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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Mikiphone with Coloured Record. Photo L. Schlick

FOR YOUR INFORMATION

The time has come around for us to put together another magazine. We are grateful to all members who have sent us material suitable for inclusion in our paper, the more involved members become, the more interest can be generated, keep those letters coming in, we are pleased to hear from members, our aim is to help!

Firstly we have now moved. We are now housed in a room next to the Dini collection and when we get sorted out we hope to open to the public again.

A letter from a Wellington member (Hugh Price) suggests we put out a member list so members can get to know one another in an area. Our executive has considered this many times over the years but has avoided this, the main reason being all and sundry can ascertain where members are, the place can be watched and burgled. To overcome this we suggest that a member or members wishing to contact other members are requested to write to Mrs Drummond and she will give them a list of members in their area.

We have some very nice photographs of an Edisonic machine to reproduce in this issue, as far as we know only a few came into New Zealand. The writer has only seen two, and one was incomplete, the reproducer had been removed and replaced with a disc type.

We have had a lot of mail with a lot of material some of which we have included in this issue.

Over the Christmas Season our Secretary has received several cards and messages from members both here in New Zealand and overseas.

These have been much appreciated as have the numerous comments complimenting the Society, on the quality of our posts and magazine.

From Larry Schlick has come some very fine illustrations of a Brook repeating gramophone, an illustrated ad for which we had in Issue 3 & 4 Volume 22. We have included these in this issue.

The G & T model which he calls a mystery machine (see same issue) is modelled closely after a U.S. Victor Junior. It has the same knob where the reproducer attaches.

The U.S. version has a special reproducer, but this may not be so with the English version.

Most of the rest looks very much the same.

During the last month we had a visit from an Australian collector, Trevor and Lorraine Villard visited our Secretary, Robert Sleeman and Dick Hills was able to show them around Ferrymead.

OBITUARY
Barry Sheppard

Christchurch record collector and member Barry Sheppard died of cancer on 4 April 1988. He underwent major surgery about a year ago and had seldom felt able to attend meetings since. His condition recently deteriorated to the point at which he was confined to his home. Those of us who visited him recently were impressed by the stoical, matter-of-fact way he was getting through the last phase of his life and we hoped that this tribute could be published while he was still here to read it.

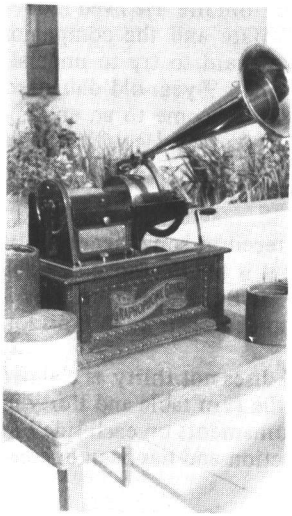
Barry joined the society in 1970 and became one of the most regular attenders of meetings. A quiet gentleman of sober, conservative appearance, he seemed ageless as the years rolled by – indeed it was quite a surprise to learn that he was 51. All the time that we knew him he was building up his collection of LP's and tapes of popular music, documentaries, musical shows, radio serials etc. to its present size of about 5,500 physical items. From the point of view of social history, Barry has done a much more important job in amassing his own sound archive of the mid-20th century than have many collectors interested only in early operatic records. He collected New Zealand recordings will enthusiasm and when in Auckland recently turned up the original 45 of Les Andrews singing **Click go the toll gates**, the song about the Auckland Harbour Bridge. It has been arranged for some time that Barry's collection will be deposited with Sound Archives in Timaru, where we are sure its historical value will be appreciated more and more in years to come.

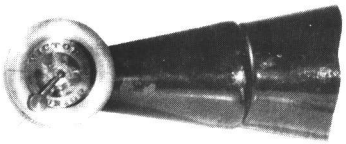
Radio has meant a lot to Barry over the years. Besides collecting programmes on tape he was

COLUMBIA SERIES No. 14

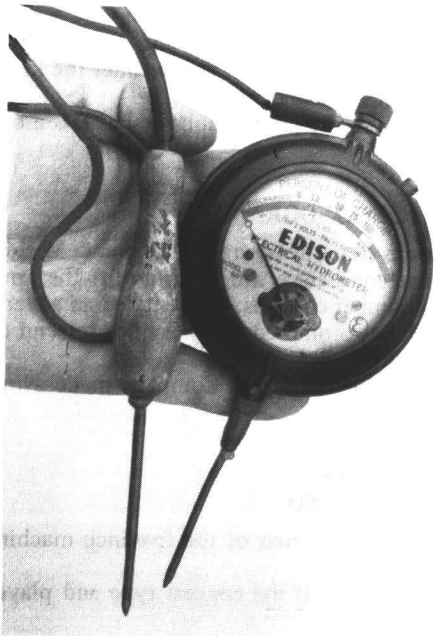
Model G. G. 1898

PHOTOGRAPH G. BALLARD U.S.A.





VICTOR JUNIOR ELBO



PLAYING CARDS

Photo
L. Schlick

actually on air for a while as presenter of a nostalgia programme for Radio Rhema, a religious station in Christchurch. This was enjoyed by listeners and many besides Barry were disappointed when the station axed his programme.

Barry did not ask for a great deal from life. He lived moderately, content with a steady clerical job in the Department of Social Welfare and the companionship of his wife Roberta and son Alistair in their suburban home. It is hard to try to understand why such a family should have been so unlucky, first in the loss of their 9-year-old daughter Joanna 4 years ago, now in this. We are very sorry to see Barry's time with us come to an end and would like to record our appreciation of his support in his 18 years as a member. He will be sadly missed.

EDISONIC

We have been fortunate to have received some excellent photographs of an Edisonic diamond disc machine. Going by Frow's book it is the Beethoven model.

These were kindly sent to us by Mr Bill Hecht who lives in South Africa. He says his mahcine is in perfect order and that he likes to demonstrate it in his lounge where one can stand thirty-nine feet from the horn.

His machine holds sixty diamond discs not thirty as claimed by George Frow in his publication, thirty in the space at the top beside the turn table and thirty in a cupboard on the side.

Please not the decorative metal ornaments on each side of and in the centre of the door panels. The machine gives beautiful reproduction and has been in constant use for over forty years.

MIKIPHONE

We are fortunate to have such a number of good clear illustrations of what must be the smallest working portable Gramophone. Manufactured in Switzerland about 1920 it did not appear in England until 1926. Nickel-plated four and one half inches in diameter it looks more like a large size tobacco tin.

The first Mikiphone many of us saw in New Zealand was brought by Charlie Lindsay to the 1964 Phonograph and Record Collectors Conference which was held in the Manufacturers' Association rooms in Christchurch.

This little machine will play up to a ten inch record, has a silent wind, and quiet running motor which is stopped and started by moving the reproducer support arm. We consider the little leather carrying case difficult to find, and have not seen one in New Zealand.

We are indebted to Larry Schlick who kindly sent us the photographs he has taken of his own machine.

BROOKS AUTOMATIC PHONOGRAPH

Manufactured in the United States by the Brooks Manufacturing Co. Saginaw, Michigan. The selling points were sturdy double spring motor, and mechanics which would lift the arm off the record and return it to the start and repeat this a number of times. We included an advert for this machine in a previous issue Volume 22 3 & 4 which has prompted Larry Schlick to send us photographs of his table model. Price for Consul model $300.

More information would be appreciated i.e. what else, if any, the Company made. None of our reference books can help us with this make.

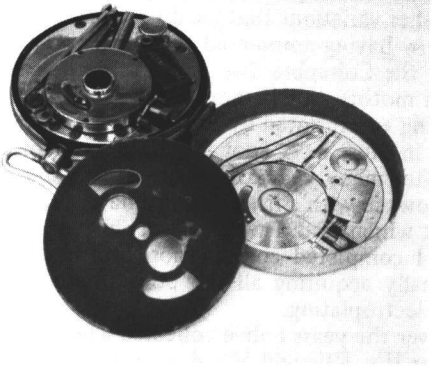
COLUMBIA SERIES

1898 **GRAPHOPHONE GRAND** **No. 14**

Given the name Graphophone Grand Model GG was the first of the five inch machines to be sold.

Designed by MacDonald to play brown wax cylinders of the concert type and played at the

MIKIPHONE



PHOTOGRAPHS OF L. SCHLICK'S MIKIPHONE

speed of one hundred and twenty revolutions per minute. At this increased surface speed, more volume and better quality sound could be obtained.

The Graphophone Grand is fitted into a large ornate oak case with a flip down door (this is in the front and gives access to the motor) a hinged end gate and a powerful triple spring motor.

They were at first sold for $300 but because of competition from the Edison Company with their model "The Edison Concert" five inch the price was reduced to $150.

We consider it a very rare machine in Christchurch and we do not know of one in New Zealand.

LETTER TO THE EDITOR

Dear Walter,

Over many years my letters to Lindsay Drummond has resulted in our sharing many family and personal situations. Lindsay's personal friendliness and dedication as secretary to the "Society" has given me a much closer personal insight into the society and some of its members. Lindsay has always supported the efforts of the members and I admire her ongoing dedication, and from time to time in our letters, I have asked her to relay any information that may have been of interest to you or to the other society members.

In the past I haven't been much of a contributor, but I do recognise and appreciate your work as editor of "The Phonographic Record". I suppose as in most human activity there are the "players" and the "spectators" and as such we need each other, and to "cheer" the players on.

I have enclosed an original copy of a work which I recently completed on Victor-Victrola motors. Except for a few local friends you are the first to receive this and if you wish to print all or part of it in the "Record" please feel free to do so. Also you may print anything else of general interest that I may have sent to you or Lindsay. You can keep this original copy for the Society members to look at. Unless a person has attempted research of this nature before, no one can envision the time, effort, the re-writes, the cross-checking, and double-checking of data, that went into a mere 11 pages of manuscript. This all started with making a few notes of the different Victrola motors, then when this became too much confusion, I decided to take some pictures of the different styles of Victrola motors. The first pictures were in colour and full of shadows. I was unsatisfied with these results, so decided to go black and white and bought a camera tripod. Then friends said I should cover all the Victor-Victrola motors, so I thought why stop half way, now I was thinking I could help others to identify these motors not only myself if I were to continue on. So however complete it is (in general terms) it is as complete as I could make it, no doubt there are other variations that need to come to light. Exhausted study or not, I felt exhausted doing it.

Now having completed this much; when I feel I have the time and ambition I'll do a sequel on all of the Columbia disc motors. I'm not aware of other persons attempts to identify disc phonograph motors, but if there are I would like to find out who they are, as there is precious little or nothing ever printed by the original manufacturers, as repair or service manuals or booklets for the trade in those days, (not that I am aware of anyway).

After many years of being out of work and having family troubles – that I hope is all behind me now, so with a little luck I'll have steady employment until I retire in 5 to 10 years from now.

At which time I will be "set up" to reproduce disc cases, back brackets and wood horns. Last year I completed construction of a woodworking shop (addition to our house) and I have been gradually acquiring all the power tools and equipment needed for woodworking, metalworking and electroplating.

Over the years I ahve collected a large number of motors, arms, horns and hardware to assemble Victor II's, III's and V's also various Columbia disc models, so when that time comes, I will have available exact restorations/reproduction of those as well as a few Edison Operas, but in the meantime I have to concentrate on working for others to earn my living.

I understand you have amassed a varied collection of phonographs and antiques. It would be

interesting to see a "picture spread" of your collection in the "Record". As an idea how about "featuring" 1 or 2 Society members (New Zealand members) in forthcoming issues?

Well, I think that's about all for now.

Sincerely,
Harold Braker.

P.S. I am considering copyright of the motor identification article, especially if I go all the way to include Columbia and others of North America, however in the meantime you can use part or all of it in the "Record".

Harold

We are grateful to Harold for his letter and his most thorough motor article which we will use as soon as possible. – **Editor**

HE FINDS BEAUTY IN GRAMOPHONES

By Leslie Berger

When Burnaby's Harold Braker saw his first gramophone in a North Vancouver antique shop in 1969, he was immediately hooked.

Now, 18 years and hundreds of gramophones later, Braker is one of only a handful of collectors in the Lower Mainland that buy and restore the antiques.

"My collection is as extensive as some car collectoons," Braker said. "It is addictive, an obsession perhaps, but once you have one (gramophone) the second and third come very easily."

Braker got started on his collecting hobby strictly by luck.

"I found myself divorced in the late sixties, and with a place to live, but no furniture," he says. "The first thing I bought was an antique brass bed. Then I needed a night table to match the bed, and soon I was in all the antique shops, looking for furntiure. When I saw the old table model Victrola IV gramophone, I thought paying $32.50 for it was a little high, but I had to have it."

Since his collecting days began Braker has paid from $5 to $1,000 for gramophones in all stages of disrepair. Braker says that to buy a restored gramophone today, the average price is $750-$950, although some models can fetch as much as $4,000.

"Being able to get one for a few dollars and see the potential for beauty is half of the fun in collecting," Braker says. "It's no fun when it's sitting in an antique store with a large price tag. It's the discovery of something that was very valuable and treasured but may look like junk now. To see the potential in there, and be able to restore it, that's what I like."

Unemployed for the past three years, Braker has devoted himself full time to his hobby, building the parts he can't buy. But Braker won't consider turning his hobby into a career.

"I get too much personal satisfaction out of it," Braker says. "But although my collecting is a pleasure pursuit, it does benefit society in a way, because I'm making this junk usable again, and at the same time, bringing history back to life."

A hobbyist since he was 11, Braker has lived in Burnaby since 1978.

Although he is an avid collector and frequents garage sales and flea markets as well as antique stores looking for parts and gramophones, Braker has another goal as a collector.

"I would trade the prized phonographs in my collection for a 1932 Cadillac I could restore," he says longingly. "The ultimate goal in my career as a hobbyist is to restore one of those, then I can go to heaven with all my dreams fulfilled."

FEBRUARY MEETING

Gavin East welcomed members to the first meeting of 1988 in the Choir Room of St. Mary's Parish Rooms, Merivale. After discussion we agreed that we will combine committee and general meetings from now on. In terms of attendance they are about the same so this will save us from having to turn out twice a month to separate meetings.

Robert Sleeman brought along a very tidy HMV table model 103 which he bought recently from its original owner. At least she said it was new when she and her husband bought it but she said this was in the 1930's – old stock perhaps? Gavin bought the small quantity of 78s with the machine. They were of no special interest but in clean unscratched condition in their original covers. He played some of these 78s on the machine at the meeting. One which nobody present could recall having seen before was HMV C1784, Good old dances by Jack Hylton and his Orchestra, with Tommy Handley (later of ITMA fame) as MC. It was amusing to hear 1920's dance music called modern pop, also to hear Jack Hylton's speaking voice.

The other records played were I'm up on a mountain (Silver & Oppenheim) sung by Jack Miller on Regal G21004; Broadway melody (Brown & Freed) by Layton & Johnstone on Columbia 01527 and Painting the clouds with sunshine (Dubin & Burke) sung by Len Maurice on Columbia 01754.

Saturn picture records attract attention when they occasionally turn up here. Dick Hills brought along a 10-inch example which set off a discussion about values. It was suggested that Saturn records are probably worth about $25 each in Christchurch today at auction, since they appeal to many besides record collectors.

Dick had also turned up an HMV soundbox lifter in its box, quite a scarce little accessory no doubt because it was really quite unnecessary.

Two musical boxes at opposite ends of the time-scale rounded off the programme. Gavin played an 8-tune keywind box of c. 1845, one of the tunes being My love is like a red, red rose. Robert then played a 3-tune Thorens of (perhaps) c. 1950, with a full, attractive sound.

ANOTHER CONVENTION?

The first New Zealand convention of machine and record collectors was held in Wellington in 1963, the second in Christchurch in 1964, the third in Wellington in 1965 and the fourth in Christchurch in 1967. Later conventions were at Wellington (1969 and 1972) and Christchurch (1971 and 1977). The 1977 gathering, celebrating the phonograph's centenary, was the swan-song of this memorable series of meetings. Many of us have fond memories of them and several members were introduced to the society through the public displays held as part of them.

We in Christchurch felt that after 1977 it was the turn of another area to hold the next convention. Why this did not happen is not entirely clear, but for one reason or another the convention idea seemed to have run out of steam.

There is no reason why another convention should not be a success, given an interesting programme and thorough planning and organisation. It has been suggested that we have one here in 1990 for the 25th anniversary of the founding of the society. We would appreciate readers' thoughts on this, but please understand that we would be delighted to hear of plans for a convention other than in Christchurch again!

EXTRACT FROM CLEMENTS-HENRY, B. GRAMOPHONES AND PHONOGRAPHS: THEIR CONSTRUCTION, MANAGEMENT AND REPAIR. CASSELL, 1913

MAKING RECORDS AT HOME — Part 5

A piano or other accompaniment supporting the singer may be played in the same apartment, but it will be practically inaudible on the record unless special arrangements are made; these will be referred to later.

Some voices concentrated by the screen folded as in Fig. 76, yield a "boxed-in", smothered or booming sound on reproduction. The method is best suited to tenor, soprano, and treble qualities of tone. A baritone is often better rendered by the arrangement shown by Fig. 77, the wings of the screen being swung to various angles during the tests. In Fig. 78 a good experimental formation

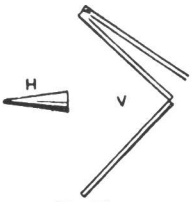


Fig. 76.

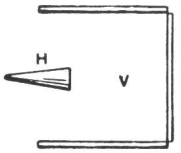


Fig. 77.

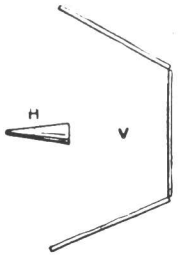


Fig. 78.

for a basso is indicated, the wings being adjusted as required; the greater the power the wider may the screen be stretched, until it becomes practically a backboard, only to project the sound.

There is an indefinite quality in certain voices that lends itself to satisfactory reproduction. This quality is not obvious to the ear, but it is observable that some very ordinary singers can make a passible record, and in some cases it is difficult to do justice to a really good voice. The pecularity is to be noted among the greatest vocalists. Caruso's records disappoint many who have heard the great tenor, whereas the fine voice of Ben Davies records with singular sweetness and fidelity.

A well-produced baritone voice will be found easiest to record, bass and tenor qualities less so; alto, soprano, and treble seldom repay the trouble of home-recording. Among female voices, contralto will be found to reproduce tolerably. The instrument for accompanied singing, most commonly in use in this country, is the piano; but its tones are not easily recorded together with the voice. The horn must be focused on the back of the instrument at about the level of the keyboard, the singer being between the horn and the piano. A grand piano is less suitable than an upright "semi", or cottage.

In professional recording-rooms the piano is raised on a substantial platform about 3 ft. from the floor. This is generally impracticable in ordinary circumstances, and therefore the piano must be drawn well out into the room, and the singer be seated on a low stool behind it, near the treble end. The phonograph may rest on the floor (on a felt pad), and the suspended forn be directed as shown in the plan (Fig. 79), where P is the piano, H the horn, and V the singer. Here again, use may be made of one or more screens; one placed as S is generally serviceable to concentrate the voice. The relative distances of machine, piano, and vocalist will depend on circumstances; several trials must be made to determine the best positions.

While making piano records neither pedal should be used, accentuation being imparted by touch alone, because the "soft" pedal will be found almost to mute the recorded sound; and the "hard" one causes confusion and discord. The performer should play with crisp execution and as powerfully as the character of the piece permits. This is one of the reasons why piano records (as solo or accompaniment) are seldom satisfactory.

Duets may be attempted (with accompaniment) by seating the singers as close together as possible (at VV, Fig. 80). If one of the voices is considerably stronger than the other, the more powerful voice may be directed over the shoulder of the singer nearer the horn. A trumpet having a wider flare than usual may assist the blending of the voices.

An alternative method is indicated in Fig. 81. Here the angle of the horn is modified to permit the vocalists to occupy opposite sides of its mouth. If solo passages occur in the course of the selection, each singer in turn should lean forward and deliver his part as directly as possible into the horn mouth. On the resumption of the duet, both singers may draw back slightly, and blend their voices by singing across the horn. Screens S may be employed, and even a top-resonator, but this may inconvenience the singers (whose positions will already be sufficiently cramped).

The usual method of making piano records has been briefly referred to. An upright instrument must be drawn well out into the room, and the phonograph set on the floor behind it (resting on a felt pad). The 20 in. to 30 in. horn is then directed towards the treble end at about the level of the keyboard; several tests should be made to find the best distance to suit the diaphragm in use. Screens and a top resonator will be of service to concentrate the sound. In the case of a grand

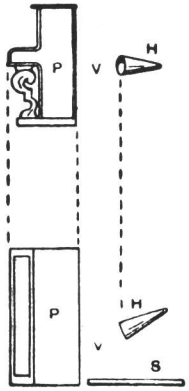


Fig. 79.

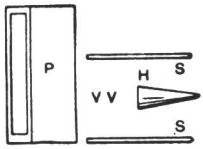


Fig. 80.

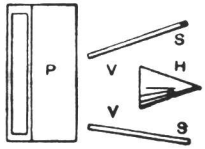


Fig. 81.

piano, the top screen is superfluous, as the cover of the instrument, when raised, will serve the same purpose. The involuntary use of the pedals may be prevented by strutting them with a piece of wood, or two bottle corks.

The violin, tenor-violin, 'cello, and double-bass are difficult to record by the amateur. In the case of each of these instruments, the performer's convenience should be first considered. Then the operator must place the phonograph as near as possible to the musician without impeding his movements, the horn being focused upon the *f*-holes of the instrument. A violinist usually stands while playing, therefore the machine must be set up 6 ft. or more from the ground, the suspended horn being drooped towards the belly of the violin. For the 'cello and other large instruments which are rested on the floor, the machine also is placed low (at a height of 2 ft. or 3 ft.), and the drooped horn focused from that position. It is important that the horn-mouth shall be brought as near as possible to the *f*-holes, leaving only sufficient space for the free movement of the bow. Screens suitably placed are useful to concentrate the sound. A 20 in. to 30 in. wide-angle trumpet best collects the large tones of a 'cello or double-bass; but an 18 in. horn of ordinary angle picks up violin music more crisply. The guitar, mandoline, and banjo may be recorded similarly to the bowed-string instruments, the horn-mouth being approached close to the sound centre in every case.

Wind instruments, as a whole, are easier to record than the stringed group, probably because the reed vibrations emanate from a relatively small centre of high concentration, and are impelled to a great extent in a definite direction.

A chamber organ yields a far better record than a piano; the same procedure serves for either instruments but the backboard of the organ should be removed and a top-screen used just above the horn and the panel opening. A stouter-diaphragm and a fairly large horn of wide flare may be employed for the preliminary tests of distance and direction.

Among brass instruments the cornet may be cited as an example. Use an 18 in. by 6 in. recording horn, and let the player stand at a distance of about 10 ft. away from it, and direct the bell of his instrument straight at the horn; on high notes or very powerful passages he should turn slightly aside. In a small apartment to screen is necessary; but in a large hall the player may need to approach nearer, and one or more screens may be set to prevent a too wide distribution, or echo of sound. Several combinations of diaphragm and horn should be tested on lengths of the trial-blank, and then the best arrangement is arrived at, a really good result may be confidently expected from the cornet, which records singularly well.

The wood-wind group records with facility, but trouble will probably be experienced in transferring the peculiarly soft tone of these instruments to the waxen cylinder, which is apt to introduce a metallic quality into the reproduction. A stout millboard horn (varnished) is desirable for recording; the tinplate ones, even when heavily muted with glued string or paper, are less suitable.

To take a clarinet record, set the phonograph on the floor and suspend the 18 in. by 6 in. horn slanting upwards to receive the tones of the instrument when played in the usual way. The angle of the horn must be arranged to suit the performer (whether seated or standing), so that the sound is focused in as direct a line as possible from reed to diaphragm. If the tone of the record is thin or metallic, try the effect of a carbon diaphragm and a 30 in. horn (of millboard or heavily muted metal), and approach the end of the clarinet more closely, to a point almost within the wide mouth of the horn.

The piccolo, flute, etc., are recorded by focusing the horn on the embouchure, or lip-orifice of the instrument. Quite a small horn will pick up the brilliant staccato notes of the piccolo, but a larger one does better with the flute; a fairly stout diaphragm is desirable for the former. A screen to the left of the performer is useful.

For instrumental duets, trios, etc., two or more recording horns are sometimes used, each being focused on its particular instrument or group of instruments. Two horns, with their stems connected to the machine by a **Y**-shaped metal union and rubber tubes, would be employed, for instance, for a piano-accompanied song with violin obligato.

The singer would occupy his usual recording position at the back of the piano and facing one horn, as previously explained. The other horn would be swung to a convenient angle to focus the violin, and in this way a fuller rendering of the vibrations of the several sound-sources is obtained.

The double **Y**-union (Fig. 82) should be of narrow angle, the brass tubes composing it being carefully fitted together to ensure a smooth and unimpeded passage for the two sets of converging sound-waves. The bores of triple or multi-unions also must be uniform and blended with the single stem at an even narrower angle, or the sound will be imperfectly blended on reaching the diaphragm.

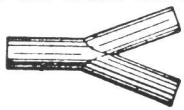


Fig. 82.—Double Y-union for Recording Horns.

Detailed instructions on recording a full band are scarcely within the scope of this chapter; but a brief summary of ordinary practice may be of interest.

A single large recording horn is employed of 5 ft. 6 in. by 18 in. to 20 in.; although it is of the non-resonant type, a flare or bell-mouth is often used. This is suspended at about 4 ft. from the floor. The bandsmen are grouped according to the power of their instruments, the back rows of musicians being raised several feet above the others to enable every performer to accurately focus the horn without interference; special positions are allotted to soloists. In general terms the various distances from the horn-mouth are arranged as follows: The piccolos and flutes nearest, at 2 ft. to 3 ft. Clarinets next, ranged up on each side and raised a foot or two from the floor. Beyond these the heavier of the brass instruments at 4 ft. to 8 ft.; cornets at 7 ft. to 10 ft., and the largest bass-brass at 10 ft. or more. Drums are found to confuse the record, while a number of other instruments are contributing to it; but alone, the drum records well, and is employed with good effect (solo) in brief pauses of a selection in which such emphasis is desirable; its distance may be at 8 ft. to 10 ft. from the horn. The big drum is never used in recording serious music.

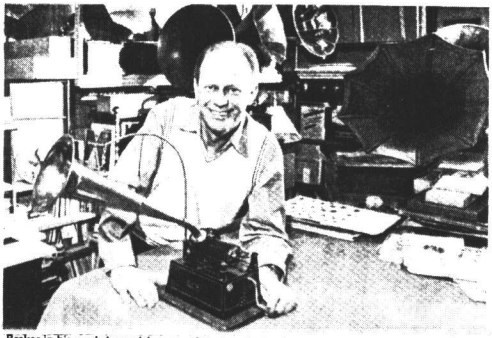
THE EDISON EFFECT

The phonograph was one of the inventions of which Edison was most proud. He performed another piece of work that was to prove subsequently of far greater importance: he was the first to detect the flow of free electrons through evacuated space. For a quarter of a century, his notes went unnoticed, until they were re-examined at the end of the century, and then the "Edison Effect" was to lead the way to the development of the radio tube and the radio industry.

In 1883, when Edison was working with carbon filaments, he noticed that the inside of the bulbs became gradually blackened. The deposit of carbon on the bulb was uniform except for a fine clear line on one side near the filament support, as if the support itself cast a shadow. Edison

EDISONIC.

W. HECHT OF SOUTH AFRICA



Braker in his workshop with some of the hundreds of gramophones that he has had in his collection.
— Photo by Ric Ernst

surmised that the carbon deposit on the glass was coming from the filament, but he was unable to give any mechanical explanation for the "shadow". In a test lamp, he inserted a small metal plate between the two legs which supported the carbon filament. The metal plate could be connected either to the high or low voltage side of the filament. When connected to the positive leg, the plate drew a small current, he discovered. When the plate was made negative, no plate current flowed.

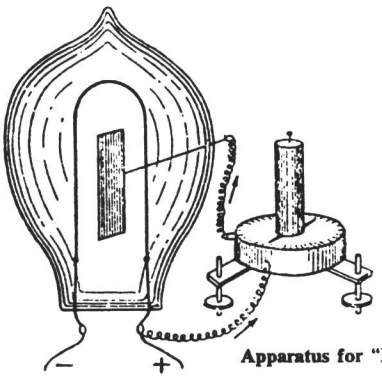
Thirteen years later, in 1896, the discovery of the electron by J. J. Thomson suggested to Fleming, Edison's young assistant, that the half-forgotten phenomenon observed by Edison meant that the incandescent carbon filament boiled off electrons, which were attracted across the evacuated space by the positively charged plate. When the plate had been negatively charged, the electrons had been repelled. Fleming's variation of Edison's apparatus was to surround an incandescent filament with a metal wall which was positively charged. This permitted the passage of the positive half of every cycle of alternating current, and was the first electron rectifier.

By the turn of the century, Edison's great creativeness began to wane. His work became more dogged and less versatile, even though he invented a new form of storage battery in 1903, and a new process for separating iron from low-grade ores in the decade between 1890 and 1900. In 1891 he invented the kinetoscope – a device for showing in succession pictures of motion on a continuous strip of film.

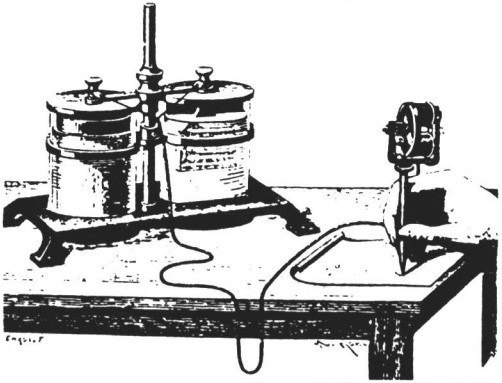
The U.S. Patent Office granted Edison 1,093 patents during his lifetime, the largest number ever given to one man.

His first wife had died and he had remarried. He lived a more conventional life, and the ghost of the boy who had swaggered into the Boston office of Western Union arose only occasionally during interviews with newspaper men. The older Edison loved the boy he had been long ago. The world was moving very fast, but whatever it was that had driven Thomas Alva Edison to work for days on end around the clock seemed to have lost its sting. Engineers and chemists working for the giant corporations he had helped to build were taking over his work, and the new explanations of the physical world were incomprehensible to him. Young men who had worked for him had grown up to a world fame of their own, to the directorships of great companies, to knighthoods, to Nobel prizes. It was all going very fast, but never once did Edison use the heartbreaking words of the tired and lost: "I guess I've lived too long." He lived to be an old man, but he never stopped working, he never lost his pride, and he was never defeated.

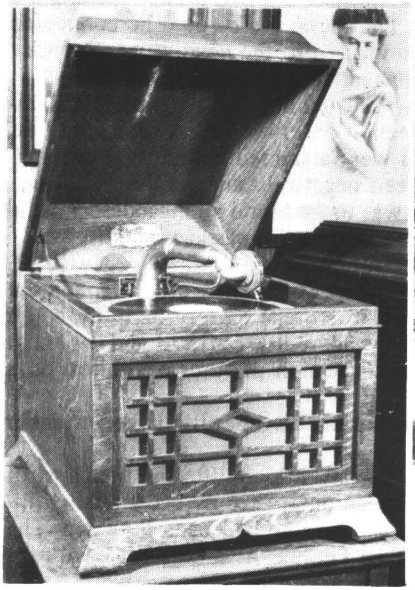
Edison's electric pen, patented in 1877, was for a long time in general use for making manifold copies of manuscripts. The operator drew a design or message with an electromagnetically vibrated stylus, and this became the stencil for the printing of many copies. It was very useful until the development of the typewriter and carbon paper. A later form, as a percussion hammer, was to be used by dentists. Edison also invented gummed paper, tried to produce artificial rubber from goldenrod, improved the electric storage battery, built electric automobiles. He always considered himself a chemist.



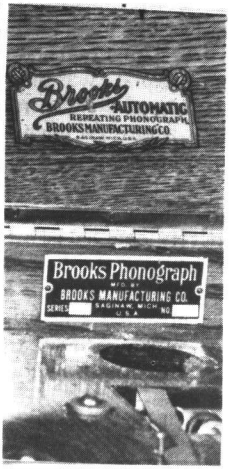
Apparatus for "Edison Effect"

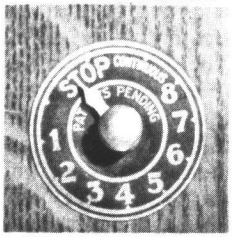


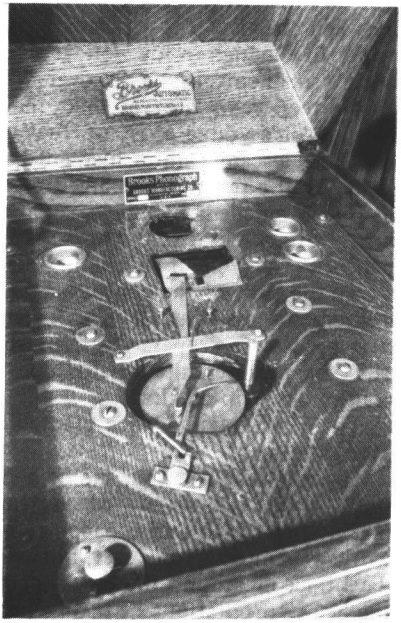
From: Wilson, Mitchell. American science and invention: a pictorial history. New York: Simon & Schuster, 1954.



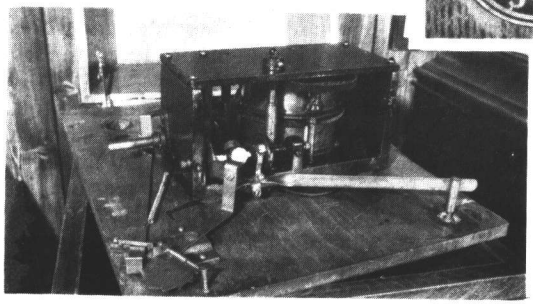
Brooks Automatic Repeating Phonograph



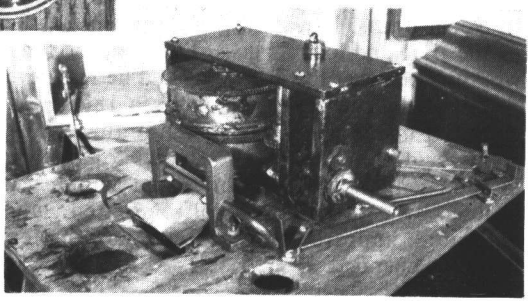




Under Turntable Repeating Mechanism



Front View of Attachment



Rear View of Repeating Mechanism

When records ends — Arm lifts and . . . Returns to outside groove Automatically

Photos L. Schlick

LASERS GIVE NEW LIFE TO OLD LPs

By Barry Fox

Music lovers and radio stations with large collections of vinyl LP records have long dreamed of playing them with a laser rather than a stylus. Their treasured records would then never wear out. For three years now Finial Technology of Sunnyvale, California, has been promising just such a gramophone, and has raised $4.5 million from investors to perfect it.

Finial promised that the laser turntable would go on sale in 1986 for around $2500. But audio enthusiasts are still waiting. After many delays Finial now says that the turntable "does exist, does work and is planned for launch later this year".

There is no magic in tracking the groove of a vinyl LP with a laser instead of a diamond stylus – but there are daunting practical difficulties in making the technology work.

In theory, the laser is focused to a spot of light which matches the size of the groove (around 50 micrometres wide) and the reflected beam is directed onto a light-sensitive cell. The variations in groove size, which would normally be mechanically sensed by a stylus, are electrically sensed by a photocell to produce an electrical analogue signal similar to that produced by a conventional gramophone. Technology already exists to read the much smaller spiral of pits (less than 2 micrometres wide) which carry the signal on a digital compact disc (CD) record.

The snag is that CDs are designed to be tracked by a laser and are made flat and true to very high tolerance. Conventional LPs are much more roughly mass-produced because the stylus easily follows any up or down "warp" of the plastic, side to side movement or variations in the size and pitch of grooves.

A laser gramophone like Finial's needs a servo system which can continually adjust the position and focus of the laser beam as the disc rotates. The light sensor must cope with the fact that different types of black and coloured vinyl will reflect different amounts of light. And where the spiral track of a CD is at constant pitch to assist laser tracking, the pitch of the groove spiral on an LP varies with the music; loud sounds make larger undulations in the groove, and the track pitch widens to make room.

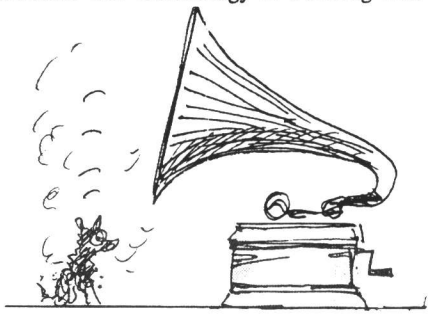
In a CD player the solid-state diode laser and light sensor need only distinguish between digital ones and zeros. Finial's turntable handles only analogue signals. So any spurious noise in the signal can degrade the sound. A stylus pushes aside any dirt or dust in the groove. A light beam cannot do this. Nevertheless, Finial's publicity literature claims that "small dust particles have little or no impact on the laser; large pieces of dust or dirt cause a momentary click . . . small scratches have little or no effect on the laser; large scratches are picked up as a momentary click".

Finial has so far refused to explain how its laser turntable works. The technology, it says, was conceived by Robert Reis, who worked as a consultant for the US Air Force and Department of Defense, on digital and analogue signal processing.

The company has produced an impressive sales brochure, answering 19 of the "most often asked" questions. The first, "how does the laser turntable work?", explains: "Laser beams are bounced off of the *(sic)* record and the reflections are converted to music. These reflections are also used to control the servo positioning (tracking) system."

Finial admits that the first prototype, unveiled to the press and trade at the Consumer Electronics Show in Las Vegas, January 1985 was in fact a non-working model. The company says it will decide in March whether the technology is working well enough to justify the long-awaited public launch in June.

New Scientist 18 February 1988



ADVERTISEMENTS

For Sale:

Latest L.P. pressings of Louis Levy's Gaumont British Symphony, containing seven selections, priced at $15.00 each (N.Z.) plus postage.

Also, L.P. pressings by the Orchestra Mascotte still available at $10.00 each (N.Z.) plus postage.

Write or phone: Trevor Skelton, 43 West End Road, Herne Bay, Auckland, New Zealand. Phone 762-453.

For Sale:

Gramophone needles $3.00 Aust. per 200, soft, medium, loud, extra loud available, also electric pickup type. Can supply by brand name of your choice most likely. Reply: David Fisher, Box 4, Bintoon, Western Australia, 6502. Phone 2725017, (09).

Wanted to Purchase:

Edison Standard carriage for Diamond 'B' reproducer. Please write to: Alan Hibsch, 4 La Foret Ct, Oroville, California, 95965, United States of America.

For Sale or Swap:

500 needle tins, most in mint condition. If you have any to swap send photocopy and I will return my list by return post. Will also buy needle tins, record cleaning pads, needle sharpeners, advertising literature or any odd items relating to gramophones. Reply: David Fisher, P.O. Box 4, Bintoon, Western Australia, 6502.

Wanted to Purchase:

Parts for 18th century English (Adam) phonograph Model C-450, or any parts that may fit that model. I have the cabinet in excellent order but no inside. Please reply: K. Kerr, 15 Bryants Road, Brightwater, Nelson.

Wanted to Purchase:

Needle tins, record dusters, Edison Phonographs and early radios. Please reply: Rob Goard, 23 Davidson Avenue, North Rocks, 2151, N.S.W., Australia.

(Mr Goard runs 'Phonoantiques' at 114 Oxford Street, Paddington, New South Wales and would be happy to meet collectors. Swaps as well as buying tins or dusters. – **Secretary**).

Wanted to Purchase:

Top portion of an Edison Diamond B reproducer. Lid of a Home B, in good condition. Edison Amberola 75 in excellent condition. Please contact: Mark Dawson, 51 Flanders Avenue, Onekawa, Napier, New Zealand. Phone Napier (070) 436945.

Swap for Jazz Records:

1 x Judy Garland. 20 x Bing Crosby – one with photo on label. All English printed and in excellent condition.

Wanted to Purchase: brass needles, Please reply: B. van Wilsem vos, P.O. Box 311, Thames, New Zealand.

Parts for Sale:

To hand we have a number of small springs made by Terry & Sons Ltd. Redwitch, England.

On the end of the boxes are G.S. 77 5/8 x .020 x 8'0". This means the 5/8 in. with .020 in. Thickness is 8 feet long and has key type ends and slot type. We do not know for sure what these were made to fit but think they could be adapted to fit an Edison Gem.

The price for these is $4 N.Z. each. Postage extra.

For Sale or Trade:

Many home, standard, and fireside Edison's, some Columbia both disc and cylinder. Some rare machines. Would sell at wholesale in suitable lots. Shipping can be arranged. Also interested in trading machines. Thank you. B. Wiese, Box 1679, Westlock, Alberta, Canada, TOG 2LO.

Wanted to Buy or Excahnge:

Player rolls for 88 note player piano, also a copy of record and sheet music of Au Revoir my little Hyacinth.

Write Walter Norris, Swannanoa, Rangiora, R.D. 1, New Zealand.