



# The Phonographic Record

*The Journal of The Vintage Phonograph Society of New Zealand*

A Society formed for the preservation of Recorded Sound

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## OBITUARY

We are sorry to record the death of Cyril Edgar Foster Evans, a well respected member of the Vintage Phonograph Society.

He will be well remembered for his interest in old movies, home movies and train movies. These he has shown at meetings from time to time.

A retired school teacher, he taught in many schools in Canterbury including the Swannanoa School.

He showed a keen interest in Church organs. An organist himself, he played for many organisations and on one occasion he played the Trinity Church organ for members of our Society. A well remembered evening by all who attended.

For his age, he was a very alert and interested person and was much admired by all who knew him.

Cyril will be missed by members of the Phonograph Society in Christchurch.

## FOR YOUR INFORMATION

While some of you have been almost frozen to death in the North, we in Christchurch, New Zealand, have had one of the hottest, driest summers ever!!!!

Times are changing, inflation continues and with it prices continue to rise, and at an alarming rate. Will it ever stop? All postage on the 1st of April 1982, was again increased; it now costs 24 cents as against 20 to post a letter, and 30 cents airmail, and these are inland N.Z. rates. This means that all spare parts will cost more to post to members. We would also like to remind members that we still have good stocks of witch's hat and petal horns. We have been very fortunate to obtain the services of a very able tinsmith who has taken the time to work out how to build perfect reproductions of Edison type horns.

The petal horns he has been making have to be seen to be believed. What we do know is that we will not always be able to produce these for these prices, so be in while stocks last.

We are again including a number of record labels which are the work of D. L. Taylor. Unfortunately these are only black and white, we wish they were in colour. Further information on any of these would be gratefully received.

Larry Schlick and Bass Ingrouille have both written and sent us material, some of which is in this issue. It is only with help like this that we can produce an interesting magazine.

### Society Badge:

As stocks were getting low of the existing badges, members felt it was time for a change of shape and style of the Society Badge. This was proceeded with, and the new style with an Opera Machine has been used. It has a brown base, gold coloured horn with a green transparent background. The wording of The Vintage Phonograph Society of New Zealand Inc. in gold lettering is on a blue background. The shape is now round.

Remarks so far have been favourable on the change.

The price of the new badge is now \$3.00.

### Visitors to Christchurch:

We always welcome members both from overseas and within New Zealand to visit our display at Ferry-mead Historic Park, Christchurch. If you are planning to visit us, the best times throughout the year are as follows:—

Christmas and New Year from Boxing Day through to the end of January.

Waitangi Day, 6th February.

Easter Weekend from Good Friday to Easter Monday.

Anzac Day and Labour Weekend.

Each Sunday (weather permitting) and School Holidays, May and August are by arrangement.

Please let our Secretary know in advance so as arrangements may be made, your entrance card to Ferry-mead entitles you to free admission. Also remember, Members night is held every November. This is **your** night, so come along and have an enjoyable time.

## EASTER FESTIVAL FERRYMEAD 1982

The Easter Fair has come and gone, for yet another year, and its overall success can only be attributed to the fine weather, and the careful planning carried out by the Ferrymead Trust and the individual Societies.

The members of the Phonograph Society were there in strong force and it is pleasing to have the support of members in this once a year venture.

Over 10,000 people visited Ferrymead over the Easter weekend, which this year took in an extra day.

As Good Friday is only a preparation day, many visitors (some 900) took advantage to visit the many exhibits which are now open for people to see and enjoy.

The Phonograph display was popular throughout the weekend, and our stall catered for the many needs of the public.

We are grateful for the services of the following members and supporters for their assistance, throughout the fair.

To Walter and Hilda Norris for supplying transport of produce to Ferrymead, and display work.

Stuart Hobbs for arranging tables, trestles and delivering of same. Also for the security of the site during the weekend.

Adair Otley for looking after the display for the entire weekend.

Margaret Marshall and Bernadette Ball who very capably ran the stall outside on the village green.

Mr Bob Dunlop of Loburn, for the generous donation of apples and pears for our stall, and to all members who supplied jam, sauces vegetables and all the other goodies.

Lorraine Dyer kindly loaned us the tent which we acknowledge with thanks.

The gross takings for the Easter fair this year amounted to \$690.00 which was made up as follows:—

Friday 9th April	Stall \$ 96.75	Display \$13.10
Saturday 10th April	Stall \$160.68	Display \$18.89
Sunday 11th April	Stall \$161.00	Display \$43.59
Monday 12th April	Stall \$114.75	Display \$32.79

This does not include the percentage from the gate.

The Ferrymead Easter Festival was a success, but if only we had the support of **all** our Christchurch members, our profits would have trebled. Could all members consider now what they can all do to help next year. Just a few bags of produce and a few sweets from everyone instead of from a few, would have made all the difference.

## NEW ZEALAND'S CLOCK MUSEUM

If you visit New Zealand, or if you live here, a visit to the Clapham Clock Museum is a must.

Time waits for no one, but at Clapham's Clock Museum in Whangarei, it plays chess, toots its own horn, pirouettes, and chimes itself away.

Situated in a tile-roofed, red brick house in the city's rose gardens, the museum is a ticking, chiming, ringing mass of clocks and watches said to be the largest collection south of the equator.

Whangarei is 170 kilometres north of Auckland on the main road to the Bay of Islands and the Ninety Mile Beach on the tip of New Zealand's North Island. A rest stop in Whangarei including a timely visit to the clock museum is worth the small price of admission.

Even restive children will want to spend a few minutes in this time gallery where a detailed list of the most interesting clocks is available, along with a guided tour. The guide winds the clocks, explains the inner workings and lets you listen to the chimes.

The oldest exhibit, a lantern clock made about 1720 by Daniel Ray of Sudbury, England, still works and is in original condition. One of the newest is a battery-operated Japanese model.

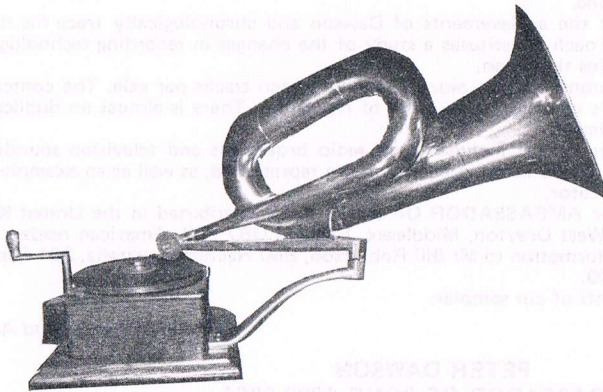
But it's everything in between that caught the fancy of the man who spent his lifetime scouring New Zealand for old and exotic clocks and even making some too. Archibald Clapham was a steamship engineer



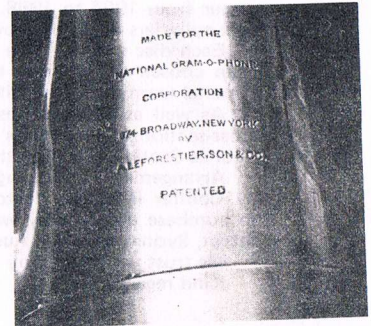
# Victor Junior



**NO. 49.**



TRADE MARK MODEL



SECTION OF ALL BRASS HORN

whose collection numbered 400 at his death, when it was donated by his son to the Whangarei City Council. Since then, other people have donated timepieces until now there are more than 800. A time-honoured tradition is well established.

German clockmaking expertise is well represented in gorgeous, carved cases housing delicate mechanisms featuring charming cuckoos, uniformed trumpeters, and harp sounds. There are also fine examples of French, Austrian, American, English and Dutch craftsmanship.

Every visitor has a favourite. A little girl likes the "Ballet" clock with a tiny French ballerina, brought to New Zealand during the old whaling days. A boy enjoys "Hickory Dickory Dock" with a mouse running up the clock in 12 hours, striking one and running down again. A chess player admires the chess clock with its two identical clocks.

There is a 24-hour clock used by the military, a 400-day clock, and even an English clock with a case made entirely of matchsticks! The "Shadow" clock throws a shadow as a candle burns down. Add to these a myriad of painted picture and musical alarm clocks, and it's a unique history lesson time after time.

Do you have time on your hands? Ask the assistant for the brochure showing how to tell time like early farmers did, using your hands as an improvised sun dial.

Clapham's Clock Museum has more than clocks and watches. Exhibits include a tall, beautifully-crafted metal disc music machine that once entertained aboard a cruise ship, and a carved replica of a Maori ocean-going canoe with paddlers.

If you think keeping time is just a waste of time, take a look at the "Nark" clock. It tells time counter-clockwise. To further confuse matters, the dial is moved round one hour and 12 is not at the top. Figuring it out is time consuming.

One thing is certain at Clapham's Clock Museum — time is of the essence.

### PETER DAWSON 1882-1961

From Peter Burgis has come an interesting booklet parts of which are included with this issue along with some history.

This 22 page well illustrated booklet is included with 10 long play discs of Peter Dawson.

We were sent a sample tape, which after playing we were greatly impressed with. The quality is first rate and therefore we can recommend this album of records to anyone who is a fan of Peter Dawson.

### PETER DAWSON National Library of Australia

Canberra ACT 2600 Telephone 62 1111

Telegraphic Code Address: Natlibaust Canberra

Telex Code No. 62100

#### Sound Recording Collection and Services:

The Sound Recording Section of the National Library of Australia in collaboration with EMI Records Australia has produced a ten-LP boxed set to commemorate the centenary of the birth of PETER DAWSON (1882-1961), famed Australian baritone.

The set is designed to document the achievements of Dawson and chronologically trace his recording career from 1904 to 1958. This approach constitutes a study of the changes in recording technology (from wax cylinders to stereo) covered by this time span.

Each disc contains one hour of sound with an average of nine to ten tracks per side. The contents have been chosen to illustrate the singer's versatility and range of repertoire. There is almost no duplication of material from previous EMI LP's of Dawson.

As well as unissued test pressings the set includes both radio broadcasts and television soundtrack. A cross-section of recordings originally issued under pseudonym are represented, as well as an example of (Sir) Charles Santley, who was the singer's tutor.

Arrangements are being made for AMBASSADOR OF SONG to be distributed in the United Kingdom by Conifer Records, Horton Road, West Drayton, Middlesex, England UB7 89P. American readers wishing to purchase the set may write for information to Mr Bill Robertson, EMI Records Australia, 301 Castlereagh Street, Sydney, N.S.W., Australia 2000.

We trust you will enjoy the contents of our sampler.

Kind regards.

*Peter Burgis, Sound Archivist.*

### PETER DAWSON AMBASSADOR OF SONG 1882-1961

#### Career and Achievements:

In 1976 the author met with Mrs Con Dawson, who was then aged 77 years and discussed the long-term preservation of her husband's collection of personal papers, which included scrap books, sheet music (pub-



# The Pianola



The vorsetzer with operators Denis Condon and Peter Phillips



Percy Grainger



CLAPHAM'S CLOCK MUSEUM AT WHANGAREI



A GUIDE SHOWS SOME YOUNG VISITORS A SELECTION OF CUCKOO CLOCKS

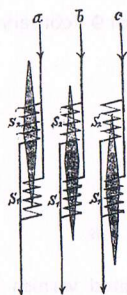


Fig. 71.—PRINCIPLE OF FIVTH AND KRIZIK'S REGULATOR.

ELECTRIC LIGHT

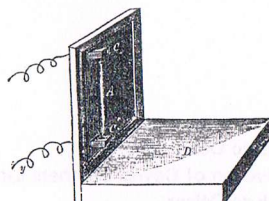


Fig. 130.—HUGHES'S CARRON MICROPHONE.

TELEPHONE



A PART WE MAKE



lished and unpublished), diaries, note and address books, photographs, billboard posters, line drawings, concert programmes, press cuttings, letters, contracts, and some sound recordings.

The documents had lain untouched in storage since Peter's death 15 years earlier.

The printed materials dated back to the days of his youth almost a hundred years earlier, and unissued test recordings were of obvious importance. It was a collection of international significance.

Con Dawson generously agreed to deposit the collection with the National Library of Australia where it is now preserved for the benefit of the nation.

As well as making this gift Mrs Dawson allowed the author to interview her under the library Oral History Programme. These recordings help document the career of her husband whom she had first met as a child in 1904.

Mrs Dawson, now in her 84th year, lives in quiet retirement in Sydney. Her main joy continues to be hearing the occasional disc of Peter on the wireless. 1982 should be a bonus year for her.

#### **Purpose of The Project:**

This series of ten LP's plus booklet is the most ambitious reissue programme ever undertaken by an Australian recording company. It was conceived to celebrate the centenary of the birth of Australian baritone, Peter Dawson (1882-1961).

The twofold purpose of the project is:

1. To document the career of Peter Dawson and objectively evaluate his achievements.
2. To provide a cross-section from his vast sound recording repertoire which does not duplicate material available on other LP's.

We have striven to achieve these objectives without bias or prejudice, using a great deal of new information concerning the singer held by the National Library of Australia, including his private papers.

The project also forms a history of sound recording as we trace Dawson's recording career from two-minute wax cylinders through to stereophonic sound. Many masters are published for the first time.

The chronological approach which we have used allows us to study the changes in his voice over a 54-year time span. The set also contains works by the leading composers of the past century, with many Australian composers represented.

I agree with the cynic (or was it a wise man?) who said that pedestals are for statues. However, if I were allowed to elevate one Australian musician to immortal status I could think of no more worthy nominee than our Ambassador Of Song — PETER DAWSON.

*To be continued*

### **NEW PRE-STAMPED ENVELOPE**

World acclaimed Australian baritone, Peter Dawson (1882-1961), will be the subject of a new pre-stamped envelope to be issued by Australia Post on 27 January 1982.

The envelope commemorates the centenary of Dawson's birth.

Peter Dawson has been described as Australia's most famous baritone. He was born and educated in Adelaide and his first success as a singer came at the age of nineteen when he won the bass solo section of the South Street competitions at Ballarat.

Dawson journeyed to London to further his singing studies. There he entered into a concert and recording career that was to span more than fifty years.

When Peter Dawson died in Sydney in 1961, his passing was mourned throughout the English speaking world.

The envelope, measuring 190mm x 101mm and numbered 046, was designed by Australia Post's Graphic Design Section and carries a 24c denomination. It will be available from all Australia Post philatelic sales centres, at a cost of \$A0.31, until 31 August 1982, provided stocks last.

First day of issue postmarked envelopes will be available at these centres until 9 February 1982, provided stocks last.

#### **Technical Details:**

Issue date: 27 January 1982.

Selling price: \$A0.31.

Denomination: 24c.

Envelope size: 190mm x 101mm.

Designer: Australia Post Graphic Design Section.

Printer: Mercury-Watch, Division of Davies Borthers Limited, Hobart, Tas.

Paper: 150 gsm Glacier White Offset.

Printing process: Multi-colour photolithography with luminescence impregnated varnish on a six-colour Roland Ultra press.



## VORSETZER

Recently my wife and I attended a concert in the Christchurch Town Hall where a concert was performed by The New Zealand Symphony Orchestra, at which the "Vorsetzer" was demonstrated. We were impressed, reproduction was excellent, we found that if our eyes were closed, we could not tell that there was not a live pianist at the piano.

The vorsetzer is a combination of electronics and vacuum operated devices. The machine took over 18 months to build and was only just finished when it was used to record Percy Grainger's performance of the Grieg Piano Concerto with the Sydney Symphony Orchestra in 1978, and followed by 2 public performances in Sydney Opera House with the vorsetzer as soloist.

The original rolls recorded by Grainger around 1920 included an arrangement for piano of the orchestral part this being necessary to allow the concerto to be played on piano only and to still make it a complete piece. It was therefore necessary to block out each hole that represented the orchestra thus to end up with the piano part only. A further problem was that of synchronising the orchestra and the machine. This was achieved by drawing bar lines on the roll to give the conductor a reference and also arranging the mechanism that transports the roll to stop just prior to a piano entry with the roll being set in motion manually by operation of a push button, the button being operated at the correct time as determined by the conductor.

Since 1978 further improvements have been made to the machine and in 1980 the machine was used to record the Tchaikovsky 1st Piano Concerto this time with the Melbourne Symphony Orchestra again with Percy Grainger as the deceased soloist.

This machine was essentially the same as early push-ups in that it was vacuum operated but had the addition of electronic devices.

The rolls used were of the Cuo-Art type, i.e. these have extra holes cut in the sides which interpret the artist's touch.

Pianist/composer Percy Grainger was born near Melbourne in 1882. He received his first music lessons from his mother and at ten gave his first public performance. He later studied in Berlin with Busoni. His professional piano career began in London in 1900 where he created a sensation and in 1906 he met Grieg there who was deeply enthusiastic about the young pianist's talent. Grainger became identified with Grieg's music particularly the A minor piano concerto.

In 1914 Grainger went to the USA and was for a time instructor at the Army Music School. In 1919 he became an American citizen. He died in New York in 1961.

Grainger's development as a composer was unique — self-taught and basing his compositional development on a study of Bach, Brahms, and Wagner — all of his music owes to the influence of folk music. The unpretentious good humour and rhythmic vitality of his music is typical of the man himself. His independence of mind is displayed in his determined use of English indications e.g. *louden lots* for *crescendo molto* and *chippy* for *staccato*.

Full of individual ideas and not afraid of being thought a crank — among other things invented a foot operated device for turning pages on the music stand of a piano.

Percy Grainger is best known for his composition of "In A Monastery Garden" and "Country Gardens". During the performance Country Gardens was played by the Vorsetzer using a roll recorded by Percy Grainger; this was performed on its own without orchestra.

We do not know of the origin of the name "Vorsetzer". Can anyone help?

## AN ENCYCLOPAEDIA OF BERLINA DISC PHONOGRAPHS 1910-1911 VICTOR JUNIOR No. 49

### Photographs by L. Schlick

Not the last we hope of this type, but we think towards the last of early Victor machines. This late model (according to Larry Schlick who owns it), was apparently made as a toy and is the last outside (or overhorn) Victor produced. It has a special "Victor Junior" reproducer — see insert — which fits into weighted end of horn. The purpose of the weight is to keep the needle in the groove. We believe the usual colour for the horn is a deep red.

Further information would be appreciated.

The machine below is one we have illustrated before, but only from an advert. We now have a good clear picture of one also owned by Larry Schlick. Note the brass inscription on the horn. This reads — made for the National Gramo-phone Corporation, 874 Broadway New York by Aleforestier, Son & Co. Patented.

See advertisement in Vol. 9 Issue 5 Page 135.

## POINTS FROM LETTERS

We apologise to Bas. Ingrouille, somehow we did not complete his letter last issue. We now repeat in full.

It was bound to happen sooner than later that someone, somewhere would be reproducing a complete phonograph or gramophone, well it's finally happened, a dealer in London, England is having reproduced



a nearly complete reproduction outside horn machine, the machine is a table model, the case is being made by a cabinet maker, stained and varnished, the back bracket and tone arm are also reproductions, plated, the horn is a 30" all brass horn also a reproduction, the motor, turntable, crank, reproducer, brake and speed control are from a portable which can be bought at very low prices, the decal on the front of the case varies some with name Victory, regent, premium viceroy, etc. these machines look good, play well, but usually only one record between windings, nine of these machines have been imported into the Toronto area, at a cost of \$410.00 laid down in Toronto, these are being sold to Antique dealers and collectors, and individuals who want an outside horn machine that looks good and plays loud and clear.

The second partial reproduction if you can call it that, the method used is to take a table model inside horn machine, remove the front doors or louvers from the case and fit an oak plywood piece in its place stained to match the rest of the case, onto this case is mounted an outside horn back bracket and tone arm, also reproduction, using the original motor, turntable, crank and brake and speed control and reproducer, and a reproduction horn we now have a partial reproduction outside horn machine that is hard to detect by unsuspecting dealers, collectors and individuals, these machines are being sold at top prices, usually about \$400.00.

My advice to collectors is buyer beware.

*Bas. Ingrouille, Antique Phonograph Society of Canada.*

## ADVERTISEMENT

For Sale: Phono Centenary Issue of High Fidelity Magazine (U.S.)—1977. A must for all collectors of Phonographs. Many pictures and articles. Mint condition. \$7.00 U.S. postpaid. Apply: Steve Ramm, 5 Morningside Drive, Trenton, N.J. 08618, U.S.A.

## RECORD LABELS (PART 5)

D. L. Taylor

**Electron**, gold and black and white label, made by Clifford Industries (Sydney) and sold by Coles, 1928-1929.

**Era**, single-sided, colourful label, "Reproduced at Berlin", pre-1910?? Can anyone tell me about this label?

**Excelophone Record**, purple above, dark blue below. This is actually a Guardsman Record with an Excelophone sticker covering the top half.

The second example of this brand seems to be one of their later efforts and has a complete label (purple) with apparently no other label underneath.

## ELECTRIC LAMP THE PILSEN LAMP

The problem of regulating the energy absorbed by an arc lamp was solved by Piette and Krizik in an exceedingly ingenious manner at an early date in the history of arc lighting. In its original form their lamp, which is generally known as the Pilsen, worked in a most satisfactory manner, and though it has since undergone several modifications, the principle upon which it works remains unchanged, and the results obtained from it, when compared with those got from the most modern lamps, are still satisfactory.

Fig. 71 illustrates the principle on which it works.

A piece of soft iron, of the shape shown in the figure, acts as the core of an electro-magnet which is composed of two distinct coils of wire, S1 and S2 connected in parallel. If both coils act on the core with the same force it will remain at rest in any of the three positions, a, b, and c, and at all intermediate positions; but if the force exerted by one coil be greater than that exerted by the other, the core will move in the direction of the coil which exerts the greater force on it. The lower end of the core is permanently connected to the upper or positive carbon-holder, whilst its upper end is connected by means of a cord passing over a pulley to the lower carbon-holder. If the core moves downwards the carbons will therefore be brought together, while if it moves upwards they will be moved apart. Here then is all the necessary mechanism for both striking and feeding the arc. The upper coil, S2 is a thick low-resistance copper coil, through which the main current passes; S1 is a fine-wire high-resistance coil in parallel with S2 and acting as a shunt to the remainder of the lamp.

If the carbons are separated at the time when the current is started, which is not usually the case, all the current is forced through the fine-wire coil, S1, and the core is therefore instantly pulled down till the carbons are brought into contact; when this occurs a second path is opened to the current through the thick coil, S2, through the carbons, and so to the negative terminal of the lamp. The coil, S2, will now exert a greater force than S1 on the core, which will consequently rise, and thus, by pulling the carbons apart, strike the arc. The resistance in the main circuit is now increased, and consequently a greater portion than before of the whole current finds its way through the shunt coil, S1. When the arc is the proper length the forces



exerted by the two coils on the core are equal and opposite, and therefore the core remains at rest. As the carbon becomes consumed the arc grows longer, and the resistance in the main circuit greater; more current will now flow through the shunt coil, which will exert a correspondingly greater force, and the core will be pulled down till the arc has regained its normal length, when the forces exerted by the two coils on the core will again balance each other.

This feeding operation goes on continuously, while the lamp is supplied with current, till the carbons have been nearly burnt away, when the lamp is automatically cut out of circuit by a device which will be explained by Fig. 72.

Fig. 72 is a diagram of the connections of the Pilsen lamp in its modern and modified form. The mechanism of the lamp is held together by four vertical rods, G1 G1, G2 G2, G3 G3 and G4 G4. Two of these rods, G3 G3 and G4 G4, are in metallic connection with the framework of the lamp, while the other two are insulated from it as indicated by the black insulators. The positive terminal, marked +P, is in metallic connection with the framework, while the negative one, marked -P, is insulated from it. Instead of having one double conical core working between two coils on the same bobbin, it has been found more convenient to cut this core in halves, to place one half as the core of a coil in the main circuit, and to place the other as the core of a coil in the shunt circuit. This arrangement is shown in the diagram; C1 C1 is the core of the low-resistance coil M, through which the main current flows; C2 C2 is the core of the coil, S, which is the high-resistance shunt coil. The lower end of the core, C1 C1, is permanently joined to the lower or negative carbon-holder, while the core, C2 C2, is in a similar manner joined to a holder, which carries the upper or positive carbon. The upper ends of these cores are joined by a string, which passes over a pulley not shown in the diagram. Each core is enclosed in a cylindrical brass tube, to which it is permanently connected. The tube enclosing the core, C1 C1, is kept in its true position at its upper end by means of the insulated rods, G1 G1, G2 G2, against which the metallic wheels, r1, r2, run, while its lower end passes between three little guide-wheels fixed at the lower portion of the framework. The tube containing the core, C2 C2, is similarly guided by the rods, G3 G3, G4 G4, against which the wheels, r3 and r4, run.

In the centre of the diagram is shown a small electro-magnet, E, which pulls down the left-hand end of the little pivoted lever, n m, when a current is passing through E; the lever is shown in this position in the diagram, but when no current is passing through E the weight, w, is sufficient to depress its other end till it rests on the platinum-pointed pin immediately beneath it. Above the electro-magnet is a German silver resistance coil, R, which though shown as a small coil in the diagram is really a spiral extending from the top to the bottom of the framework. Beneath the electro-magnet is shown another small resistance coil marked L.

Let us trace the circuit, starting at the point -P; at this point it divides, one portion goes through the coil, M, and again divides, one portion going through the resistance, L, then to the rod, G1 G1, then by the wheel, r1, to the core, C1 C1, and so through the carbons to the other core, C2 C2, from which it passes to the terminal, +P; the other portion of the circuit goes round the electro-magnet, E, then to the rod, G2 G2, and so to the core, C1 C1, through the wheel, r2; it then passes as before described to the terminal, +P. When this latter current passes round the electro-magnet, E, the lever is pulled down as shown in the diagram. Returning to the other portion of the circuit which starts at -P, it goes through the resistance coil, R, and then splits, one portion going through the shunt coil, S, and so to the terminal, +P; the other portion going by means of the lever, n m (before it is attracted to E), and the platinum point to the coil, B, and so to the terminal, +P.

The effects of currents flowing through the circuits just described will be: first, to depress the lever, and consequently to break the circuit round the coil, B, which is of low resistance; second, to generate a force in each of the coils, M and S, which act on their respective cores and endeavour to pull them down. If these forces are equal the cores will clearly remain stationary since they are connected by a string passing over a pulley, but the forces never can be equal when the current is first started. If the carbons are parted before the current starts no current can flow through E or M, and therefore all must go through B and S, then the core, C2 C2, will be pulled down till the carbons are in contact; a current will now flow through both E and M, the lever will be depressed and no current will flow through B, while only a very small portion will flow through S, since the resistance of the carbons in contact makes but a small resistance in the main circuit; the force acting between M and its core will therefore be far greater than that acting between S and its core; the consequence will be that the core in the main circuit will descend, carrying with it the lower carbon, the core in the shunt circuit will ascend, carrying the upper carbon, and the arc will thus be struck. The feeding is equally simple: when the arc becomes too long the shunt coil, S, increases in strength, while the series coil, M, becomes weaker, the upper carbon is thus pulled down and the lower one pulled up till the arc becomes the proper length, when the forces exerted by the two coils on their cores again become equal.

As the carbons are consumed the core, C2 C2, descends while the core, C1 C1, ascends, till when the carbons are nearly burnt away, the little wheel, r2, runs off the metal of the guide-rod, G2 G2, on to the ivory insulator, I; when this occurs the circuit through the electro-magnet, E, becomes broken, the lever, n m, falls back, making contact with the platinum, which completes the circuit through the coil, B, and cuts out the lamp without affecting the others on the same circuit.



## THE TELEPHONE THE HUGHES MICROPHONE — THE BLAKE, CROSSLEY, AND ADER TRANSMITTER

For working over short distances the Bell telephone can be used both as transmitter and receiver, but in every case the sound emitted by the receiver is far weaker than that which was communicated to the transmitter. This state of things must always exist, since loss of energy takes place in the generation of the currents in the transmitter, further loss takes place in overcoming the resistance of the line connecting the stations, and by leakage, and a still further loss takes place in the reconversion of the undulating currents into sonorous vibrations in the receiver. These sources of loss can of course be minimised, but cannot be eliminated, and where the distance between the stations is great, the currents received are so feeble as to be unable to work the receiver in a satisfactory manner. In fact, the *motive power* — which is solely derived from those sonorous vibrations that are collected by the diaphragm of the transmitter — is not sufficient to work the receiver after allowing for the losses that must necessarily take place in the other portions of the circuit. Some auxiliary motive power must be employed, and the proper function of the energy supplied by the sound-waves is to control this auxiliary supply, and to make it vary with each vibration of the sound-waves. In all the microphone transmitters, the auxiliary supply consists of a current generated by a primary battery, and flowing through a variable contact which can be acted upon by the sound-waves, and have its resistance so altered by them as to vary the current from the primary battery in the desired manner.

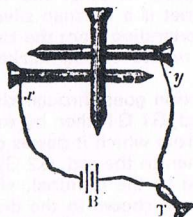


Fig. 129.—HUGHES'S MICROPHONE WITHOUT CARBON.

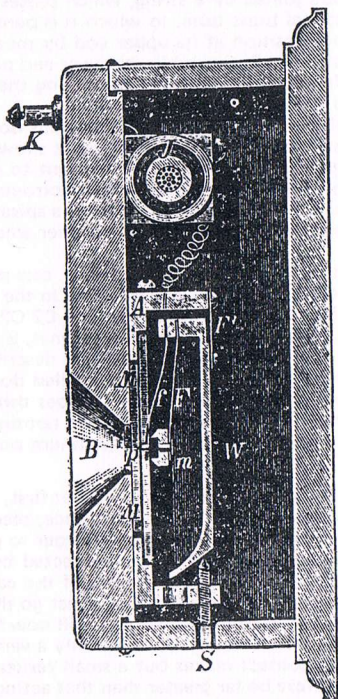


Fig. 131.—BLAKE'S MICROPHONE.

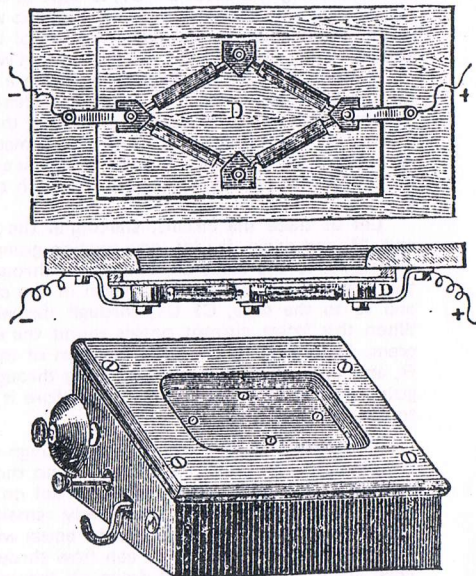


Fig. 132.—CROSSLEY'S TRANSMITTER.

The investigations of Professor Hughes completely solved the difficulty above pointed out, and gave to the world the microphone in its almost perfect state. He found that by placing two nails *x* and *y* in contact with a primary battery, *B*, and an ordinary Bell receiver, *T*, and by laying a third nail across them as shown in Fig. 129, the three nails acted in every respect as a good transmitting instrument, and that words spoken to it from a short distance could be distinctly heard in the receiver. Fig. 130 shows a form of the instrument which is a considerable improvement on the three nails: two wires, *x* and *y*, are brought from a primary battery, and attached to two carbon blocks, *c* and *c'*, between which is loosely fixed a pencil of hard carbon, *A*; *D* is a sounding-board for taking up and communicating the sonorous vibrations to the carbon pencil.



The current, as can be seen, is obliged to flow through two loose carbon contacts, and its strength mainly depends upon the resistance in those contacts. The amount of this resistance is a quantity that varies with every vibration to which the carbon pencil is subjected. Whilst the pencil is pressed against the blocks the resistance is small, but as the pressure is diminished the resistance increases, till when the contact is at its loosest the resistance in circuit is a maximum. The resistance of the contacts depends entirely upon the pressure exerted in bringing the adjacent surfaces more closely together, and the amount of change of resistance corresponding to a small change of pressure is extremely great. The most feeble sound-waves communicated to the carbon pencil are sufficient to produce changes of resistance at the contacts which will so vary the current as to reproduce the original sounds in the Bell telephone. This instrument, or some modification of it, is now almost universally used as the transmitter, whilst some form of the Bell telephone is used as the receiver.

In most transmitters the current from the primary battery is not sent along the line; it is usually sent through the primary circuit of an induction coil, and it is there utilised for generating currents in a secondary circuit of higher E.M.F.'s. than those of the primary, and which are thus capable of being transmitted through a thin wire with comparatively little loss. These secondary currents produce exactly the same effects in the receiver as the primary ones would, but they possess the advantage of being capable of more efficient transmission.

One of the best known forms of transmitter is that known as the Blake microphone, a section of which is shown in Fig. 131.

Opposite the mouth-piece, B, is the iron disc, M M, which collects and transmits the sonorous vibrations to the loose contact behind it: this disc is fixed in position by an india-rubber band passing right round its edge. The loose contact is made between a platinum point marked p, mounted on a spring, f, and a carbon button marked m, mounted on a spring F, the two springs being carefully insulated from each other. The adjustment of the initial pressure between the carbon and platinum is brought about by means of the screw, s, in the following manner:— Both springs are fixed to the bent part of the plate, W, which is joined to the fixed clamp, A, by means of the spring, F1. If the plate, W, be made to approach the diaphragm, the contact between the carbon and platinum will be compressed, whilst movement in the opposite direction will produce a loosening of the contact. Both of these movements can be produced by means of the screw, S; if this be screwed in, the contact will be tightened, whilst if it be withdrawn, the contact will be loosened; the required pressure can be easily and quickly obtained by a few minutes' trial.

The primary current is in this instrument purely local — that is to say, it is passed through the loose contact, and the primary coil of a transformer or induction coil, and then returns to the battery where it was generated. The current which is generated in the secondary circuit of the transformer is the one which flows along the line and gives rise to the sound-waves in the receiving telephone. The course of the primary current through the telephone is as follows: — Entering at the terminal, K, it flows through the primary circuit on the transformer, J, to the platinum point, p, by means of the spring, f, then it flows across the loose contact to the carbon button, m, through the spring, F, to the plate, W, and then through the adjusting-screw, S, to the other pole of the battery. The secondary circuit is wound on the transformer, and has one end connected to earth and the other to the line.

Fig. 132 illustrates the Crossley transmitter.

The feature of the Crossley transmitter is the fact that it contains four carbon pencils fixed loosely in carbon blocks, diamond-shaped, as shown at D. The primary current enters at one corner and leaves at the opposite, thus flowing through two pairs of contacts in parallel. These microphone contacts are fixed on the lower side of the lid of the box which thus acts as the diaphragm, and communicates the vibrations to the contacts. In Ader's microphone there are ten carbon pencils arranged in loose carbon-holders. Both these telephones contain transformers like the Blake transmitter, and generally use some form of the Bell telephone as receiver.

## POPULAR MECHANICS 1911 SEEING BY WIRE IN CONNECTION WITH TELEPHONY

Though there are still many difficulties to be removed before seeing on the telephone ceases to be a problem, the realisation by no means seems to be very far ahead.

Professor Rosing of the Technological Institute, St. Petersburg, taking advantage of the light-impressibility of a photoelectric element discovered by him, has invented what he calls a "phos-telephonic" system (from the Greek word "phos" meaning light), which is a remarkable approximation to the final achievement. Two other scientists, Drs Elster and Geitel, have even gone a step further; for they have discovered an element which, apparently, is more susceptible to the impressions of light than Dr Rosing's "phos-electric" element. Considering these facts, it is not unreasonable to expect the last and crowning success within a comparatively short time.

When a person stands before Professor Rosing's instrument and opens the circuit by taking the receiver off the hook, a small luminous pencil begins to draw his likeness on a dark screen, and in the twinkling of



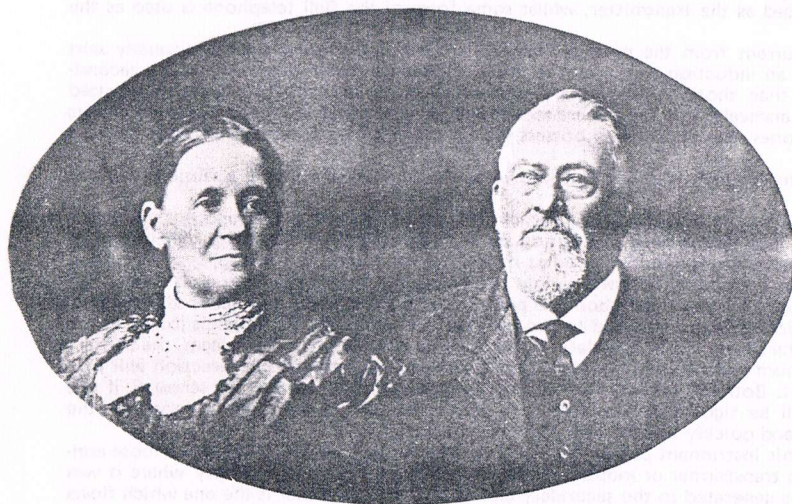
# Peter Dawson.

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PRESENT PETER DAWSON AMBASSADOR OF SONG



DAWSON'S PARENTS

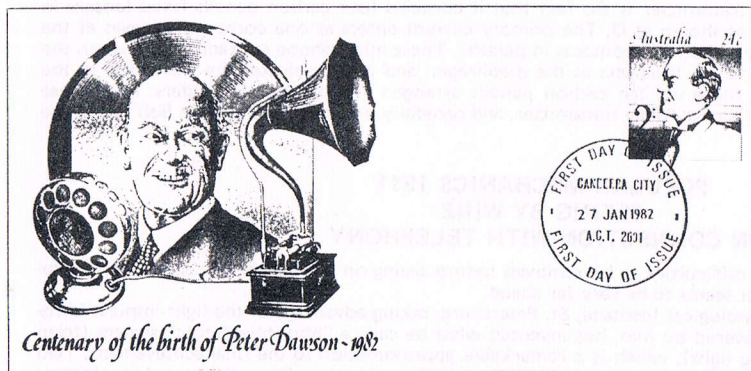
1882 --1961

THOMAS AND ALISON



PETER DAWSON

AGED EIGHTEEN



FIRST DAY COVER

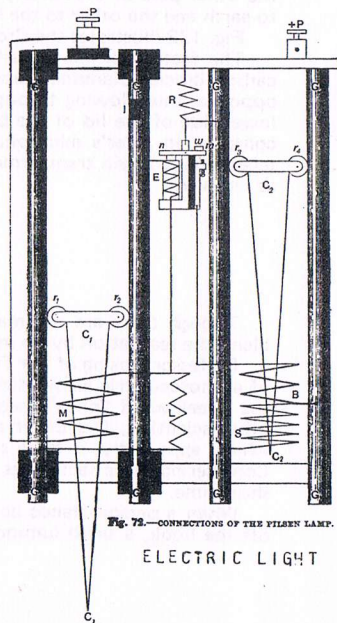


Fig. 72.—CONNECTIONS OF THE FILAMENT LAMP.

ELECTRIC LIGHT



an eye the work is complete. His visible counterpart is there, and is rapidly transmitted to the sight of the person with whom he is speaking. So it is with the person at the other end: his image is traced on a screen and is transmitted to another small screen.

How is this done? Two systems of mirrors are moving in such a way as to cast the image upon the phosphoric element inside the transmitter. An ingeniously made vacuum tube sends out fine rays not seen by the eye. These rays, falling on the screen, cause a certain part of it to appear very bright — that part where the image is — and an electric current transmits the image to the screen of the second person, wherever that person may be. He sees the sudden brightness on the screen, and also the lifelike photograph — the miniature of the person to whom he is speaking.

The manner in which the mirrors move must be taken into account. By their movement they cause the light on the screen to accord exactly with the light rays reflected from the speaker's body. The image is thus transferred by the mirrors to the phosphoric element, in which is thereby excited an electric current that carries the image to the screen of the second person. All this is done instantaneously and being continuously repeated, causes the photograph to remain on the screen until the speaker withdraws, in the same way as moving pictures are possible through the cinematograph.

As the Rosing apparatus is yet in its infancy, only very small objects can be seen with it. But, considering the idea behind the invention, and in view of the favourable opinion of a celebrated expert, we may reasonably expect to have the final happy result at no distant date. To see a person while speaking to him on the telephone, will soon be a very familiar circumstance.

### MOST POWERFUL WIRELESS STATION

The wireless-telegraph station at Coltano, Italy, recently constructed by Marconi, is said to be the most powerful now in existence. It disposes of a transmitting power of 1,000 kilowatts (1,340 hp) and its antenna contains about 3,300 ft. of wire. With this equipment it is expected that connection will be easily established with North and South America.

### MARATHON

Last issue we included a little of what we know about this Company with some illustrations.

From Ernie Bayly we received a letter confirming what we suspected, and that is that Marathon **did** make machines as well as records.

He says he has a catalogue which he hopes to reproduce later in the "Talking Machine Review".

The records, he says, have various colours of "flash" under the name. I presume it's related to the type of music recorded on the record.

As far as he knows, no one has ever made a listing of Marathons with colours of "flash" beside them in order to analyse what they stand for.

More information would be appreciated.

### ... FOLLOWING THE FOOTPRINTS OF GREAT INVENTORS ...

(Part 2)

#### ALL THE WAY TO HI-FI RECORDING HISTORICAL REVIEW OF SOUND REGISTRATION

The sound tracks recorded by the Philips-Miller system therefore required no intermediate processing, and they had an indefinite lifetime. This was particularly of great importance for radio studios, where a large "library" of these recordings could be formed, which did not suffer at all in quality from frequent use. The film was not perforated but ran over smooth rollers in the machine. A reel was sufficient for a recording of more than a quarter of an hour, after which, by just a turn of the hand, one could switch over to the other part of the machine, which was made in two identical parts.

The Philips-Miller system afforded the Philips laboratories an excellent opportunity for experimenting with what is known as stereophony. In several countries one had long been trying to arrive at a three-dimensional recording and reproduction of sound. The stereophonic system devised by Dr K. de Boer of the Philips laboratories (1938) could quite well be adapted to the Philips-Miller method of sound recording. The sound impressions from two microphones set up in a "dummy head" were conveyed via amplifiers to two separate recording heads of the Philips-Miller apparatus, which thus traced two sound tracks in the film. In reproduction the two tracks were also scanned separately, amplified and projected into the hall via two loudspeakers. In 1946 the Netherlands Radio Union, in cooperation with Philips, broadcast a stereophonic recording of an orchestral performance by using two different wavelengths, and the listeners had to have two receiving sets in order to get the stereophonic effect in the room.

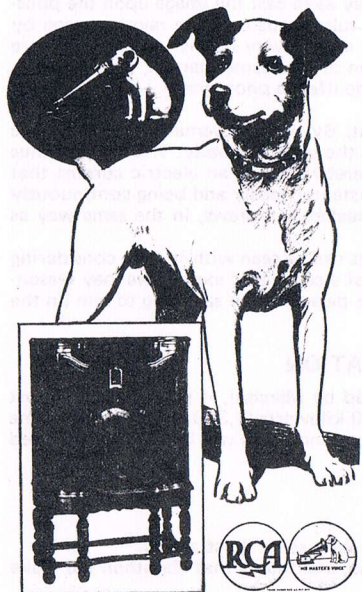
#### Magnetic tape:

The fact that the Philips-Miller system necessitated the acquisition of a rather expensive apparatus constituted an insurmountable difficulty for its application on a large scale other than in radio studios. Although in



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I'VE heard it, people, I've heard it! The thing you and I have been waiting for.

They say it's because this new radio gets two whole octaves of music that ordinary radios miss. They say it's because of eight new improvements that run from new tubes to a brand new speaker.

All I know—and all I care—is that it does things no radio I ever heard could do! You hear notes you never really heard before. You can pick out instruments you never knew were playing. It makes a fiddle a fiddle, a bass viol a bass viol. And it makes no difference whether you play loud or soft—it's all there—every instrument, every note.

Dance fans go crazy about the new rhythm they feel with this new radio. Musical people rave about the "truth" of its tone. Me—I'm tickled pink because now, for the first time in radio history, I hear something that's really like my master's voice.

Folks, get in on this new thrill. Give your ears a treat they've been waiting years for. Any of my friends—the RCA Victor dealers—will treat you as my guest if you call for a free hearing—they'll let you listen to your heart's content to the only radio I could ever go crazy about.

The RCA Victor Co., Inc.  
CAMDEN, N.J.

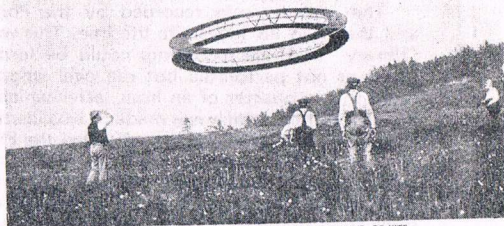
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## THE PIONEERS OF THE TELEPHONE



GRAHAM BELL DIRECTING THE TRIAL OF A NEW KIND OF KITE



THOMAS EDISON



SIR CHARLES WHEATSTONE



DAVID EDWARD HUGHES



course of time the quality of gramophone records came to be greatly improved and for a large part they were thus able to meet sound-recording requirements, even for professional purposes (after World War II there appeared the long-playing record, with a speed of 45 or 33-1/3 r.p.m. instead of 78 r.p.m., and the micro-groove record likewise giving a longer playing time), there was still a hiatus in sound recording, extending from midway in the professional field (for applications where the Philips-Miller apparatus was not economically justified) via the semi-professional to the amateur field, where sometimes demands were made which could not be satisfactorily met by the use of the phonographic system. A limited field of application — the recording of business dictations in offices — was covered by several kinds of dictation machines and the wire recorder, which latter converts the sound into magnetic impulses and records these on a long steel wire; for speech the quality was good enough but this wire-recording system was quite unsuitable for faithfully recording and reproducing music.

A Danish invention by Poulsen, further developed by a German of the name of Pflüemer, led to the production of an apparatus called the magnetophone, which after the war immediately came into favour in the U.S.A. and some other countries.

By this system the sound had to be recorded magnetically on a narrow tape of plastic material containing microscopically small particles of iron oxide, the principle being based on the varying state of magnetization of those particles. The "tape recorder" then consisted of a demagnetizing head (making the tape magnetically neutral), a magnetizing head (giving the tape magnetic variations corresponding to the original sound) and a playback head, which scanned the tape and via an amplifier and a loudspeaker transformed the small magnetic charges into sound again. In the smaller types of tape recorders the magnetizing head and the playback head were soon combined into one head performing both functions of recording and reproducing.

This system presented an enormous number of possibilities, the most revolutionary feature being the fact that the tape could not only be played back an unlimited number of times, but also could be used for new recordings, for when the apparatus was switched for recording, the demagnetizing head ("eraser") came into operation and made the tape magnetically neutral; the recording head was only a few centimetres away and remagnetized the tape for the new recording. When the apparatus was set in the playback position the demagnetizer came out of action and the tape retained its state of magnetization, whilst the quality of the recording did not suffer through storage.

Obviously these properties made the system very economical to work with, so that the tape recorder had thereby also become an ideal apparatus for semi-professional purposes and also for the amateur. Undesired passages in recordings could be cut out for editing and the tape respliced, while parts of programmes could be joined together in any desired order to make one continuous tape. Tape recorders were soon manufactured for different speeds, and some big reels contained enough tape for a programme of several hours! Philips, among other firms, soon were marketing apparatus for all purposes, from the largest type for permanent installation in radio studios to the smallest portable types for reporters, musicians, teachers and medical practitioners. With these instruments musical programmes could be recorded and reproduced in hotels and factories, professors and lecturers could hear and study their prepared speeches in advance, in the advertising world they were being used for recording commentaries and explanations for demonstrations, while the film amateur could now easily produce his own sound track. Some thousands of uses were found for tape recorders within the space of a few years.

Especially for the man who can hardly be fitted into any category, the "amateur", the man who wants to direct and produce his own radiophonic presentations on tape, a new and interesting field of activity opened up. He now had a fine chance to experiment to his heart's content. He could hear "himself", he could record the voices of his children, from the first tiny wail to the first "cheeky remark. . . ." Sound hobbyism, in the form of international tape correspondence, got a real break.

#### **Magnetic sound in other fields:**

In the beginning, quite naturally, it was thought that tape recorders would completely do away with gramophone records, but it has turned out otherwise. Especially since the invention of the long-playing records, the gramophone continues to be a very attractive instrument for the home. There is a great repertory available of any kind of music from any country, the programme is soon chosen and one's choice, when playing records, can be changed in a moment. Undoubtedly, these are advantages of great importance.

In film production and radio broadcasting, however, tape recording equipment has easily proved its superiority as compared with photographic and other sound recording systems.

In motion picture studios one or more sound tracks are now recorded magnetically and in many cases, as with CinemaScope, Todd-AO and other new film systems, the film print supplied to the cinemas has magnetic sound tracks which have to be reproduced by a magnetic sound scanning head on the projector.

"Stereophonic" sound reproduction, in which Philips' laboratories pioneered before the war, is now also used in motion pictures. It is realized by using three or more sound tracks for recording and reproduction plus an additional track for special effects ("surround loudspeakers" in the cinema) and it has become a great success. Thanks to magnetic recording, the quality of sound reproduction in cinemas has been considerably improved and complicated processing is no longer necessary.

Magnetic tape plays a very important part in today's radio broadcasting. The greater part of the programmes is now made in advance and recorded on tape. Even television pictures can now be recorded on tape (Video Recording) and in the near future it will be possible that complete television programmes can be indefinitely



stored and repeated at will. The best process for this medium will certainly have a great future, especially when it becomes adapted for use in the living-room and will be smaller and simpler.

Multi-channel recording of air-field communications and other data, and equipment for multi-language explanation with exhibition stunts, etc. have also become reality.

As regards the small portable tape recorders the last few years have brought substantial improvements like the twin-track system; lower speeds with the same or even better quality (and longer playing time per reel); easier tape-threading; better, thinner tape material and long-playing tapes; the stereophonic system; and others.

At this moment new developments of great importance are just around the corner. Easier operation and greater tape economy seem to be the main objects the manufacturers have in mind, but whatever future developments there may be, there is little doubt that the magnetic system will advance further and further towards perfection in recording tomorrow's sounds.

### WALTER SCANLAN IN "IRISH EYES"

Since the days of the lamented Billy Scanlan, few singing actors have met with such popular approval as young Walter Scanlan received last season on his first starring tour in an Irish melody-play. Continuing his success of last year, Walter Scanlan is appearing in "Irish Eyes" at present, a play that gives him every opportunity to display his engaging personality, his histrionic ability and his rich lyric tenor voice.

"Irish Eyes" is the work of an American author, Edward E. Rose. Of course, it is a romantic comedy. Its action takes place on both sides of the Atlantic — in Galway, Ireland, and in New York City. Unlike most Irish comedies of this nature, there is an air of mystery surrounding the characters until the final curtain.

"Irish Eyes" opens with a prolog laid in a fashionable apartment on Riverside Drive, where John Brady, millionaire, resides with his daughter. Unexpectedly, his brother-in-law, Dan Riley, arrives from the West. Sitting before the glow of the fire, the two men are led into reminiscence. Riley reproaches Brady for forgetting the hardy, happy days when both of them were fishermen on Galway Bay, depending entirely on the weather and a good catch to keep body and soul together. As they chat, the scene changes to the town of Ballinahinch, Galway, showing Riley and Brady and their sweethearts dressed in the picturesque costumes of Irish fisherfolk. Three of the characters, Mr and Mrs Brady and Dan Riley, are about to set sail for America, but the sweetheart of Dan Riley, who is the daughter of an earl, leaves him without a word of encouragement on the eve of his departure. Dan is heartbroken. Suddenly a rose is thrown over the cliff, which falls at the feet of Dan. His sweetheart has thrown it to him as a token. Immediately his ardor and hope are rekindled, and he sings the beautiful song, "My Galway Rose," (RE-CREATION No. 50836). Also, it leads the hero, in sheer desperation, to see his sweetheart once again before he leaves his native land. A masked ball is being given at the Castle, her home, that night, and Dan, in disguise, mingles in the masquerading throng. His sweetheart does not recognise him until he sings his thrilling love song, "Mavourneen" (RE-CREATION No. 50836). The lovers then plan to elope from the Castle.

Theatrical stars may come and go, but the Irish singing star is in perpetual favour. Time has failed to dull his popularity. He is dearly loved by the Irish born and their descendants in America. The Irish song-play has also stood the test of time, and is an appealing form of entertainment for all lovers of humour and melody. It may be noted in passing that the Irish song-play never has had to resort to questionable themes or risqué situations to maintain its popularity.

Supporters of the Irish song-play are usually emotional and dramatic and quick to discern the true and gifted artist. The instantaneous success of Walter Scanlan proves conclusively that he filled all the requirements. Indeed, his success astounded the prophets and critics of Broadway who thought that he was going to have a long, uphill fight to fame. The Edison RE-CREATIONS of "My Galway Rose" and "Mavourneen" are intensely realistic. Mr George M. Gatts, the producer of "Irish Eyes" and the manager of Walter Scanlan, listened to these selections not long ago and expressed his amazement and pleasure at their fidelity to life.

"They will make people who have not heard Scanlan want to see him," said Mr Gatts, "and people who have seen him in the play will want to hear him again by way of the New Edison."

Our cover this month shows Walter Scanlan in the character of Dan Riley, in "Irish Eyes".

### FOR YOUR COLLECTION OF RE-CREATIONS

The following numbers are recommended unreservedly to Edison owners: "There Must Be Little Cupids In The Briny," (No. 50248); "American Fantasie," (No. 50358); "Lassie Waltz," (No. 50679); "Karzan — Fox Trot," (No. 50685); "Pussy Willow Waltzes," (No. 50702); "My Home Town Is a One Horse Town," (No. 50716); "Just Because It's You," (No. 80131); "Jesus Lover of My Soul," (No. 80237); "Anchored," (No. 80414); "Gentle Annie," (No. 80528); "Warrior's Song," (No. 82193); "Long, Long Ago," (No. 82550).