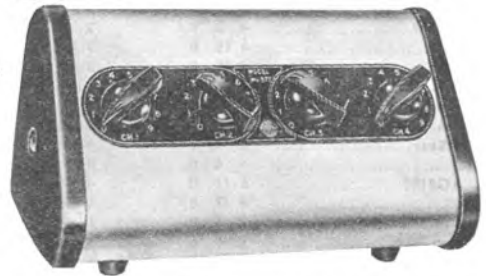
If I was limited on my desert island to one vocal record only, this, without any shadow of doubt, would be the one. The recital covers an extraordinarily varied range of arias, and yet to each de los Angeles brings a depth of understanding which makes it seem fresh and new.

For years before I heard the de los Angeles recording I had treasured an ancient disc by Rosa Ponselle of the appallingly difficult aria "Ernani involami," from Verdi's early opera based on Victor Hugo's revolution-making play "Hernani." I had thought it one of the finest pieces of dramatic soprano singing I had ever heard. I still do, but de los Angeles is even finer. The speed is not so spectacular, but there is an added meaning given to the

(Continued on page 12)



FOUR CHANNEL TRANSISTORISED MIXER UNIT



MODEL
MU577

FOR USE WITH ALL RECORDERS

- ★ COMPLETELY HUM FREE
- ★ POWERED BY MINIATURE CELL WITH 1,000 HRS. LIFE
- ★ SIZE 9" x 4½"

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Two high and two low impedance INPUT channels are provided with high impedance output to recorder or amplifier. Alternative impedance arrangements available to order. Frequency response is substantially flat from 50 to 14,000 c/s. An internal miniature mercury cell with a working life of approx. 1,000 hrs. is used to power the unit, so that it is free from hum and other mains-borne interference. Designed and made by LUSTRAPHONE, whose many years of leadership in the manufacture of microphones ensure that Model MU577 is the ideal mixer unit for all recording requirements.

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G.O.? Guaranteed Operation. A fine Recorder, plus a fine knowledge that helps you to choose THE recorder suited to YOUR wants, plus G.O.—Guaranteed Operation: That in a nutshell is the unique message this announcement brings you—a message that you and the thousands of other readers of this Journal have waited for. What is Guaranteed Operation?

It's a plan which guarantees efficient service from any one of the best tape recorders at the time of purchase and throughout the whole twelve months thereafter at no additional cost to the user.

No additional cost?

Well, just one shilling. That makes this guarantee legally binding.

But how does this operate? Anyway I live 50 miles from your store, wouldn't this essentially mean delay?

The scheme operates through appointed engineers over the whole of the country. Full-time qualified men working at some scores of area offices, under the control of a central depot. A telephone call to us, or a local area centre, will bring one to your door and within 48 hours or less any defect on a recorder will have attention. No charge will be made for transport, labour, or parts—even valves are covered.

What benefit do I get if my Recorder needs no service during the year?

At the end of twelve months a free check to ensure that the machine retains top efficiency, and replacement of any dubious parts.

I'm still doubtful. It sounds too good to be true? Are you sincere?

We expected this comment. You are at liberty to investigate the matter to the full, even if a trade competitor. There may be flaws in the scheme, that remains to be seen. All we can say is that it works, has worked in fact for some months now on a pilot basis.

Aren't there risks to you in such a scheme?

Of course there are! But none to you! We'll cover ourselves by offering this G.O. plan initially up to August 31. You'll get the service all right if you come in now, but you may not have the advantages of the scheme, at least at such small outlay after that date.

If I buy on H.P. do I still enjoy the G.O. service?

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fearsomely difficult roulades and runs at the speed de los Angeles chooses.

The longest item in the recital is the moving scene in the last act of Verdi's "Otello," in which Desdemona, full of premonitions, sadly sings her two songs, so much in character, the "Willow Song" and "Ave Maria." On this recording these are both done in full, with the intervening music included. De los Angeles floats her voice with such apparent ease over the high soaring phrases that for once their full simplicity is conveyed and the full beauty brought out without any sense of strain.

But it is in the passage between the arias that the most miraculous moment comes. At this point Desdemona has just said goodnight to her maid (and wife of Iago) Amelia. Then, with a sudden paroxysm of apprehension, she cries out her fears. The phrase begins on a high A sharp—a wickedly high note to hit without any preparation. Normally sopranos take it very much from below, finding the right note (if they can) by swooping up until they come to it. Not so de los Angeles. Just as Verdi wrote it in the score, she hits the note dead centre without a trace of swooping up. The effect is electrifying. It is like a shrill cry of pain suddenly coming out of the leaden atmosphere created by the dark static chords in the orchestra below. I have never heard it sung like that before or since, yet it must be exactly as Verdi conceived it.

In all this scene de los Angeles uses what I call her heavy tone-colour. There is a sense of weight and suffering about the dark notes of her voice and a real intensity about her phrasing which one associates with live performances rather than recorded ones. In the two Mimi arias from "La Bohème" which are included on the reverse of the tape there is still something of this weight, but the golden tone is brought out more fully to convey something of the mixture of wistfulness and happiness which marks Mimi's character. These are immaculate, poised performances which yet convey, in such moments as the twittering phrase at the end of "They call me Mimi," the heroine's nervous uncertainty which is never far away.

Then, in the florid coloratura aria which forms the finale of Rossini's aria "Cenerentola," de los Angeles shows her true versatility. This marks a complete contrast not only of mood but of style, too. In the days of 78, the most famous recording of this aria was by Conchita Supervia, the Spanish mezzo-soprano with the famous rattling vibrato. Supervia may have brought a salty touch to the music which escapes de los Angeles, but a close comparison shows just how much better equipped technically de los Angeles is than Supervia ever was. The long scales from top to bottom, fiendishly difficult to sing, are sung straight down, evenly and truly, where Supervia allows a glottal stop to intrude towards the bottom, to spoil the flow. De los Angeles, too, attacks the turns and ornaments with a magnificent precision, and for vivacity she introduces a sunny tone to her voice, showing enormous range of tone colour at her command.

I could run on talking about some of the other arias in this recital—"Voi lo Sapete" from Mascagni's "Cavalleria Rusticana," "L'Altra Notte" from Boito's "Mefistofele" and "Ne andro lontana" from Catalani's "La Wally," but I hope readers will be enticed enough already to sample this tape and will find the beauties for themselves.

BEAT AND OFF-BEAT



by Don Wedge

(of "New Musical Express")

WOODY HERMAN'S recent visit to Britain set me delving into the catalogues to discover what, if anything, of his work is issued on tape. I found just one, and this not of Herman the bandleader. Even so, it is a most interesting record of Woody the singer! ("Songs For 'Hip' Lovers", HMV HTD 820).

Herman has always sung with his band, usually as light relief, but rarely on record. He is known as a brilliant jazz bandleader—the founder of the Herds, the "band that plays the blues," and from time to time the band that played whatever style was new and good.

Now he is also to be known as the first man to tour here with an Anglo-American band. He brought six American musicians and built a big band by adding some of Britain's best jazzmen.

"Songs For 'Hip' Lovers" was made by Norman Granz, who has been here even more recently with his "Jazz at the Philharmonic" package show. Granz, as well as being the world's leading jazz impresario, heads two record labels in America—Clef and Verve. One of his artists is Ella Fitzgerald.

Granz persuaded Herman to make this record to prove the bandleader's ability as a singer. It is obviously a lighthearted project. Made two years ago, its title was a twist on the Sinatra series—"Songs For Young Lovers," "... Swingin' Lovers," etc.

"We carefully picked songs that Woody dug and that the public has liked for years," writes Granz in the accompanying notes, "because these are some of the best standards ever written.

"We also picked those tempos that not only hip lovers like, but hip dancers, hip listeners, and even hip squares."

Herman's own band is not used. Instead, Marty Paich (the man who did "Mountain Greenery" with Mel Torme, among many other things) assembled a group of modern free-swinging men. Much of the charm and atmosphere of the record is due to the orchestra—light, easy on the ear, interesting to listen to in itself.

Woody Herman, as a singer, lacks range and normally would not get by at all but for his superb phrasing, wit and interpretation, which have an infectious quality.

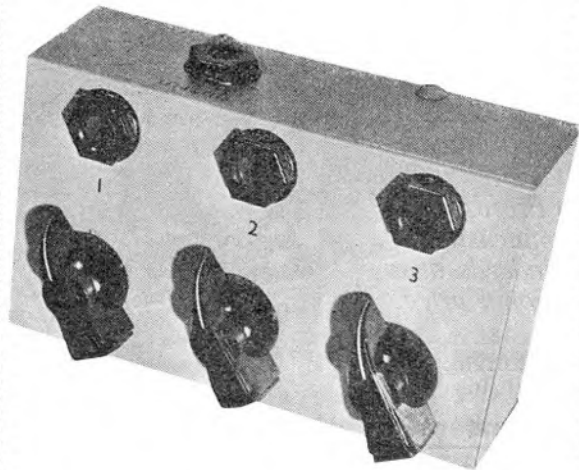
"Comes Love," which starts the set, is perhaps the least effective. But the faster "Everything I Have" sets a high standard. On the very next track, the beautiful "Alone Together," Herman shows that he can do slow numbers as well. Of the rest, I particularly liked "Makin' Whoopee", which gives Herman the opportunity of injecting some of his own humour, and "I Guess I'll Have to Change My Plan."

* * *

I HAVE ALSO unearthed two other interesting tapes from the EMI range. With the shortage of new issues, it is well to remember those issued some time ago.

(Continued on page 14)

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(Continued from page 13)

Norrie Paramor is a brilliant musician, arranger, conductor and also recording manager of Columbia (in this capacity he discovered Cliff Richard, but that is by the way!).

He had a lot to do, therefore, with "The Very Thought of You" (CDT 859; five of the ten tracks are also available in stereo—BTD 702), which features him as conductor of a string and rhythm orchestra.

It is one of those collections of great melodies ("Embraceable You," "The Touch of Your Lips," "I'll Get By," "Dearly Beloved," etc.) that would be hard to spoil. But they are so often performed and recorded that something special is necessary to make them worth buying again.

Paramor gives this collection the lushest of treatments and, as a gimmick, adds an anonymous soprano voice—not to sing the lyrics but to join in the overall sound with a few of the words.

It makes superb mood music.

* * *

PRESUMABLY PARAMOR had something to do with the issue by Columbia of "Seductive Saxophone" (CDT 868) by the Dutchman, Dolf van der Linden and his Orchestra.

The saxophone mentioned is brilliantly played by Cees Verschoor, whose long association with arranger van der Linden has led to a powerful combination.

This record is again mood music, although the material used is not quite so well known. Duke Ellington is well represented—"I Never Felt This Way Before," "All Too Soon" and "Lost In Meditation" are among the five from the American jazz man's productive pen.

But the saxophone, even in a string session setting, does not bring quite the restful sound of Paramor's string-voice amalgamation. It tends to jar. Your mood must not be too restful fully to enjoy it.

ABC of Sound Effects

HAY—ICE—JUDO

MANY scenes have been set in hay barns and ricks. For the noise of people moving about in hay, a wastepaper basket loosely filled with old tape is the first requirement. To produce the noise, gently move the tape up and down.

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I was once asked to produce single-handed the noise of a judo contest and it involved a lot of research. I found that the two contestants knelt and bowed and walked a few paces across a canvas-covered mattress to come to grips—in bare feet. The one sound that gave authenticity to this scene was the colossal noise of the breakfall. It is made by a contestant bringing the whole of the forearm and flat of the hand sharply and with great force on to the canvas mattress. Also remember that in all contests of this character sharp indrawn breaths and grunting exhalations fairly close to the microphone should be made.

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TAPE

RECORDING
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IN THIS ISSUE

- Tape Records reviewed** 11
Edward Greenfield and Don Wedge
- We take the view . . .** 18
Editorial comment and information
- Water ski-ing with a mic** 20
First in a summer series
- Tape-world News round-up** 24
- Bright ideas for time-switches** 28
A first selection of contest entries
- Copyright: solution in sight?** 31
- Magnetic fields** 32
Charles Langton
- Tested in the lab.** 35
- Calculating available playing time** 38
B. E. Wilkinson
- New products review** 39
- Stereo news** 43
- News from the clubs** 46

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A DIGEST OF

NEWS, COMMENT AND

EDITORIAL OPINION

IT may be that Sir Thomas Beecham will never agree to conduct with earphones on, but some of our younger conductors may have to get used to the idea. In the United States a new musical composition by Carmen Dragon, composer-conductor, brings the tape recorder right on to the stage as another instrument in the orchestra.

The work is the "Sante Fe Suite" in which sound effects recorded on tape are integrated with a chorus of 200 and a full symphony orchestra.

Before writing a note of music, the composer went out and collected the sounds of locomotives, of mining charges and Indian tom-toms, of galloping horses and woodmen's axes, of prairie dogs and thunderstorms.

The music was then composed around an edited soundtrack.

The work has been performed in some of America's biggest cities and has been well received.

In the concert hall, stereo speakers are set up on each side of the stage and an engineer sits, out of sight, behind the conductor. Inasmuch as he must adjust and balance on cue from the conductor, the engineer becomes a member of the orchestra.

It will be surprising if more compositions of this kind are not produced. The idea of giving musical continuity to recorded feature programmes is already a popular one, particularly with professional radio producers. There have been cases—Charles Parker's "Ballad of John Axon" is a notable one—in which the musical content has been quite as important as the documentary material.

Dragon, in the States, has taken this development a stage further and the consequences should prove interesting.

Audio group chairman

MANUFACTURERS of audio equipment have now formed their own group within BREMA (the British Radio Equipment Manufacturers' Association), and most of the leading firms are among the 21 pioneers who launched the project.

First chairman of the group is Major J. F. E. Clarke, the chairman and managing director of Clarke and Smith.

And in the personal story of Major Clarke one finds much of the drama that has touched the whole development of audio in the post-war years. By a fortunate coincidence we were able to visit the Clarke and Smith factory at Wallington, Surrey, immediately after one of its co-founders had been thus honoured by his colleagues in the industry.

Major Clarke showed us the galvanised hut in which the firm had its humble beginnings eleven years ago. Today it is dwarfed by a three-floor factory block and a modern Scandinavian-type office arranged on three sides of a courtyard.

We take the view .

Building, electrical work and fittings have been handled by the firm's own direct labour and this "do-it-yourself" spirit has been shown in production technique. Everything except decks and cathode tubes is made on the premises.

Though the name of Clarke and Smith may not have appeared frequently in these pages, in its own specialist field—the supply of recorders, TV sets and other equipment to schools—it has won a very special position.

THE ARTICLE ON THIS PAGE LAST MONTH ABOUT COPY-RIGHT PROBLEMS AROUSED THE WIDEST INTEREST AND IMPORTANT DEVELOPMENTS HAVE SINCE OCCURRED. A FULL REPORT APPEARS ON PAGE 31 OF THIS ISSUE.

Overwhelming

THE Advertisement Enquiries Service which we introduced in our Audio Fair issue has been an overwhelming success—and we mean overwhelming. As the inquiries from readers for information about products rolled in—first in dozens, then in hundreds, and finally in thousands—the two members of the staff handling them found they needed to burn the midnight oil five nights a week.

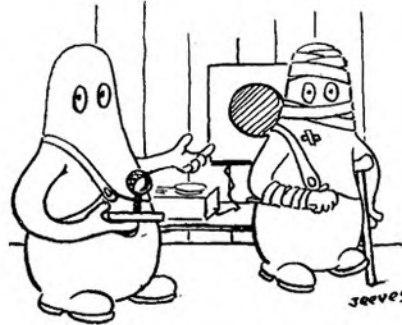
The number of individual inquiries, at the time of writing, has exceeded 10,000, and we doubt whether there has ever been a more dramatic reader-response in any field.

We know, too, that our readers appreciate this simple, quick and economical way of getting all the manufacturers' literature they require. Many of them have expressed their thanks on the forms they have sent in.

We are now up to date with the work of handling them but, if any readers suffered delay during the first hectic weeks, we offer them our apologies. There are five who will be wondering why they have received no response; the answer is that they forgot to fill in their names and addresses.

We would also like to appeal to readers not to submit miscellaneous queries to the editor on these forms. They should be used only to indicate products about which you would like to have more information. All other

LAUGH WITH JEEVES



"And Mr. Bloggs wins the prize for his lifelike recording of a motor accident"

matters should be dealt with in correspondence.

We hope readers will continue to make good use of this service, which will save them time, effort, and money, for we pay the postage. This month's form is on page 49.

Gibson for Nigeria

MANY of our readers will be interested to hear that Tony Gibson is leaving Britain for a year or more in Nigeria. He has taken the closest interest in the British Amateur Tape Recording Contest from the beginning, and those who attended the presentation of prizes and playback of winning tapes during the last two years will recall with delight the wise and witty comments which he offered on the entries.

Recently he has become more intimately known to tape enthusiasts through his regular appearance in the new B.B.C. programme "Sound."

Few people have done more to encourage high standards of tape recording in this country. Now he is accepting an invitation from the Nigerian Broadcasting Corporation to become its Controller of Staff Training in order to set up a new type of training programme. He will leave England during July and be away for the remainder of this year and for most of next.

We wish him well, and we shall

look forward to welcoming him back in 1960.

B.B.C. judge

TALKING of the Contest, those who are submitting entries in the Schools Section should get them off within the next few days. The closing date is Friday, May 29. Tapes should be carefully packed and adequately stamped and addressed to: *British Amateur Tape Recording Contest, Schools Section, 7, Tudor Street, London, E.C.4.*

The entries will be judged during June and the result announced in good time before schools break up for their summer holidays. Messrs. Grundig (Great Britain) Ltd., who donated the Challenge Cup which goes to the winning school, are arranging a special social function for the group of children who made the selected tape. This will take place in the autumn, about the time of the International Contest in London.

The B.B.C. has now decided to nominate a judge this year for the British and International Contests. This will be Mr. Douglas Cleverdon, one of the most experienced and respected of all radio producers.

Mr. Cleverdon, who is 55, became Children's Hour Organiser in the West Region in 1939 and in 1941 he devised and helped produce the Brains Trust.

He moved to the B.B.C. in London in 1943, concentrated at first on literary and documentary features, and then, in 1945, became a war correspondent recording the Mandalay campaign in Burma.

Since 1947 he has been mainly concerned with features for the Third Programme. Nine of his productions have been submitted as B.B.C. entries for the Italia Prize, including Dr. J. Bronowski's "Face of Violence" (Italia Prize, 1951), Henry Reed's "Streets of Pompeii" (Radio Italiana Prize, 1953) and Dylan Thomas's "Under Milk Wood" (Italia Prize, 1954).

He has recently completed a six months' attachment to B.B.C. television.

We are honoured to welcome so distinguished an expert to the Contest panel of judges.

OUT - OF - DOORS WITH A RECORDER

You will need to acquire a microphone ear

ONCE you get out of doors with a recorder, you quickly find that sounds do not always come out on the tape as you might expect them to. One of the first difficulties you may encounter is wind noise.

Microphones are available giving adequate protection against wind noise, but if you do not have such a one, wrap a fine material such as part of a nylon stocking round the face of the mic.

You will need to acquire what I call a "microphone ear" before you can assess accurately the suitability of sounds for recording. Most mics will pick up all manner of sounds of which you may scarcely be aware while recording. After a while, however, you will be able to hear and interpret sounds very much as the microphone does.

Timing and positioning are important. For example, if you wish to tape the sound of a crowded railway station or a busy main road you will get far better results at a quieter suburban station or a not-so-busy side road, as the mic will not be overwhelmed by an excess of intense sounds.

Do not neglect the art of substitution. For instance, the rustling of trees under certain conditions sounds almost identical to a running stream, which is a more difficult sound to capture.

After a while you will find yourself noting mentally when and where interesting sounds were heard, which will be of great value in planning outdoor recording sessions.

Remember there is a point at which battery and mains recorders overlap in their functions. Should a mains supply be handy, it may be more prudent to use a good mains recorder.

ERIC. E. PAYNE.



"Frantically I attempted to keep them parallel and all the time I bellowed my comments into the microphone"

Mobile recording in a car

WE have recently purchased a power supply unit to run our recorder from the car battery, and what a delight it is to be able to play favourite music while having a picnic or travelling along, and what a delight to record at any time.

It is not quite such a delight, of course, to find you have run the battery down and cannot start the car, because of your over-enthusiasm. This equipment does take a fairly heavy current (approximately 10 amps), so beware!

A few interesting lessons have been learned. Firstly, the difficulty of making a true recording of the sounds of the natural elements: things like a mountain stream running over boulders, wind in the trees, the *swish* of wet tyres on a wet road, the surf, and people walking on shingle. For these

sounds, I found it useless to record at less than 7½ ips, and a top quality microphone is necessary.

Care must be exercised regarding the amount of gain. It is better to record with as little gain as possible and to amplify on playback, rather than the reverse.

Lesson number two is "Always be at the ready." Cars on holiday get into a disgraceful muddle. With a recorder and mic leads, it can easily become chaos. It was so one evening when we heard the lovely, plaintive song of a bird. He sang while I stopped the car, while I found the tape, while I fixed the mic.

But when all was ready, he flew off!

Finally, I found it extremely good practice to record a commentary while on the move. Try it.

KENNETH BLAKE.

I went water ski-ing with a mic

AND I FELT—AND SOUNDED—AS THOUGH I HAD ONE FOOT IN ETERNITY

ONE of the maxims of the Younger Generation programmes which used to be a feature of the B.B.C. Light Programme was "Catch 'em in the act"—and a very good maxim it was, too. Providing one can be certain that the commentator will continue talking during moments of stress, there is little to beat the first-hand/first-time impression.

It was because of this that much unusual pioneering work with the portable midget tape recorder was done by producers of the Younger Generation Unit. The introduction of these machines meant that recordings could be made in places that were difficult or impossible to reach with more bulky equipment. And so, on many thousands of feet of tape, were caught the spontaneous comments of young people as, before the microphone, they literally widened their experience of life.

There was the cry of jubilation as a girl in a frog-suit touched the bottom of the sea for the first time, the tetchy grizzle, born of momentary frustration, from the boy climber stuck on a rock face; the satisfaction and wonderment in the voice of another boy as he glimpsed the countryside from the peace of a glider's cockpit. There were very few spots indeed which were closed to that little green box. We took it into caves, on mountains, into racing cars, on to motor-cycles, into canoes—and once I even strapped it on to the chest of an R.A.F. parachutist to catch his comments as he baled out from a balloon 800 feet up!

But, inevitably, all good things come to an end, and the time came when it seemed as if every likely situation had been exploited. It was true that one could try a variation on a theme, but we had run dry of truly original ideas. The beginning of a new series of programmes loomed ahead, and I needed something special to catch the eye and ear for the first edition.

It was then that I saw the news item . . . "Britain's first water-ski-ing school." A ski-ing enthusiast, with a passion for driving fast motor-boats, had decided to go into business on a rather pleasant backwater of Poole Harbour, in Dorset.

There were discussions with Sam Wheatley, the engineer in charge of the B.B.C.'s midget recorder section, telephone conversations with the gentleman at Poole, and we were ready to carry out the initial tests.

Younger Generation programmes featured the experiences of teenagers, but when we were tackling a subject for the first time, the producer concerned usually sampled it before the youngster. There were two reasons for this. Firstly, we would never ask anyone to try something which we were not willing to do ourselves and, secondly, the knowledge we gained was invaluable in briefing the real commentator before he or she made their own attempts. And so I became the guinea-pig for the first "tow-bar" recording ever made in this country.

By
**ROBERT
GUNNELL**

When we arrived, Peter Oram, the instructor, was busy with some of his other pupils. It was very pleasant—and encouraging—to watch them skimming gracefully, effortlessly, across the smooth waters of the harbour in the wake of the purring motor-boat. There would, I suspected, be a knack which, if one could acquire it, would ensure success. While the holiday-makers made the most of their limited amount of sun, Sam and I began our preparations.

The midget recorder was to be placed on the boat, with some 60-70 feet of microphone cable run out along the tow-rope. The cable was secured to the rope at intervals, with a certain amount of slack being left so that the actual job of towing would be done by the rope and not by our microphone lead! The crystal microphone was fixed to the centre of the tow-bar and protected from the effects of the water by a thin rubber membrane. Speech tests were carried out over the circuit to the satisfaction of Sam, and then I retired into Peter's small caravan to change into swimming trunks. By this time the warmth of the after-

(Continued on page 23)

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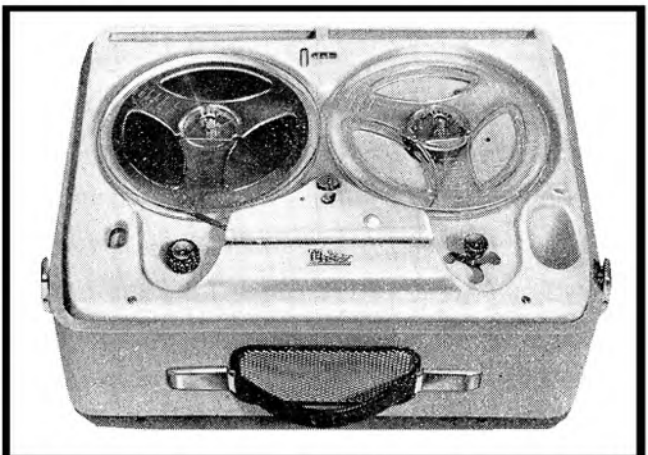
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WATER SKI-ING WITH A MIC

(Continued from page 21)

noon had gone, we had the beach almost to ourselves, and the water looked grey and distinctly chilly.

Still on dry land, Peter outlined the principles of the art and adjusted the skis to my bare feet. Grock or Coco might have felt more at home on them than I did; rubber flippers are bad enough, but they are sheer delight compared to the two five-foot boards to which I was now attached. A mental picture of twisted and ruined ankles was partially erased by the reassurance that if the strain became too much the skis would easily slip off. I got out of them and, trying to look confident, nonchalantly walked out into the water. Here I faced Problem No. 1: how to get the infernal things back on again.

With the skis eventually in place, I gingerly lowered my seat on to the black "sandy" bottom, pointed the skis skyward at the approved angle, and grasped the tow-bar. I gave another voice test into the microphone. Sam, sitting in the motor-boat, raised his hand to show all was well. We were ready to start.

I began my commentary, describing the boat as, turning in a slight arc, it got under way. The rope tightened, and I found myself hanging grimly on to the bar as it leaped forward, the water swirling about me, the skis behaving like live things on which I was trying desperately to perch. They, and I, began to rise out of the water. Frantically I attempted to keep them parallel, and all the time I bellowed my comments into the microphone. In a situation like this there is no opportunity for finesse. But I was losing the

fight, the skis forced themselves into a most unprofessional position, I began to sink, the tow-bar and the microphone ducking spasmodically beneath the water.

And then it was all over, a ski came astray, I let the bar and the boat go off on their own, and subsided on to the shallow bottom in a flurry of salt water.

We repeated the experiment several times but, with ignominy, I must report that I never stood up for more than a second on those skis. There was a knack, and it had eluded me! As far as we could tell from the little earpiece provided with the recorder, however, the idea had worked. It was some consolation for the aching muscles which greeted me when I awoke the following morning. (If you use *all* those muscles when water ski-ing, it must be good for you!) Back in the office, a small group gathered around the loudspeaker to make a more considered judgment. There was my quiet opening commentary, the sound of the motor-boat—and all of the anguish of the beginner: the raised voice, the grunts, the puffs. Suddenly there came a most terrifying sound, like a robot drinking soup. One secretary looked maliciously at the other; here, clearly, was the Boss with one foot in eternity, rather than two confidently planted on water skis. It was, of course, the noise made by the water rushing over the microphone as it dropped beneath the surface; coming at the point it did in the recording it greatly heightened the dramatic effect.

The technique we pioneered was eventually used very successfully for recordings made at La Trayas, in the South of France. There, the commentator was an experienced water skier and, to parody the song, "his tow-bar never got wet." But then, we all have to begin somewhere!



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PARIS . . .

Mr. G. E. Spark, of the M.S.S. Recording Co., may have been telling a hi-fi fishing story when the cheerful photograph on the left was taken at the International Festival of High-Fidelity and Stereophony in Paris.

Left to right in the group are: M. H. Fichot, President of the Festival Committee; Mr. Spark; Mr. H. M. Rahmer, of Beam-Echo Ltd.; and M. M. Boissinot, General Secretary of the Syndicat des Industries Electroniques de Reproduction et d'Enregistrement.

. . . VOLENDAM

In the picture on the right Mr. Ward van Heese is seen interviewing an old fisherman at Volendam during the making of a sound picture of "The Reclamation of the Zuiderzee" for the International Tape Bank for Education.



They planned to emigrate by tape

CAPETOWN

It all started when Roy Penfold, a U.K. member of World Tape Pals, sent a tape received from South Africa to an English family living in Cornwall.

Keith and Marjorie Dean and their four-year-old daughter, of Cornwall, England, decided they would like to tape-respond to Ron and Adelaide Malan of Cape Town. A flourishing tape friendship started. Soon tapes flew back and forth between the two countries.

At one stage, five tapes containing a sort of five part serial letter were posted off in one parcel. Along with the flood of information on tape went booklets, newspapers and photographs.

As a result of their tape exchanges, the Deans decided to emigrate to South Africa.

The two families, the Malans have two boys aged seven and two, have got to know one another so well, and the Deans have heard so much about the country

that they are sure everything they are looking for can be found in South Africa.

After the decision was made, the tapes became full of plans for the trip. This latest phase of the tape exchange has been going on for about three months. Such things as jobs, housing, commodity prices and the availability of schools and so on have been discussed exhaustively.

Keith Dean applied for a post as an Air Radio Technician with the Ministry of Transport, passports were applied for and obtained, and now they are waiting to hear when they will be on their way.

Keith intends making a tape and film record of the trip. He is a "taper" of imagination and ingenuity—the result should be worth seeing and hearing.

"We always strive to present an accurate picture of South Africa to our overseas taperspondents," says Ron Malan, "and we are particularly glad about this now."



POST OFFICE PARTIES VISIT TAPE FACTORIES

LONDON

TWO groups of G.P.O. employees recently visited London factories to see tape recorders being made. The ETESSA Tape Recording Club, seen on the right, visiting the Grundig (Great Britain) Ltd. factory at Sydenham, draws its members from among the staff of the Cable and Wireless Section of the G.P.O. They were received by Mr. V. P. Cole, Grundig's General Sales Manager.

The lower photograph shows a group of Post Office engineers watching the manufacture of Elizabethan recorders at the Romford factory of E.A.P. (Tape Recorders) Ltd. They were shown round by Mr. Molen, general manager of the firm.



From Washington, news of the MIDGET RECORDERS FLYING IN SPACE

WASHINGTON

INFORMATION is now available about one of the most fascinating midget tape recorders ever made—the equipment carried by the American Atlas ICBM missile which broadcast President Eisenhower's voice from outer space a few months back.

Scientists at the U.S. Army Signal Research and Development Laboratory at Fort Monmouth, New Jersey, designed and built the prototype, and a number of machines have now been constructed. Two were actually carried in the Atlas missile.

They were made of magnesium and each handled an endless loop, contained in a cartridge of 75 feet of single-track polyester tape. Record and playback speed was $3\frac{1}{2}$ ips.

Each recorder included record and play-back head, erase head, and a

governed D.C. motor driving the flywheel capstan assembly by a thin polyester belt. The recorders were circular in shape and measured less than six inches in diameter.

The two recorders in the Atlas were part of a communications relay of a type which may ultimately become of great importance in civil electronics. The purpose of the exercise was to receive, store and relay messages from ground stations. When these stations were in range, the orbiting rocket could receive and transmit seven written messages and one voice message at one time.

A ground station was able to transmit a message to the rocket and it could either be relayed immediately, without storage, to another ground station, or alternatively it could be recorded in the rocket and stored. In that case, any other ground station could later trigger off the replay function and pick up the message.

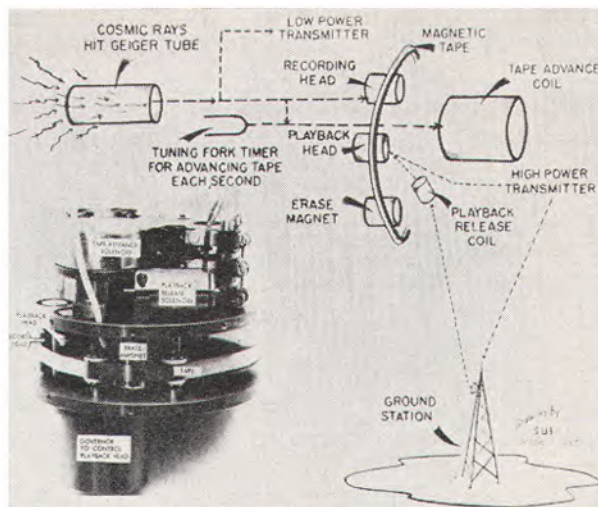
In the initial experiment, the Americans used four ground stations—one in Georgia, one in California, and two in Texas. But the possibilities if these stations were spread about the world will readily be appreciated.

Such rockets might carry large quantities of recorded messages for long distances at very high speed and "dis-

charge" them electronically to ground stations around the world. Another possibility might be immediate relay of radio and TV programmes to any part of the globe.

A fascinating development came with the American "Explorer III" satellite. A somewhat similar recorder developed by a 30-year-old graduate student at the State University of Iowa was used to record the story of cosmic rays, met in each encirclement of the globe. (See illustration.)

The recorder weighs about eight ounces. The cosmic rays hit a geiger tube and electrical pulses are created. These are fed to the recording head and transferred to a 36in. loop of tape: Up to two hours of cosmic ray counts can be stored, and the data can be radioed back within five seconds above a triggering ground station. The tape is then erased for the next orbit. Tape movement is controlled by a special coil and tuning fork timer.



Mic on ice



ST. MORITZ.—Thanks to Henry Taylor, of the British No. 1 bobsleigh team, tape enthusiasts in England can now share the thrills of the famous St. Moritz run. Taylor is seen above having a Fi-Cord midget recorder fitted into his rucksack before taking the run.

"Tape censored" allegation

JOHANNESBURG

Questions were asked in the South African Assembly after a Johannesburg businessman claimed that a tape recording which he sent overseas was censored by the Union authorities.

The tape, he alleged, had been sent to a friend in England and was returned to him with cuts, totalling about three feet in length, eliminating twelve seconds of the conversation recorded.

His friend sent the tape back after noticing that the package had been opened.

Pointing to a splice which he described as "most unprofessional", the businessman claimed, "the tape was in perfect condition when I sent it." The angle of the splice was 30 degrees, instead of the customary 60 degrees.

Long looping cuts in the edges of

certain sections left the tape only a fraction of an inch wide.

"The conversation consisted of no more than generalities," he said. "What puzzles me is the fact that words on a tape should be censored when I could easily have written them in a letter..."

Sequel to this report, which appeared in a South African newspaper, was a statement by the Minister responsible to the Assembly, that a tape recording of a private communication recently dispatched by post from Johannesburg had not been opened and censored. Postal officials, he said, were not permitted to inspect, listen to, or censor recordings on tape or other material which were sent through the post.

He was replying to questions about alleged tampering in the post of a tape recorded message.

A MAGNETIC MAGAZINE

TOKYO

JAPAN has stolen a march on the rest of the world with a new type of "talking magazine" in which complete pages are printed with special brown ink containing iron oxide. These pages are torn out and put through a new-type machine called a "synchro-reader," which plays them back.

It costs the publishers an extra 2½d. a copy to include the sound pages. It costs the reader £134 for a "synchro-reader." The machines will be generally available almost immediately.

The first exercise in the new technique was by a science journal which provided its readers with the sounds of the Niagara Falls and of Big Ben, along with colour photographs.

Already three big Tokyo printing plants are equipped to use the new process. The sound is reported to be of very high quality. The inventor plans textbooks in languages and music, using the new sound pages throughout.

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Emitape is chosen by world-famous recording companies—like H.M.V., Capitol, Columbia, Parlophone—for recording the greatest artistes of our time . . . It is also the choice of the B.B.C. and I.T.V. for recording every kind of programme every day and of the research workers for countless applications in industry and science. And, of course, Emitape is made by E.M.I.—leaders in sound recording for over 60 years . . .

Here then is good reason for you to choose Emitape for your own tape recordings. With Emitape you can always be sure of the finest possible recording quality—remember, the Emitape you buy is the same .0015" PVC base Emitape used by professionals the world over.



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FOUR BRIGHT IDEAS

A first instalment of the entries

received in our recent contest

TWO cheap alarm clocks, fitted with switches and modified, have been in use for making and breaking a circuit daily for the last six years, and they have never failed.

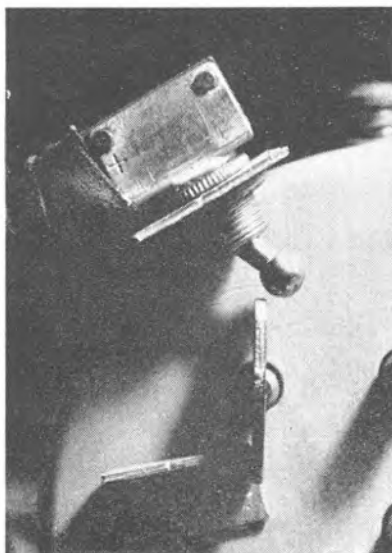
The system has the advantage of cheapness, simplicity, positive action and reliability.

The method is to remove the alarm bell and clapper arm from the clock, and fit a bracket to the case, on to which a toggle switch is so fitted that it is operated by movement of the alarm wind, as shown in the diagrams. A stop should also be provided, so that the alarm wind can only move through one half-turn.

To secure "on" and "off" switching, the two clocks have their switches in series, but fitted in opposite senses, so that alarm wind A, when the alarm functions, completes a circuit through the switch on B, which is set "on" until its alarm wind functions and so turns the switch "off."

Northampton.

S. E. CRYER.



CHARLES LANGTON,

Technical Editor,

comments:—

R. L. TAMS.—Will do all that is required, and operation is easily understood. Requires relay.

S. E. CRYER.—Simplest and most efficient of all, but suffers from the disadvantage that two clocks are required—one to switch on, the other to switch off. Will function directly in mains circuit, without relays.

THOMAS LAX.—A very simple solution for switching on and off, using one clock, although adjustment of timing interval may be tricky. Relay required.

L. J. ASTON.—As this is a slight modification to a commercially obtainable time switch, it can hardly be considered as being of amateur invention.

Simple method with one clock

THE following method, using an ordinary alarm clock, has had several years testing. If the inside is removed from the clock case, it will be seen that, on the front of the gear chassis, there is a long spring bar, bent over at the top. This bar is the first stage in the alarm operation.

When the alarm is set, at the appointed time, this bar flies forward and, under cam action, it is then withdrawn quite slowly.

If an insulated contact is lined up with this drop-arm and the chassis of the clock is wired to a 6-volt battery, a circuit is easily made and broken through a relay.

The arm rises quickly enough for this purpose. The duration of this circuit is adjustable by moving the contact either way, from or closer to the normal "off" position of the drop-arm. This is because the cam will come into operation earlier or later, depending on the position of the drop-arm.

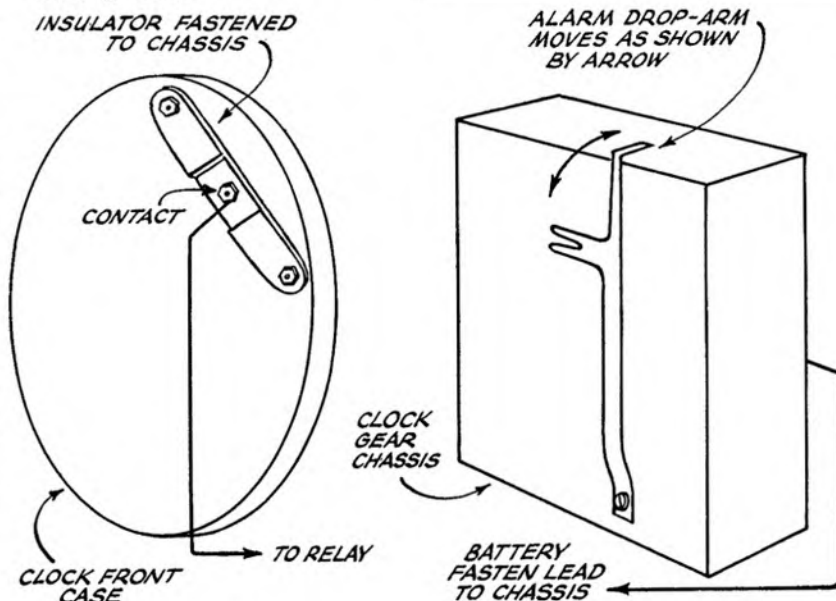
The drop-arm operates whether or not the alarm is wound up, and consequently one gets a noise-free action by leaving the alarm unwound. The duration can be adjusted from a few minutes to nearly two hours.

I would like to add the usual warning not to connect the clock to the mains, but

to use a relay circuit. The accompanying sketch may help to explain the technique.

THOMAS LAX.

Barking, Essex.



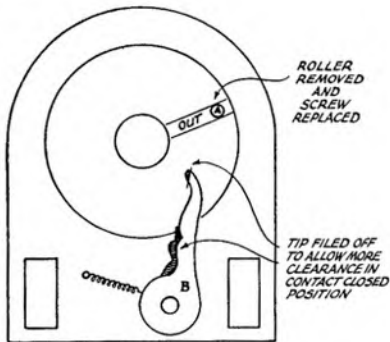
FOR TIME SWITCHES

A SIMPLE MODIFICATION

THE Venner switch (obtainable from Southern Radio Supplies, Lisle Street, London, W.1., for 27s. 6d., complete with mounting block), is ideal after slight modification. As sold, it is not possible to time intervals of less than 45 minutes.

But removal of roller A and slight filing of lever B results in times down to 25 minutes becoming possible.

The second snag is accuracy in setting the two timing levers. This is overcome by setting the required times for "on" and "off," and then turning the timing disc slowly by hand and checking the exact moments of switching.



The mechanism runs for 21 days and is very accurate, the movement being jewelled as a normal clock. Accuracy of the order of plus or minus two minutes is easily obtained.

I have the terminal block mounted in the bottom of a four-inch-cube box. Mains sockets are mounted on three of the sides, the mains lead running from the fourth side. A toggle switch mounted on the lid makes it possible to short the timers' contacts, for setting up the radio and recorder.

I have had two of these timers in use for about fifteen months.

L. J. ASTON.

Acton, London, W.3.

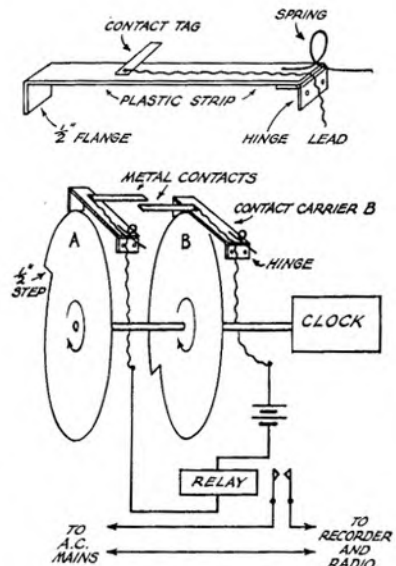
So many entries have been received in our contest for the best design for a time switch that we are unable to publish a full selection this month. More ideas—and the decision on the prizewinner—will be published in our next issue. Meanwhile we nominate the idea below as . . .

THE BEST OF THIS MONTH'S ENTRIES

from Rupert L. Tams, of Preston, Lancs.

TWO light, rigid discs should be mounted on the hour shaft of a clock (in place of the hand). They should be cut to the shape of spiral cams. Each cam has a half-inch-deep step where the spiral begins and ends, but cam B is cut from a disc with a radius $\frac{1}{8}$ in. less than that of cam A.

Two contact carriers are made of light, non-conducting material, each with a half-inch flange or projection at right-angles at one end, and at the other end hinged and sprung so as to



keep the flange in contact with the periphery of the cam.

As a cam rotates clockwise, the contact carrier will drop half an inch when the step passes under the flange.

Conducting spring-metal contacts are fixed near the flange end of the carriers and lead wires are taken from them. These contacts are at right angles to the carrier arms (see sketch) and when the step causes the arms to fall, the contact tag is also lowered.

The discs should be fixed parallel to each other, about one inch apart and they will rotate together.

When the contact tag of A falls half an inch at the step, it touches and rests on contact tag B and makes the circuit.

The discs continue to rotate and the step on cam B allows arm B to fall half an inch. Because cam B is $\frac{1}{8}$ in. less radius than cam A, the contact tag on arm B will fall away from contact tag A, breaking the circuit.

The cams can be arranged so that they can be turned, relative to each other, and clamped. This will allow any time of switching on and duration before switch-off, up to three-quarters of a 12 hours revolution. An accuracy of within two minutes should be easily secured.

LOOK TO THE CAPSTAN IDLER

I WOULD point out that in most cases the capstan pressure idler would be in contact with the capstan for a number of hours, and this may tend to form a slight "flat" on its surface. Although small, this would probably produce a degree of flutter on playback.

I think that time switches would only be suitable for machines such as the

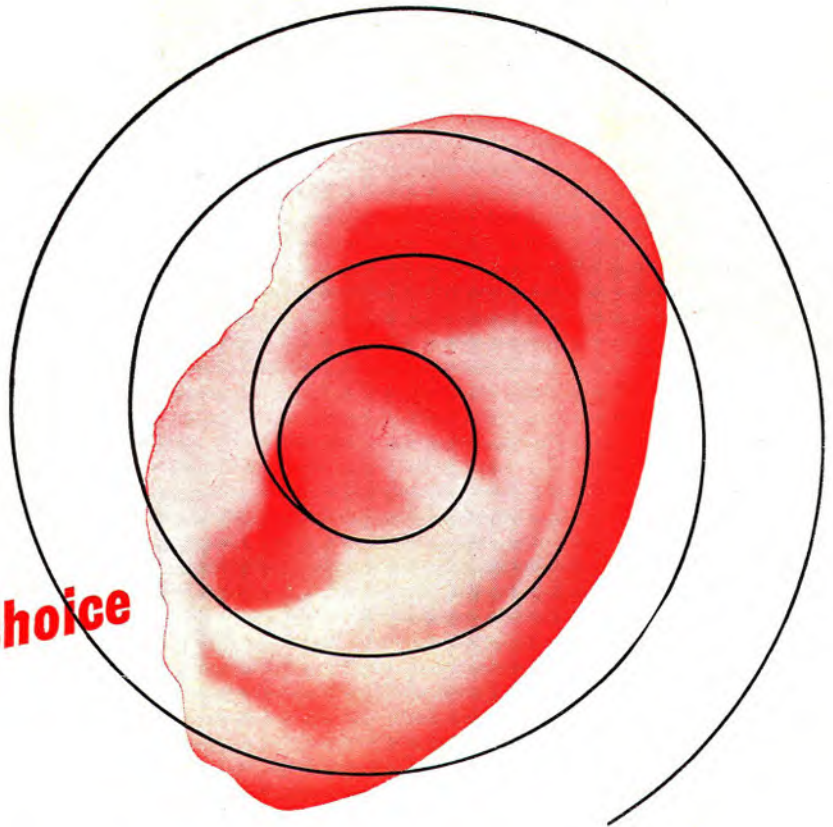
Grundig TK820, where all pressure idlers are solenoid-actuated, and there is no possibility of damage to the rubber tyre.

G. L. BUIST.

Ilford, Essex.

Note: I thank Mr Buist for enlarging upon the warning I gave in my article on page 44 of "T.R. & Hi-Fi Magazine," April issue.—C. H. L.

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BASF tape records all varieties of sound and reproduces them faithfully . . . on all types of recorder . . . at all speeds.

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COPYRIGHT: A SOLUTION IN SIGHT?

By The Editor

THE Mechanical-Copyright Protection Society is preparing a scheme which would remove recent doubts about recording and copyright for a modest annual fee, payable by tape recording clubs.

Preliminary reaction expressed to *Tape Recording and Hi-Fi Magazine* appears to favour such a solution. One club has already accepted the proposition.

The Society is understood to have in mind a licence fee not exceeding two guineas a year and which might, in certain circumstances, be less. It would cover the copyright of music which members of a club might wish to record for their private and family use.

In our next issue we hope to publish full details of the proposals and, meanwhile, we shall welcome further reaction from our readers.

We are in close and continuous touch with all parties interested in the copyright problem—the representatives of owners of copyright, the tape recorder manufacturers, the clubs, and some of the big disc companies. We now believe that a solution can be worked out without great difficulty, and we hope that we may be helpful in achieving it.

In our last issue, we suggested a conference of all who are concerned with the future of tape recording as a hobby, industry and trade, and tentative arrangements for such a gathering were made. Our approach to manufacturers and national clubs roused great interest and (with the odd exception of two manufacturers) we were given the most encouraging assurances of full participation.

We stand ready to summon such a meeting at any time if circumstances suggest it to be necessary, but it seems possible that progress can now be made without it.

* * *

THERE were two points in our comment last month which we wish to clarify. We suggested that "there is nothing illegal in the mere procedure of transferring a recording from disc to tape—provided the original sounds on the disc do not constitute copyright material." This is not correct.

There are a number of recording studios which make private recordings on disc, from tape or with microphone. If you commission such a recording of, say, your own voice, the fact that it is on a disc does not prevent you transferring it later on to tape, if you wish. In short, it is not illegal to re-record material from a disc, *simply because it is on a disc*. That was the point we were seeking to make.

But any disc made by a record company for sale to the public is a different matter altogether. It is illegal to copy such a disc in any circumstances, even if the sounds it contains are not, in themselves, copyright material.

If, for example, one of the record companies issued a disc containing bird-song or the noise of railway engines, it is unlikely that there could be copyright involved in those sounds, but there would be a copyright in the actual recording by the record company; and that copyright would be infringed if the disc or any part of it were transferred to tape.

The other point arising from last month's article concerns the notice issued in the past by the B.B.C. suggesting that recording of programmes "for private and domestic use" was permissible.

It is the view of the Mechanical-Copyright Protection Society that that notice does not accurately express the existing law, in

that—whether or not a recording is made for private and domestic use—the permission of the owners of copyright material is required. We understand that negotiations are proceeding which should clarify this situation.

* * *

WE have, since our last issue, secured an opinion from a counsel who is eminent in the copyright field, related particularly to the recording of music.

This makes clear that there are four things for tape recording enthusiasts to keep in mind:—

1. There is copyright in the actual *musical work* itself;
2. There is independent, subsidiary copyright in any *sound recording* of a work;
3. There is independent, additional copyright in a *broadcast* of a work;
4. There is copyright in the *performing right* of a work.

It has been the case, in past practice, that points 3 and 4 are covered by the B.B.C. statement advising that recording for "private and domestic use" is permissible. Unless there is any new statement in a contrary sense from the B.B.C., this can be assumed still to be so.

On point 2 the position is clear. It is quite illegal to re-record on tape any copyright recording—and that includes all discs issued by the record companies. Obviously, this applies as much to broadcasts of such discs as to direct playing of them in the home. There is no sign of any disposition to ease this provision of the law in any way, and readers should understand the illegality of such recording.

We are left now with point 1—the copyright in the actual musical work. This is the point with which the Mechanical Copyright Society has been concerned in recent weeks, and their proposal now is that their licence would cover it, so far as the home and club recordist is concerned.

What about those individuals who do not belong to a club which secures a licence? In law, they will not be covered if they record copyright music. In practice, many lawyers and legislators believe it would be extremely difficult to enforce the law in that sense. It would only be possible by invading the privacy of the home to secure the necessary evidence. It would be surprising if either the courts or Parliament took kindly to the sort of snooping which would be involved.

But a simple and sensible solution can be found that will make all this academic, if the will is there.

On the side of the clubs, it appears to be. Typical of the reaction we have so far received from them are these two declarations: "Our club members are agreed that a fee will perhaps be payable for musical works played back at club meetings" and "I myself would agree that every tape recording club should be able to pay a reasonable fee to cover all its members for purely amateur recording."

We will pursue this subject until, for the benefit of all our readers—club members and individual enthusiasts—we have so clarified the present legal position as to enable them to pursue their hobby free of worry and uncertainty.

TAPE LECTURES

A series of monthly lectures organised by "Tape Recording and Hi-Fi Magazine," in association with Olympic Sound Studios.

June 6th at 3 p.m. **F. H. BRITAIN, D.F.H.**

will give a lecture-demonstration on

"Why two-channel stereo works"

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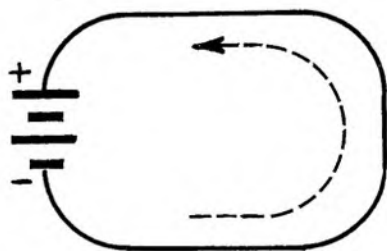


FIG. 1.
*DIRECTION OF
ELECTRON FLOW*

Charles Langton explains what happens

WHEN YOUR VOICE GETS CAUGHT IN A MAGNETIC FIELD

WE know now that an electric current is an orderly movement of electrons round the circuit, from the negative terminal of the battery to the positive (Fig. 1). Unfortunately, before the electron was discovered, scientists had agreed, for the sake of uniformity and convenience, to assume that whatever was flowing did so from positive to negative (Fig. 2). This is known as the *conventional flow* of current, and became so firmly established that, even today, electrical calculations are normally based on the conventional direction of flow, rather than on electron flow.

This is particularly the case in the study of electro-magnetism and so, for the remainder of this article, whenever reference is made to current flow, conventional current will be inferred.

The most convenient way of making a permanent magnet is to place a steel bar inside a coil of insulated wire (Fig. 3a) and pass a direct current through the wire for a few moments, then switching off. Upon removal, the steel will be found to be magnetised. This is possible because, when the current is flowing, a magnetic field exists inside the coil, whether the steel bar is present or not.

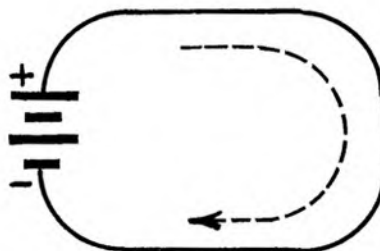


FIG. 2.
*DIRECTION OF
CONVENTIONAL CURRENT*

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This is known as the magnetising force. If now the battery is reversed, so as to send the current round the coil in the opposite direction (Fig. 3b) the bar will be oppositely magnetised.

If a bar of soft iron had been inserted inside the coil, instead of the steel, the iron would also have become magnetised when the current was switched on, but would easily lose its magnetism when it was switched off. Thus, electro-magnets which have to be switched on and off as required must use a soft iron core, and not one made of steel. The property of a material in retaining its magnetism is known as retentivity.

After having been magnetised, the iron or steel may be completely demagnetised by applying an opposite magnetising force of just the right value. This is known as the coercive force, and will be larger for steel than for iron, under similar conditions. Thus, steel has a high, and iron a low, coercivity.

It will be realised by now that the magnetic oxide which coats the active side of recording tape must have a high coercivity, so that once magnetised, it will not easily lose its magnetism. Magnetic heads, on the other hand, are supplied with alternating current at frequencies of up to 80,000 cps, which means that the current through the coil will reverse its direction as often as eighty thousand

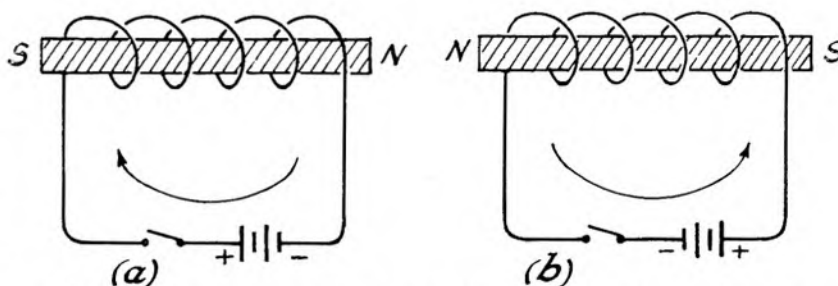


FIG. 3. REVERSING CURRENT REVERSES POLARITY

of the magnetising force, so that, when removed, the steel will be magnetised. If a stronger current had been passed through the coil, the magnetising force would be greater, and more magnetic atoms would have "clicked" into place, resulting in a stronger magnet. There is a limit to the strength of any magnet, however, and this is reached when all the magnetic atoms have twisted into the same direction. The steel is then said to be saturated, and all efforts to further increase its magnetic strength will fail.

Coercive force now reveals itself as the magnetic force necessary to click the atoms back into their original positions of neutrality; as has been stated, the force required is less in iron than in steel.

We may now apply the above theory to gain an understanding of the process of magnetising a section of tape. The audio frequency currents are applied to the coil in the recording head and, as the core is made of low coercive material, its atoms easily twist about in sympathy with the everchanging current, thus giving rise to a varying magnetic field across the gap whose strength and polarity is proportional to current at any instant (Fig. 4).

Consider now the magnetic tape passing across the gap at a constant speed. At any instant, the magnetic field penetrates into the surface of the magnetic oxide to a depth depending upon the strength of the field and, therefore, the strength of the current at that instant. Some of the magnetic atoms in the oxide at that point will be twisted into the direction of the field, and as the tape leaves the gap, the atoms will remain in their new positions, thus leaving a permanent magnetic record of the strength of the audio current at that instant.

If the signal has a sine waveform, a

visual image of the magnetising process may be represented by (Fig. 5). The points on the tape marked A, C, E, G and I each passed across the magnetic gap when the magnetising force was zero, as shown on the sine wave. Points B and F, however, are each magnetised in

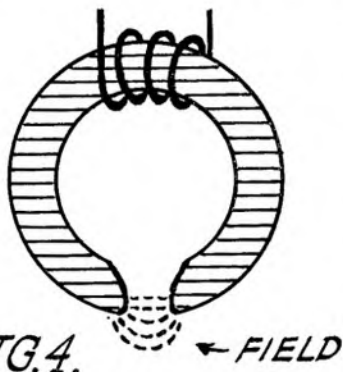


FIG. 4.

times per second. As the magnetism induced in the core has to follow suit very faithfully, this can best be achieved if the core material has a low coercivity.

It is interesting to probe more deeply into the subject of magnetism. The few materials which do show the effects of magnetism do so very markedly indeed. These are iron (and steel), nickel, and cobalt, and are called the ferro-magnetic substances. It has already been stated that a magnetic field accompanies every moving electron, and the atoms of ferro-magnetic materials contain electrons spinning in such a manner that small magnetic fields are associated with each atom, or group of atoms. These countless magnetic atoms point in all directions in an unmagnetised steel bar; that is why the fields cancel one another out and cannot be detected.

If, however, the steel bar is placed inside the coil, as mentioned earlier, and the current switched on, many of the magnetic atoms will twist round in the direction

STEREO LECTURE

An opportunity to learn to understand the secrets of stereophonic sound is presented by a talk and demonstration to be given on June 6 by F. H. Brittain, the well-known G.E.C. audio expert, at Olympic Sound Studios, Carlton Street, off George Street, London, W.1.

The title of Mr. Brittain's talk is "Why two-channel stereo works," and it represents one of the current series of talks and discussions presented by *Tape Recording and Hi-Fi Magazine*, in association with Olympic Sound Studios.

The talk begins at 3 p.m. and it will be followed by a discussion and an opportunity for those present to hear their own tapes played on first-class equipment.

Admission is free.

the same direction because at the instant of crossing the gap a high positive value of magnetising force existed in each case. Similarly, an opposite force existed when points D and H passed by. At intermediate points the number of atoms acting in any given direction will depend upon the instantaneous value of the magnetising force at that instant.

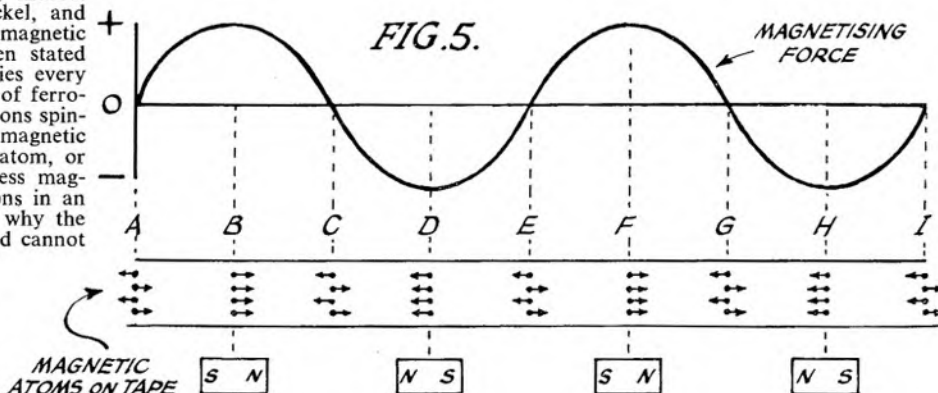


FIG. 5.

The Collaro deck

REDUCING MOTOR HUM PICK-UP

THIS month I shall describe a suitable pair of hum bucking coils, complete with mounting brackets, which will reduce the motor hum pick-up in the record/play heads on the Collaro Tape Transcriber.

The principle of operation is as follows:

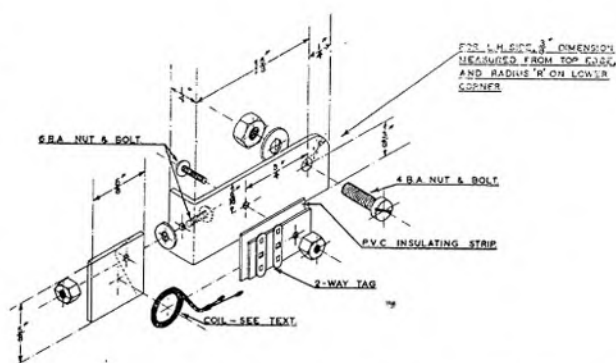
A small coil of wire with a suitable number of turns is connected in series with the playback head earth return lead. This coil is fitted on to a bracket at some convenient position near one of the tape transcriber motors. The external field of the motors induces a 50 cycles current in this coil which, when correctly adjusted, is in opposite phase and equal amplitude to that picked up by playback head.

Now this method of hum elimination is successful provided other sources of 50 cycles and 100 cycles pick-up have been successfully reduced in the amplifier, i.e., by elimination of earth loops, earthing pre-amp at input only, D.C. on pre-amp valve heaters or adjustable heaters, C.T. power supply on separate chassis.

Providing all these steps have been taken, direct inductive coupling can occur between mains transformer and playback head inducing a current which is generally out of phase with the motor current.

The external field from the mains transformer can be a very difficult source to remove, due to the predominance of third harmonic in the wave form. The obvious remedy would be to site this transformer as remote from the heads as possible. However, this distance is restricted in the portable model due to the physical size of the cabinet.

Rotation of the transformer will not help in this case as minimum pick-up in one head is not necessarily minimum in the other. Screening this transformer is unsatisfactory, due to the thickness of metal required for a noticeable reduction. The use of mu-metal is also unsuccessful unless of a substantial thickness, due to saturation. Operating this transformer at a lower flux density, however, does give a noticeable reduction in



pick-up, but increases the weight, unless the more expensive grain orientated lamination are used.

I wish to emphasise that hum balancing is successful where one low frequency component only is involved—i.e., tape deck motors which have a reasonably pure wave form. Accumulation of all the previously mentioned low frequency components produces a wave of irregular shape and rich in harmonics which is both impossible to balance out and distracting to the ear.

Two separate coils are required, of identical construction, wound from 38 S.W.G. enamelled silk covered copper wire. Wind 15 turns round a $\frac{1}{2}$ in. former, twist ends together and leave both ends 1 in. long. Remove from former, dip in shelac, and leave to dry. Scrape $\frac{1}{8}$ in. of insulation from both ends of wire, and tin.

These coils are fixed to the moving part of bracket with white Bostik or similar adhesive. (See diagram.)

Connect one side of the coil to outer braiding and the other to blue wire on playback head; red wire should remain as before. Switch to playback on both tracks and adjust brackets for minimum hum; should hum be louder than previously, reverse connection to hum-bucking coil. **T. H. R.**

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- (1) mains on/off/tone control;
 - (2) microphone or playback volume;
 - (3) radio/gram volume.
- Complete with Acos mic.

TESTED IN THE LAB

FOR many years until recently, the only available portable battery machine was the EMI L2. The Boosey & Hawkes "Recorder" could never compare in performance with the E.M.I. machine; for all portable recordings, one *had* to use an L2, though it had its shortcomings.

The new Fi-Cord transistor portable compares very favourably with this firm's earlier model—especially in price.

To operate the old machine economically, it was necessary to buy an expensive accumulator pack, whereas now rechargeable miniature batteries are included in the price, in addition to the easily portable mains battery-charger unit.

A versatile machine

I consider myself that the new Fi-Cord is in many ways more versatile than the L2. Having made numerous recordings outside and indoors, I can only fault the machine in one respect, which will be mentioned later. The Fi-Cord is made under licence from a Swedish firm, and measures approx. 5 in. x 3 in. x 9 in. Thus it will fit easily into any large handbag or small attache case.

I will first mention some details of the machine itself. It records half-track at 7½ ips for good speech quality or amateur music recording and at 1½ ips for documentation speech recording. It will, of course, be realised that the slower speed gives a poor frequency response, but the speech remains always perfectly intelligible.

The capstan motor runs at these two speeds and takes its current supply from the main accumulators. The tape tension on the take-up spool is controlled from the capstan itself, which drives this same spool, and the supply spool is held in continuous back-tension by a metal rod applying spring pressure against the tape on the spool. A fly-wheel and guides are incorporated to reduce wow and flutter as low as is possible, consistent with keeping the size of the machine relatively small.

Internal speaker

An internal loudspeaker allows tapes to be played back immediately after recording. A 3½-in. spool of tape, using double-play tape, allowing for both tracks, will last 1½ hours. The machine will operate from the internal batteries between one and two hours' continuous running at the fast speed, and about three hours at the slower speed, the main consumption of the machine being the current taken by the motor itself. As the exchangeable batteries are relatively cheap for the service that they give, it is quite possible to take a spare set and to change batteries in a matter of a few seconds, as they are just clipped in behind the spools themselves.

If the lid is closed while the recording is being made, it automatically mutes the internal speaker which, however, remains in operation when the machine is recording normally. The inputs are between 300 and 1,000 ohms for microphone, and there is a higher impedance input for taking the output from a portable radio set. There is also an output at low impedance to drive an external amplifier, if desired.

The tape modulation is controlled by an ordinary gain control, which is set by watching a miniature line magic-eye indicator; the maximum level of recording occurs when the line changes into a barely discernible dot. One should never, while recording, allow the magic-eye always to be "blacked out": in fact, the blacking out should occur only on extreme peaks.

It is essential to modulate the tape as high as possible, however, because of the performance of the transistors which are, I am afraid, a little noisy. I have tried out a number of these models, and some have a tendency to be very noisy on record-



THE FI-CORD BATTERY PORTABLE

by ANGUS McKENZIE

ing, putting a sort of background "mush" on the tape if the recording gain control is turned beyond a certain point.

It is, therefore, advisable to use a microphone with as high an output, at the input impedance suggested (600 ohms), as is possible. Two microphones recommended are the Lustraphone full-vision microphone, which is wound especially with an impedance of 600 ohms, and the Reslo ribbon microphone, fitted with special baffle internally, having an impedance of about 1,000 ohms. The microphone supplied was nowhere near the standard of these two microphones.

The machine sent for review was taken round on the underground railway and on to main railway stations to record outside sound effects, and the sounds obtained were quite realistic when played back at the studio on a Simon recorder at 7½ ips. It demonstrated how little one normally notices the amount of noise one encounters on the way to work! This recorder showed up the many weird noises trains make when standing still or starting up. I have now discovered for example, that the pneumatic drill-type noise made by many Metropolitan underground trains, is due to a compressor, which allows the train to have good brakes.

But to get back to the Fi-Cord; the machine is supplied with shoulder straps and can be very conveniently switched on and off, without anybody knowing it is recording. I must

(Continued on page 37)

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THE SIMON REMOTE-CONTROL

THE remote-control unit for the Simon SP.4 has just come to hand, and I have been having a lot of fun stopping and starting the machine. There is something quite fascinating about its operation, and not once did the mechanism fail to respond to my continual switching.

A very long lead is supplied, so that the recorder can be hidden in a cupboard, or even in the next room, or the unit itself could be kept behind the desk in an office and out of sight.

I need hardly mention the uses for such a device. A typist could easily use it for dictation purposes, using the track change for back-spacing. Altogether a most useful asset for this excellent recorder.

A. M.

THE FI-CORD

(Continued from page 35)

mention, however, that when the machine arrived the strap was not connected to it and I had extreme difficulty in fixing the straps to the knobs projecting from the chassis.

Because I am rather tall, I had to extend the strap, whereupon one of the buttons joining the straps together came off! Perhaps something could be done about this by the manufacturers.

I realise I may have been a little critical of this machine. Let me be fair: for only 59 guineas, this complete machine, equipped with microphone (on which there is a switch starting and stopping the recorder), four miniature accumulators which fit inside the machine, and the complete battery charger, I feel this compares very favourably with any other available machine recording at $7\frac{1}{2}$ ips. This recorder is suggested for those who are not expecting a professional or even semi-professional machine, but who want a good, reliable and robust machine to have fun with—anywhere from the top deck of a bus to the inside of a cave at the seaside. I do recommend it, if the purchaser fully accepts the limitations.

I would suggest, however, that the British manufacturers of this machine should test to a specific standard every machine sent out. Although their own workmanship may be good, transistors still may not be completely reliable when they come off the factory mass-production line.

THERE are a great number of tape recorders of various makes on the British market. Some are low in price, others very moderately priced, some expensive. I would say that, pound for pound, the Sound Belle 333 tape recorder would be a very good buy.

The design of this small, light instrument is such that it can be placed on a chair or bedside table, or be shelf-mounted. Its appearance is elegant and streamlined; the case is of brown and white-edged plastic, and a gold-sprayed metal grille. Four rubber feet are fitted.

Controls consist of combined on/off volume control, and six push-buttons which are clearly marked as to their use, and are easily operated. The tape spools are of 4 in. diameter and hold 600 feet of "long play" tape. Recording time is approximately one hour four minutes per reel.

The Sound Belle 333 is exceptionally quiet in operation. Tape threading is simple: it just drops in.

Points of interest about the amplifier of this tape recorder are that it is correctly compensated and it can be used as a straight-through amplifier by depressing the push-button marked P.A., when needed for playing gramophone records or for linking-up a self-powered radio tuner.

The internal loud-speaker size is 7 in. by 4 in., and it is most impressive in sound level. An extension speaker can be plugged into a socket provided at the rear of the tape recorder. This should be of 3 ohms and of good make for best results. The action of connecting an extension speaker lead into the socket automatically disconnects the internal speaker.

The tonal quality of recordings made on this small, compact tape recorder, compares favourably with some tape recorders costing a great deal more. The recording level indicator is of the magic-eye (cathode ray) type.

The deck has two counter-sunk compartments for the spools, with finger slots for easy removal. To avoid collection of dust in these indentations, it would be an advantage to obtain a cover similar to those used on type-writers, for when the machine is not in use, as the Sound Belle 333 has no lid.

The supplied microphone is a piezo-electric, and is very good indeed. Also supplied are 600-feet of long-play tape, an extension lead for recording from radio, and a safety-type mains lead.

A fully descriptive leaflet on the operation of the recorder is supplied and should be read before connecting the machine.

The overall size is 10 x 8 x 5 ins, and weight 11 lb. The price is 26 gns. complete. I understand a carrying-case is available as an extra.

The Sound Belle 333 has been designed and built by the engineers of Tape Recorders (Electronics) Ltd., 784-788, High Road, Tottenham, London, N.17.

G. P.

How are your maths? If your brain is nimble, you can make charts to

SEE AT A GLANCE WHAT RECORDING TIME IS LEFT

TAPE enthusiasts often find themselves with several odd spools of tape, apart from the main collection. Some may be full of tape, while others probably have varying amounts upon them. Before using a tape, it is desirable to know just how much tape, and hence how much playing time, is available.

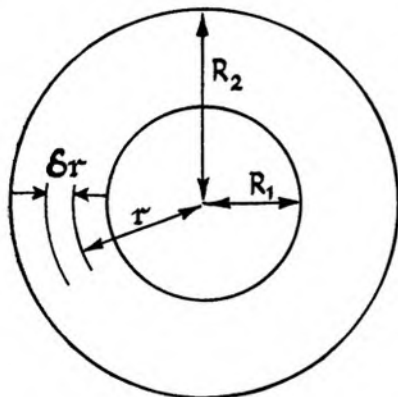
The same thing applies, when, having put a record on tape, one is wondering whether what is left is capable of taking a further recording of known length. In other words, it is necessary to ensure that the time required for recording is less than the length of tape available, divided by the tape speed.

Early recorders were fitted with scales beneath one or both spools, which gave an indication of the amount of playing time available. Since they indicated the amount of tape on the supply spool, it was necessary to ensure that the radius at which the tape began to be wound on, coincided with the zero playing time graduation on the scale.

For purposes of location of any point on the tape, however, the system broke down, owing to the difficulty in judging the reading on the scale to within several thicknesses of tape.



The scale system has been replaced by small counters which record the revolutions, or a factor of the revolutions, of one spool—generally the supply spool. Providing there is no slip in the drive, the system is very accurate, but, unfortunately it cannot be used to indicate playing time available, as the amount of tape being given up by the supply spool decreases with each revolution. For example, at the beginning of a 5 in. spool, one revolution will give up about 15 in. of tape, but by the time the diameter has been reduced



to 3 in., only 9 in. of tape are being given up per revolution.

Fortunately, it is not difficult to derive a simple expression which will give the length of tape available on any spool.

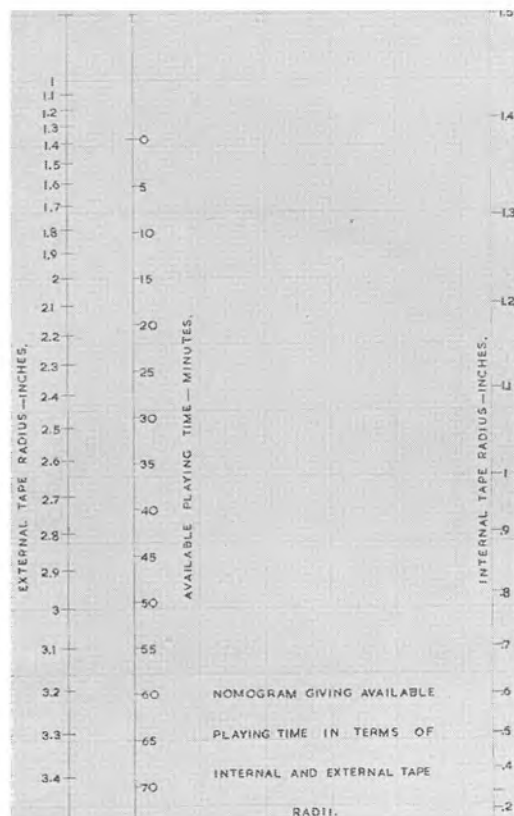
Once we have got the formula, its most useful application is in the construction of a nomogram, from which available playing time can be read off at a glance. The example reproduced on this page is based upon a tape speed of $3\frac{1}{2}$ ips and the use of standard tape, and can be applied to spools of up to 7 in.

It can be used by laying a ruler from the appropriate point on the right-hand scale (*i.e.*, the radius of the spool hub) to the appropriate point on the left-hand scale (the external radius of the available tape). The available playing time can be read off at the point where the ruler intersects the middle scale.



Now, for those with a mathematical bent, I will explain how to make the necessary calculations for a nomogram.

There are three variables—external radius, internal radius and tape thickness. If you stick to one size of spool and type of tape, the last two become, of course, constants.



By
B. E. WILKINSON

The diagram below shows a spool containing tape from an internal radius of R_1 to an external radius of R_2 . The tape is assumed to have a thickness of $1/G$ in., so that there are G thicknesses per inch. Fix a point—between R_1 and R_2 —a distance of r from the centre. Now imagine a small extension, δr . Within the additional distance there will be $G\delta r$ thicknesses of tape. Thus the actual length of tape will be $2 \times G\delta r$.

The total length of tape on the spool is found by summing the term between $r = R_2$ and $r = R_1$.

$$\text{Total tape Length} = \int_{r=R_1}^{r=R_2} 2\pi Gr \cdot \delta r = \int_{R_1}^{R_2} 2\pi Gr \cdot dr = \pi G [R_2^2 - R_1^2]$$

$$2\pi G \int_{R_1}^{R_2} r \cdot \delta r = 2\pi G \left[\frac{R_2^2}{2} - \frac{R_1^2}{2} \right] = \pi G [R_2^2 - R_1^2]$$

The length is given, of course, in inches, and the playing time available is found by dividing the expression by the tape speed n , that is,

$$t = \frac{\pi G [R_2^2 - R_1^2]}{60n}$$

Dividing by 60 is necessary to express the time in minutes.

G is 434.8 for standard tape (.0023 in. thickness). Paper tape has a thickness of .0024 in. and L.P. plastic tape a thickness of .0017 in. The thickness of the particular tape used, however, may be determined with a micrometer. R_1 varies with the

(Continued on page 48)

PRODUCTS REVIEW

A new British battery portable



THE first all-British, battery-operated tape recorder at a popular price is announced this month by the Challen Instrument Company. It is the "Minivox," which will be sold for £38 17s., including crystal microphone.

It has a neat, business-like appearance, as the accompanying photograph shows, and it measures 10 in. x 9 in. x 5 in. overall. The weight is 9 lbs, with batteries.

The Minivox uses standard dry batteries and the manufacturers claim a battery life of 100 hours, with normal use. It is fully transistorised.

It accommodates 3 in. spools and operates at 1½ ips, so that, with long-play tape, using both tracks, an hour of recording time is available. Reverse and forward fast wind is provided.

There are two inputs, with provision for mixing, a level indicator, a built-in speaker, and provision for use of an external speaker.

The cabinet is finished in grey and fawn, with gold trimmings. The whole machine, including the deck, is made by the Challen Company.

Challen Instrument Company, 179, Hamilton Road, London, S.E.27.

Magnetic expands

THE MAGNETIC RECORDING CO., a subsidiary of the Wyndor Recording Co., makers of the well-known Wyndor range of tape recorders is being expanded to deal with the design and development of electronic equipment in general. Trade, particularly manufacturers' enquiries, are being invited.

Wyndor Works, 2, Bellevue Road, Friern Barnet, London, N.11.

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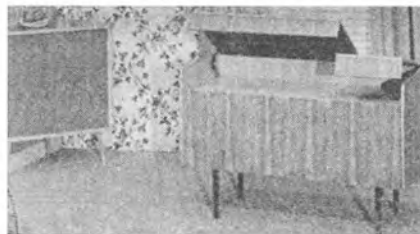
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NEW R.G.D. RECORDER

R.G.D., A RECENT newcomer to the tape field, has just announced a second model—the Mark 103, selling at 49 guineas, including crystal microphone and 1,200 ft. of tape. It has three speeds—1½, 3¼ and 7½ ips.

There are three motors and a four-stage plus amplifier, with printed circuit. Frequency response is quoted at 60 to 12,000 cps. The machine can be used as a public address amplifier.

The deck takes 7 in spools and fast rewind takes only 80 seconds.



There is a front-mounted 7 x 4 in. speaker and most of the controls are in a recessed panel at the side of the cabinet, so as to be accessible while the lid is closed. The two inputs can be mixed, there are bass and treble controls, and a pause control.

The wooden case is covered in two-tone grey leatherette, measures 17 x 13½ x 7½ in. and provides space for leads, microphone and two extra spools. The machine weighs 24 lb.

Radio Gramophone Development Co. Ltd., Eastern Avenue, West Romford, Essex.

VENUS IN STEREO

VERITONE have introduced a Venus stereo recorder and reproducer which records twin channel half-track stereo, giving up to four hours' playing time from one double play tape or up to eight hours with four track monaural. Either monaural or stereo pre-recorded tapes can be reproduced.

Possessing four separate amplifiers, the Venus Stereo has facilities for superimposition, echo effects on stereo and monaural, and it can also be used as a straight amplifier for the reproduction of stereo or monaural records from a player. Output is four watts per channel on stereo and eight watts on monaural. The machine will cost approximately 98 guineas. It will be available in console and portable form and supplied with speakers.

Veritone Ltd., 5, Avenue Parade, Ridge Avenue, London, N.21.

Two Trix machines

THE NEW B.S.R. Monardeck appears in another new model—the Trix “Companion,” selling at 29 guineas. This is a single-speed (3½ ips) machine, attractively housed in a red and off-white case, and intended to provide a simple and robust service for the general user.

There are inputs for a crystal microphone and for radio or pickup, and playback is through the internal 5 in. speaker or by connection to an external 3 ohm speaker.

The deck takes 5½ in. reels; and 850 ft. of standard tape, as well as the microphone, are supplied with the recorder.

Frequency response is quoted as 30 to 10,000 cps, signal to noise ratio at 45 dB, and total wow and flutter at 0.4 per cent. The weight is 21 lb., and overall dimensions 14 x 12 x 7 in.

The same firm is now marketing the “Everest,” at 49 guineas, providing 7½ and 3¾ ips and accommodating 7 in. spools. At the higher speed, frequency response is quoted at 30 to 12,000 cps. Signal to noise ratio is given as 60 dB.

There is a 7 x 4 in. built-in speaker, and output is three watts.

There are two inputs, with mixing facilities, and a rev. counter is incorporated in the deck. Weight is 22 lb. and overall size 15½ x 12 x 7½ in.

Trix Electrical Co. Ltd., Maple Place, London, W.1.

ANOTHER PERTH-SAJA

THE PERTH-SAJA range of recorders has been extended by the introduction of the Standard Twin model MK 45, priced at £54 1s. 6d. This is similar to the Standard MK 40, but is a two-speed model—3½ and 1½ ips. It is available in coffee and cream finish and contains all the familiar Perth-Saja design features.

It is claimed that the use of “supertone” heads, with ultra-fine slots, makes possible a frequency range of 50 to 16,000 cps at 3½ ips.

The machine is supplied with a crystal mic and 1,200 ft. of tape.

Perth Radios Ltd., 39-47, East Road, London, N.1

Lowest-price mixer unit

LATEST, MOST COMPACT and lowest-priced of the mixers suitable for use with tape recorders is that marketed by Dektron, which measures only 4¼ x 2½ x 1½ in. and thus can be fitted into an existing system with the minimum of disturbance. It costs 39s. 6d., direct from the manufacturers.

It has three inputs, suitable for two microphones and a radio, and pointer knobs give clear indication of the recording level of each channel. Units to take three microphone inputs can be ordered, at the same price.

Dektron, 2, Westbourne Road, Weymouth, Dorset.

TAPE FOR CONNOISSEURS

M.S.S. RECORDING CO. LTD., are now manufacturing a new grade of tape “to fulfil the needs of connoisseurs and professionals who require a recording medium, having the very highest standard of performance and reliability.”

The new Supergrade Mastertape is supplied only on 7 in. spools (1,200 ft.) at 50s. It uses a polyester base of 1.5 thou. thickness, making mechanical strength of the tape tremendous.

Each tape is pen-tested throughout and a chart of this test is supplied with every reel, together with a test certificate showing bias, noise level and frequency response variations from the standard. A record of every reel is kept by M.S.S. for two years after sale, so that further matched reels can be supplied on request.

Tapes are sold sealed in polythene containers.

M.S.S. Recording Co. Ltd., 21, Bloomsbury Street, London, W.C.1.

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THE CQ “TAPEHEART”

CQ AUDIO LTD., have introduced a stereo tape recording and replay unit, the “Tapeheart” twin-channel amplifier and oscillator, for use with most tape decks. It will handle twin-channel replay of stereo recordings, recording through channel 1 single track with monitoring off the tape through channel 2, and recording on twin-track from microphone or radio.

Bias and equalisation can be adjusted for different heads and tapes, and a slider switch changes equalisation for 3½ or 7½ ips. The self-powered unit measures 11 x 8½ x 4 in. and the provisional price is 27 guineas.

The new CQ three-way speaker system has a quoted frequency response of 25 to 17,000 cps.

A 12 in. speaker handles the range of 25-600 cps, a 9 x 5 in. elliptical 600-4,000 cps, and two miniature cone tweeters deal with the top response of 4,000-17,000 cps.

Transition between units is partly mechanical and partly electrical crossover. The complete unit is 30 in. high, 20 in. wide and 12 in. deep. It costs 39 guineas not stained or polished and 43 guineas fully finished. A senior model, with the Kelly Mk 11 Ribbon tweeter, is 51 guineas not stained or polished and 55 guineas fully finished.

CQ Audio Ltd., Bush Fair, Tye Green, Harlow, Essex.

New Avantic pre-amp.

BEAM-ECHO announce the Avantic STEP 21, a stereo-phonetic tape pre-amplifier for use with the SPA 11 and SP 21 to provide the gain to operate them direct from medium or high impedance tape replay heads. The STEP 21 has two low noise voltage amplifiers and, like the STEP 11, needs a power supply.

Features include pre-set controls providing variable compensation for the gap effect and losses in the tape head. Signal to noise ratio is 45 dB (unweighted) and input sensitivity 2 mV for an output of 100 mV. Playback characteristic is to C.C.I.R. at 7½ ips and the unit is also suitable for tapes recorded to N.A.R.T.B. characteristic.

The same firm has also recently introduced several new radio tuners

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

CLEANING THE HEADS . . .

THE METRO-SOUND Manufacturing Co., which has hitherto concentrated on accessories for record players, is turning its attention to tape. Its first product is a new device in kit form, called Klenzatape, which is designed to remove oxide deposits and dirt from magnetic heads.

A brush-velvet, rubber-backed cleaning tape is used, with two 3 in. spools, using the special Klenzatape fluid. The cleaning operation is said to take the length of time required to play 12 ft. of normal recording tape.

Metro-Sound Manufacturing Co. Ltd., 19a, Buckingham Road, London, N.1.

. . . AND DEMAGNETISING THEM

A DEMAGNETISING instrument to rid tape recorder heads of residual magnetism, which can polarise the heads and produce hiss and background noise, is being marketed by Cinesmith Products, under the name Cinesmith Depolariser, at 35s.

The makers say it is particularly suitable for the amateur, as the “toe” of the polepiece is very slender and shaped to pass between the head and associated pressure mechanisms without any parts being dismantled.

Cinesmith Products, Britannic Works, Regent Street, Barnsley, Yorkshire.

THE PRICE of the Veritone Venus was wrongly quoted in our last issue. It is 66 guineas. The microphones mentioned in the review of the machine are all available in high impedance models.

STEREO

Edited by **DOUGLAS GARDNER**

Editor of *Stereo Sound and Music Magazine*



PAGE

A NUMBER of recent developments in the British stereo world have concerned products (like the Quad stereo pre-amplifier) that aim at the achievement of very high quality. This is useful, because it helps to counteract any impression that stereo is simply a matter of any kind of "doubling up."

There is nothing wrong with a wide variation in prices, providing people understand that the cheapest equipment does not provide standards by which the whole range of what is available can be judged. Harm can be done if general assessments of stereo are based on a disproportionate amount of listening with equipment that achieves a stereo effect only by the skin of its teeth.

A new British company, Colrich Audio Limited, has recently gone into action with the production and marketing of high-quality stereo discs and tapes. The accent, at first, is on jazz and popular music, but classics will be introduced in due course. They are making their own recordings, and also marketing American Omega recordings — importing master discs and making the pressings here.

For their own recording work they will be using Neumann microphones and cutters and Ampex two- and three-channel tape recorders.

Explaining why they start with jazz and popular music, Mr. Gerald Collingwood, chairman and managing director, said: "Producers of stereophonic discs have so far tended to concentrate on classical music only. Other forms have been sadly neglected, except perhaps on tape-recordings, where the market up to now has been somewhat limited."

"Stereo improves jazz just the same as it does classical music; it can bring out the quality and depth of tone that are lacking in other forms of reproduction."

THE SONORITIES

SUPPORT for Mr. Collingwood's view comes in an article by Robert Gower in the May issue of *Stereo Sound and Music Magazine*.

He writes: "Practically all good jazzmen have individual instrumental sounds which differ from the 'legitimate' tones of 'straight' symphonic instrumentalists. Rhythm, melody, harmony, even improvisation, are well known to European concert music, but the jazz techniques of handling sound are surely unique and probably jazz's greatest contribution to musical culture."

"It is not just a matter of expanding the scope of instruments (in the way that Louis Armstrong and Coleman Hawkins

blew the trumpet and saxophone to previously unheard-of heights of dexterity). It's in the variety of sonorities available on all instruments normally used by jazzmen.

"All the intricacies of rhythm can be heard on quite poor recording and playback equipment, but to capture the true sonorities of creating jazzmen, the best is called for."

DON'T BUY UNLESS . . .

ANOTHER new source of stereo jazz in this country is Audio Fidelity (England) Ltd., who are making British pressings of the American Audio Fidelity discs, including albums by the Dukes of Dixieland and other combinations that have achieved wide popularity on the other side of the Atlantic.

It was the American Audio Fidelity President, Mr. Sidney Frey, who hustled disc stereo on to the stage while the bigger companies were still contemplating its probable effects; many of his discs are selling under a declaration: "We do not recommend you to buy these records unless your equipment is of the first rank."

Undoubtedly, the chief need of the moment is a sense of discrimination, and anyone who helps to focus attention on this is doing stereo a valuable service.

PLACING SPEAKERS

ONE of the most important practical questions is where and how to place speakers. Unfortunately, it is not possible to give precise instructions on this matter, because so much depends on the shape and size of the room and on the nature of the loudspeakers.

On the credit side, however, we need only our own two ears to tell whether the stereo effect we are getting is good, bad or indifferent, and, providing there is some scope for experimenting, it is simply a matter of trial and error.

One of the popular fallacies is the belief that there is only one point in a room where you can get the stereo effect properly (the point where both speakers are exactly facing the listener). This may be so in certain cases, but with good equipment, properly arranged, this limitation does not exist.

Highly directional speakers (which, at best, can give very sharp stereo definition) are more difficult to arrange for group listening than speakers giving a more diffused sound, but if they are well placed and well matched they should enable several people to get optimum stereo, even in a comparatively small room.

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Elizabethan

Times to tune in . . .

OUR SPECIAL FEATURE GIVING
DETAILS OF RADIO PROGRAMMES
WHICH MAY INTEREST READERS

DURING the month the B.B.C. commemorate the bi-centenary of the death of Handel with two performances by the Handel Opera Society. The first of these, *Semele*, can be heard on June 23, with Heather Harper, Monica Sinclair and John Noble as soloists. Three days later, Joan Sutherland, Margarete Elkins and Janet Baker perform *Rodelinda*. The Chandos Chorus and Philomusica of London will be conducted on each occasion by Charles Farncombe. Both are to be broadcast in the Third Programme.

Earlier in the month, on June 6, Walter Goehr will conduct a performance of Handel's *Israel in Egypt*.

Sylvia Stahlman, Angela Vercelli and Richard Lewis are soloists in Mozart's *Idomeneo* (Italian libretto published by H.M.V.) to be broadcast from Glyndebourne in the Third Programme on May 31. The Glyndebourne Festival Chorus and Royal Philharmonic Orchestra will be conducted by John Pritchard.

The second broadcast direct from Glyndebourne can be heard on June 7, when Leopold Ludwig conducts the Royal Philharmonic in Strauss' *Der Rosenkavalier* (German libretto published by Boosey and Hawkes).

Purcell's *Dido and Aeneas*, with Joan Hammond and John Hargreaves, and Bizet's *Dr. Miracle*, with Jacqueline Delman, Anna Pollack, Alexander Young and Jess Walters, will be conducted by Colin Davis at the Bath Festival on June 9, and broadcast in the Third Programme.

Rudolph Kempe will conduct the Covent Garden Opera Chorus and Orchestra for the broadcast in the Third Programme of Wagner's *Parsifal* (German/English libretto published by Decca) from the Royal Opera House on June 16.

Johnny Dankworth and his Orchestra combine with the London Philharmonic Choir and Orchestra conducted by William Steinberg to give the first performance of their improvisations for Jazz Band and Symphony Orchestra on June 2.

In the same programme they will perform the Liebermann Concerto for Jazz Band and Symphony Orchestra; the Hindemith Pittsburgh Symphony (1958), and,

for the first time in this country, Stravinsky's *Threni*. The programme will be broadcast from the Royal Festival Hall in the Third Programme.

The Saturday Concerts in the Third this month include the *Martini Concerto for String Quartet and Orchestra* (May 23); Hans Gal's *Meander* and the *Larsson Horn Concerto* with Douglas Moore (horn) (May 30), and the *Martini Piano Concerto in B flat* and Stravinsky's *Symphony of Psalms* (June 13). Rudolph Scharz will conduct the B.B.C. Symphony Orchestra for each concert.

Herbert von Karajan will conduct the Berlin Philharmonic Orchestra in a programme to be relayed from Berlin on May 22. To be broadcast in the Third Programme, the concert will include *Khachaturian's Violin Concerto*, *Brahm's Symphony No. 2* and *Messiaen's Oiseaux Exotiques*.

On June 5, the B.B.C. will pay another visit to the Continent when they present an exchange concert with Norddeutscher Rundfunk, Hamburg. The N.D.R. Orchestra and the B.B.C. Symphony Orchestra will each play music of the other country.

The City of Birmingham Choir and Symphony Orchestra, conductor Meredith Davies, will perform Nielsen's *Hymnus Amoris* and Szymanowski's *Stabat Mater* in the Third Programme on June 14.

Letter to the Editor

THE LUSTRAPHONE VR/64

WITH reference to reader's question and your reply in the May issue, relating to the use of a Lustraphone model VR/64 pencil ribbon microphone with an Elizabethan "Escort" recorder, we would like to point out that we are not in agreement with the reply given, for the following reasons:—

1. The input sensitivity of the recorder is specified to be 2 mV.

2. The output of model VR/64 microphone, low impedance version, is specified to be minus 90 dB with reference to IV/dyne/cm² and, assuming the use of a Lustraphone TS/50 transformer for stepping up to high impedance input of the recorder, the output should be of the order of minus 56 dB. In other words, to achieve an output of 2 mV, a sound pressure of approximately 1.2 dynes/cm² is required. This figure can be attained at a distance of two to three feet at normal speech level. In this connection, we should point out that human speech as a sound source is to be regarded as having a considerably lower energy content than any other sound source which is likely to be recorded by a ribbon microphone.

The questioner did not state the nature of the sound source used, and it is therefore difficult to form a conclusive opinion. If, however, he refers to recording of any musical instrument or singing, then it is evident that one of the three items, or any combination thereof, must be at fault:—

- (a) The microphone;
- (b) the microphone transformer;
- (c) the recorder input circuit.

We shall be only too pleased to check the first two items and the Technical Department of Messrs. E.A.P. Tape Recorders Ltd., with whom the writer has discussed the problem, will be glad to check the input sensitivity of the "Escort" recorder.

The statement by the enquirer that the model VR/64 "can reach a greater distance," although correct in itself, is, of course, irrelevant, because the overall performance is dependent only on the combined gain available from the transformer and recorder amplifier.

In conclusion, we should like to state that we do not favour the use of a pre-amplifier where the specified performance of the complete equipment should be satisfactory without it, mainly because of increase in noise level due to the added stage of amplification.

G. R. PONTZEN,

Technical Manager, Lustraphone Ltd.

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National Federation

THE Federation has received another request from a tape-spondent in Germany. He is a High School student, aged 17, and he owns a Grundig TK 25. Anyone interested in contacting him should write to the Assistant Secretary.

In a recent B.B.C. "Sound" programme, Alan Stableford discussed the making of feature tapes for entry in the National Contest.

Any club, whether or not a member of the Federation, is invited to send a non-participating observer to the A.G.M. to be held in Coventry on Saturday, June 20. Secretaries are requested to inform them as soon as possible if attending.

(Assistant Secretary: Alan Stableford, 9, Normandy Terrace, London, E.16.)

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Stereo record reviews
Laboratory reports
and other important features

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NEWS FROM THE CLUBS

Birmingham

A DECISION to set up headquarters at the White Horse Cellars, Constitution Hill, Hockley, was made at a recent meeting of the Birmingham and District Club. Members also elected Mr. T. Cuff to be Chairman, and Mr. A. Greenway as Treasurer.

New members are most welcome, and the Secretary would, in particular, like to hear from a local enthusiast who owns a battery portable recorder. He would also like to hear from other clubs with regard to tape exchanges.

(Secretary: Dennis Osborne, 75, Millmead Road, Birmingham 32.)

Bolton

THE Bolton Amateur Ciné Society is to start a tape recording section. They have recently moved into enlarged premises at 17, Crown Street, Bolton, and have ample space to accommodate such a club. Persons interested are invited to contact the Secretary, Mr. J. A. Graham, 186, Greenmount Lane, Bolton. (Higher Bolton 41777.)

BTRS

THE British Tape Recording Society was recently congratulated by Mr. P. Collick, M.P., on the service provided for the aged and infirm in the Birkenhead area.

Trains roared and shunted through the shopping centre in Birkenhead recently—on tape. The sound effects were recorded on to a loop tape and commentary added, to advertise the model railway display at the local Y.M.C.A.

Mr. Frank Micallef, who has been one of the Society's Councillors, has resigned.

(Secretary: E. Yates, 210, Stamford Road, Blacon, Chester, Cheshire.)

Catford

DEMONSTRATIONS of a Grundig TK 35 and a Truvox machine were given at a recent meeting of the newly-formed Catford Tape Recording Club. Members also heard a tape, loaned by Ron Parsons, explaining World Tape Pals.

A stand organised by members is to be erected at the Lewisham Hobbies and Handicrafts Exhibition (May 16-23).

(Secretary: Derek Harker, 62, Barmeston Road, Catford, S.E.6.)

Chesterfield

JEROME K. JEROME'S "Three Men in a Boat" was the subject for a tape at a recent meeting of the Chesterfield Tape Recording Society. Geoffrey Foster's quiz tape containing some unusual sound effects was also played and Eric Taylor won the prize—a three inch tape.

Another contribution to the meeting came from Pete Ordidge, who presented a recording, obtained at great risk to life and limb, of a bunfight. Mr. Ordidge also presented a tape which he had produced by reversing musical notes from a piano.

In their search for new material a special tape production team has been formed. Their first effort in this field will be the recording of a descent and exploration of a coal-mine.

President of the Society is Mr. William Kemp, and Mr. John Clayton is the Treasurer.

(Secretary: C. R. Newman, 9, Devonshire Villas, Barrow Hill, nr. Chesterfield.)

Coventry

ROY REYNOLDS played part of his "Sounds of London" tape at Coventry Club's first meeting in their new headquarters in Rotherham Social Club, Spon Street. He had just returned from a three-week visit to the capital. Mrs. Dora Newell's quiz tape was also played and proved too much for the ail-male meeting, the highest score being nine out of a possible eleven points. Howard Freer introduced his

tape of an American comedian, and Gordon and Frank Gibson played part of their tape "Eye on Research."

Dan Woodcock played one of the "act-it-yourself" Co-star discs, in which the dialogue for one of the actors in a short play is omitted. Hollywood stars play the accompanying parts.

(Secretary: Roy Reynolds, 1, Thurleston Road, Radford, Coventry.)

Edinburgh

EDINBURGH Tape Recording Club have introduced a fund collecting item to club programmes. Entitled "Three minutes or else," the scheme demands a shilling contribution for members unable to present a tape of at least three minutes duration. Flying saucers, poems, music concrete and comedy tapes were among titles and productions presented at the first attempt.

Two American tape pals visiting one of the club members are to be entertained to a dinner arranged by the club in July.

(Secretary: John Penman, 22, Lauriston Place, Edinburgh.)

Grantham

THE inaugural meeting of the Grantham Tape Club is to be held in the Grantham Guildhall at 7.30 p.m. on Tuesday, May 26. All interested are invited.

(Secretary: R. V. Huddleston, 33, London Road, Grantham, Lincolnshire.)

Kettering

MEETINGS of the Kettering and District Tape Recording Club have been well attended lately. Sixty persons were present to hear Mr. K. C. Smith, of Messrs. Truvox Ltd., give a demonstration of the Truvox stereo equipment.

A week later attendance fell by ten, but some new members were enrolled. The demonstrations were in the hands of Messrs. F. A. Dart and G. E. Spark, of the M.S.S. Recording Co., who gave a talk on the manufacture of M.S.S. tape.

Donald Eaton provided a varied programme at a more recent meeting. He spoke about care of the recorder and "Capabilities of commercial microphones."

Dennis Scotney demonstrated how he has progressed with recordings over the past six years, with tapes he made when a novice. He also played a recording he has made of a TV picture signal. So far he has not reached the stage of reproducing the signal in its original form, but he believes the time is not too far away when this would be possible.

(Secretary: A. M. Webb, 93, Regent Street, Kettering.)

Leeds

MESSRS. J. W. WILLIAMS and B. Turton were elected as Chairman and Treasurer at the second meeting of the Leeds and District Club, held at the Bramley Conservative Club. Four new members were welcomed, bringing membership to seventeen. Four recorders were demonstrated by their owners.

A tape sound magazine was proposed and the first steps taken in its production. Club meetings are to be held fortnightly, next meeting May 21.

(Secretary: Terence Quigley, 32, Derby Road, Rawdon, near Leeds, Yorkshire.)

London

ON April 18, the Abbey Community Centre held its Spring Fair. The London Tape Recording Society, along with the other clubs who meet there, exhibited a stand to help raise funds for the Centre's activities. In addition to a "Record your own voice" stand, the club provided a complete public address system.

A high level mixer unit specially built for the occasion plus a Vortexion Three channel mixer were utilised at the

(Continued on page 49)



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FERGUSON "403" High Fidelity Reproducer Wanted. Billings, 206, Queensway, Rochdale, Lancashire.

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Educational Tapesponding, Languages, Shorthand, Morse Code, etc. Mitchell, 150, Station Avenue, West Ewell, Surrey.

URGENTLY NEEDED. Eddystone A.M. Receiver or Halycrafter. Private advertiser will pay top price. Box 274

HOW TO CALCULATE AVAILABLE PLAYING TIME

(Continued from page 38)

make of spool, but, here again, one should measure it. For a standard Scotch 7 in. spool R_1 is 1.15 in.

With so many constants in our relation, we can, with a little algebra, group them together, and reduce it to a form which can be used mentally, rather than on paper.

$$t(\text{minutes}) = \frac{\pi G [R_2^2 - R_1^2]}{60n} = \frac{\pi GR_2^2}{60n} - \frac{\pi GR_1^2}{60n}$$

$$\text{or } t = \left(\frac{\pi G}{60n}\right) R_2^2 - \left(\frac{\pi GR_1^2}{60n}\right)$$

The parts in brackets, are constants, and can be decided upon immediately.

For Standard plastic tape,

$$G = \frac{1}{.0023} = 434.8, n = 3.75 \text{ i.p.s.}, R_1 = 1.15.$$

$$\therefore t = \left(\frac{3.142 \times 434.8}{60 \times 3.75}\right) R_2^2 - \left(\frac{3.142 \times 434.8 \times 1.3225}{60 \times 3.75}\right)$$

$$t = (6.0717 R_2^2 - 8.029) \text{ minutes.}$$

$$\text{or, for an approximation, } t \approx (6R_2^2 - 8) \text{ minutes.}$$

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TAPE RECORDERS, players, radios, etc. (modern), wanted for cash or exchange. Callers or particulars. Cooks, 159 & 187, Praed Street, W.2 (opp. Paddington Station). PAD 6464.

ADVERTISER'S CORRECTION

E. C. Kingsley & Co., of 132, Tottenham Court Road, London, W.1, wish to state that the 5 in. 1,200 ft. Ferrotape advertisement in the May issue should have been 7 in. 1,200 ft. Ferrotape, and apologise for inconvenience caused to their customers.

REQUIRED—Tape Recorder with remote control including wind-on and wind-back. Instrument is intended for dictating and music. Box 273.

TAPE RECORDING AND HI-FI
MAGAZINE ADVICE BUREAU

JUNE, 1959

NEWS FROM THE CLUBS (Continued from page 47)

Fair. Other equipment included four microphones, four power amplifiers and twelve loudspeakers.
(Secretary: Roger Aslin, 29, Belmont Road, Uxbridge, Middlesex.)

Midlands

ANOTHER of the Sound Magazines by the Tape Recording Society of Great Britain is in circulation. In this latest edition John Walters continues his "Scrapbook for 1932." Items of interest to be included in the magazine are welcomed from overseas enthusiasts. Anyone able to supply such features are invited to contact the Secretary.

The sixth reel in the Technical Tape Topics series is also available. The use of the voice in relation to the microphone, a talk by Peter Turner, is included in the tape.

The Society has enrolled its first overseas member. He is S/Sgt. F. C. Williams, serving with the Signal Squadron in Malta.

Sound reports and features compiled in the United States are shortly to be regular items for the club, through the offer of Mr. Dan Drasin, resident in America.

(Secretary: John Walters, 29, Pitt Street, Broadwaters, Kidderminster, Worcs.)

Rugby

THE seventy-five minute tape on Rugby Emergency Services is now available. Clubs or individuals wanting a copy should send a tape and return postage to the Secretary.

Visits are planned to Rugby Telephone Exchange and Coventry Tape Club. It is hoped to visit all the nearby clubs during the summer months.

The A.G.M. is to be held in June and all interested persons are invited to be present. A club celebration is planned to mark their first year in existence.

(Secretary: Mike Brown, 219, Clifton Hill, Rugby.)

Sussex

REPRESENTATIVES of the local Press and trade were invited to the inaugural meeting of the Crawley and Sussex Tape Recording Club held in April. Fifteen members were enrolled. Mr. Runki is to be club Treasurer. Annual subscriptions were set at 12s. 6d.

Messrs. Telesound, of Ifield, offered a prize to be awarded to the member producing the most original tape.

New members, with or without equipment, are welcomed, and can obtain details from the Secretary, Mr. R. C. Watson, 32, Southgate Drive, Crawley, Sussex.

Voicependence

THE sightless members' section of Voicependence Club of America have completed their panel of recorder owners willing to read material on to tape. Offers came from all parts of Britain from enthusiasts with reading tastes ranging from technical and classical literature to light fiction.

A tape lending library has also been established. There are now sufficient reels for circulation to members.

In connection with this latter project, the Society wish to say how extremely grateful they are to a number of firms, who by their willing gifts of reels and tape have assured the success of the library. Thanks are due to: Messrs. Gevaert Ltd., Messrs. Wallace Heaton Ltd., The Minnesota, Mining and Manufacturing Co. Ltd., and to the M.S.S. Recording Co. Ltd.

(Secretary, Sightless Members' Section: John Ll. Hughes, 10, Lillie Road, Fulham, S.W.6.)

Wales

THE first established Tape Recording Club in Wales held its inaugural meeting a short while ago. Mr. Eric Wright was elected Chairman, and Mr. Terry Davies elected Treasurer. Meetings are held on alternate Wednesdays; next meeting June 3.

(Secretary: Colin Francis-Griffiths, 4, Garden City, Pen-y-darren, Merthyr Tydfil.)

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West Middlesex

MEMBERSHIP of the West Middlesex Tape Club now totals 34. As a result of the increase and due to the wide area covered in their "Parish," an extra meeting place has been selected. In future, meetings are to be held on the second Thursday in the month at the Co-operative Hall, Hampton, and on the fourth Thursday at St. Andrews Church Hall, Uxbridge.

Their first Anniversary Party will take place on May 30 in the form of a Supper in the Freddie Mills Restaurant in Soho.

(Secretary: H. E. Saunders, 20, Nightingale Road, Hampton, Middlesex.)

Weymouth

THE Weymouth Tape Recording Club recently achieved publicity with an article about their activities in a local paper. Mr. Garnet Jones, Chairman and founder of the six-month old club told, in an interview, how the club had started and what progress had been made.

Demonstrations of hi-fi equipment have been featured at some of the club's fortnightly meetings, as well as the normal recorder demonstrations. A recent visitor to give a talk and demonstration was Mr. Lewis York, of Southampton.

Mr. W. Grimsey is club Treasurer, and Mr. A. Read is the Secretary. Club meetings are held at the Channel Hotel, Weymouth.

World Tape Pals

THE U.K. branch of World Tape Pals for Education has been formed by George Watson. Readers interested can receive a list of educational tapes at present available in this country by writing to him enclosing s.a.e. at 3, Wentworth Avenue, Westbrook, Margate, Kent.

(U.K. Representative: Len Watkins, 40, Ravenslea Road, London, S.W.12.)

In Formation

BELOW are further addresses of persons keen to form, or already forming clubs in their districts.

C. H. Brooks, 46, Aldershot Road, Fleet, Hants.

J. F. Cooper, 157, Colchester Road, Ipswich, Suffolk.

J. Dixon, 12, Royston Court, Tolworth, Surrey.

A. R. Dyer, 59, Tannsfield Road, Sydenham, London, S.E.26.

A. Mercer, 31, North Park Street, Dewsbury, Yorkshire.

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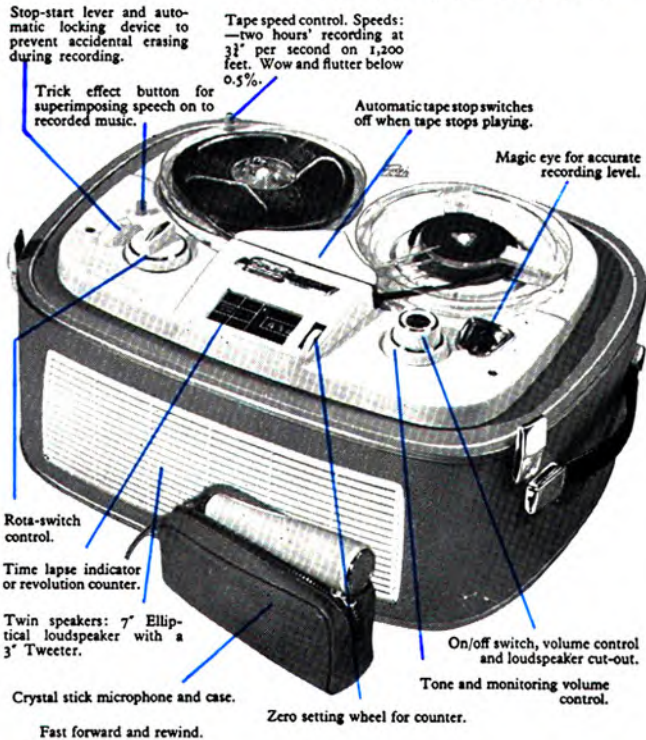
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