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The Sound of Fame: Syracuse University's Audio Archive and Edison Re-recording Laboratory

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EDISON RECORD LABEL

From the Syracuse University Audio Archive and Re-recording Laboratory

THE COURIER

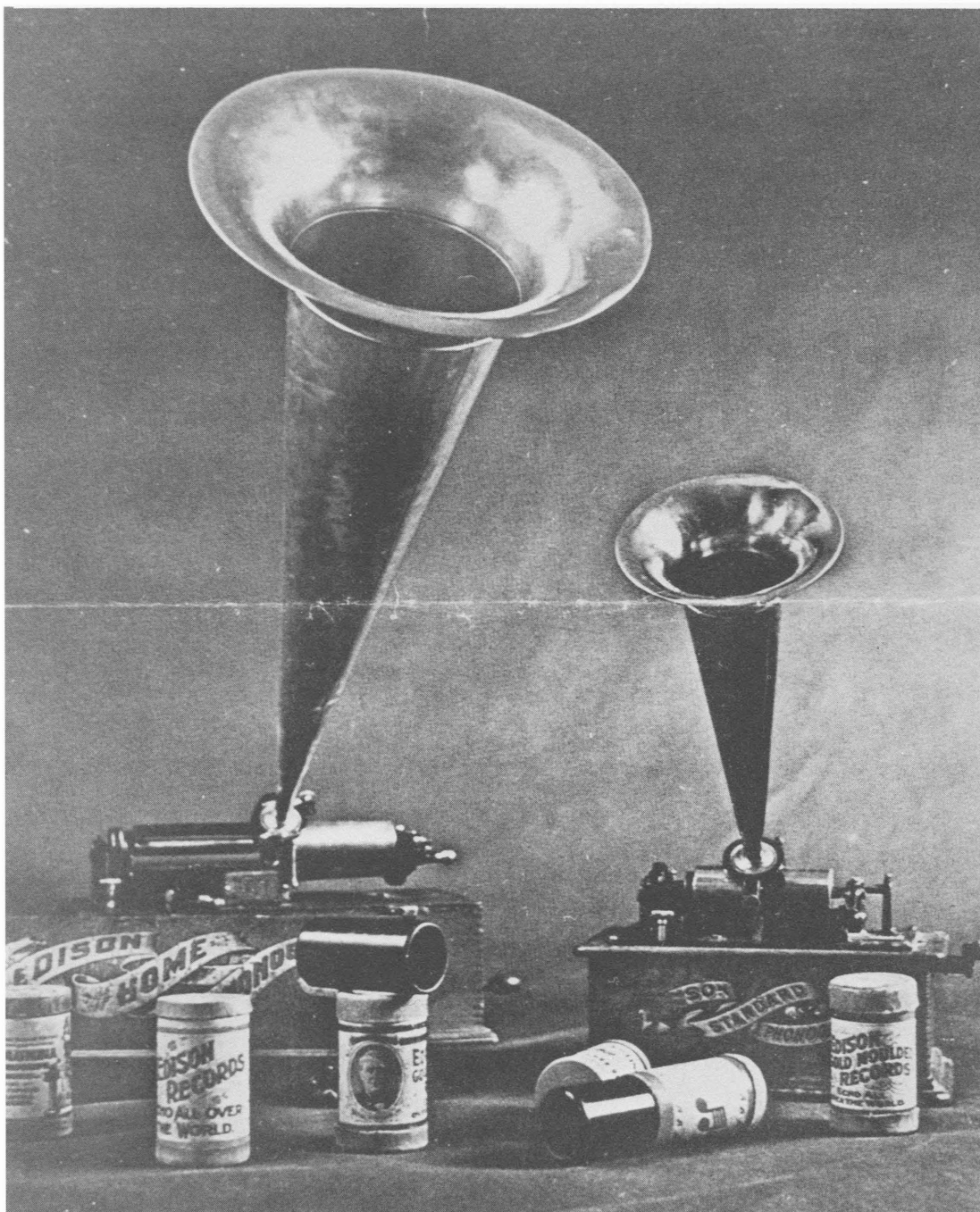
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EARLY EDISON PHONOGRAPHS AND CYLINDERS

(Photograph by Harry Bosch)

The Sound of Fame: Syracuse University's Audio Archive and Edison Re-recording Laboratory

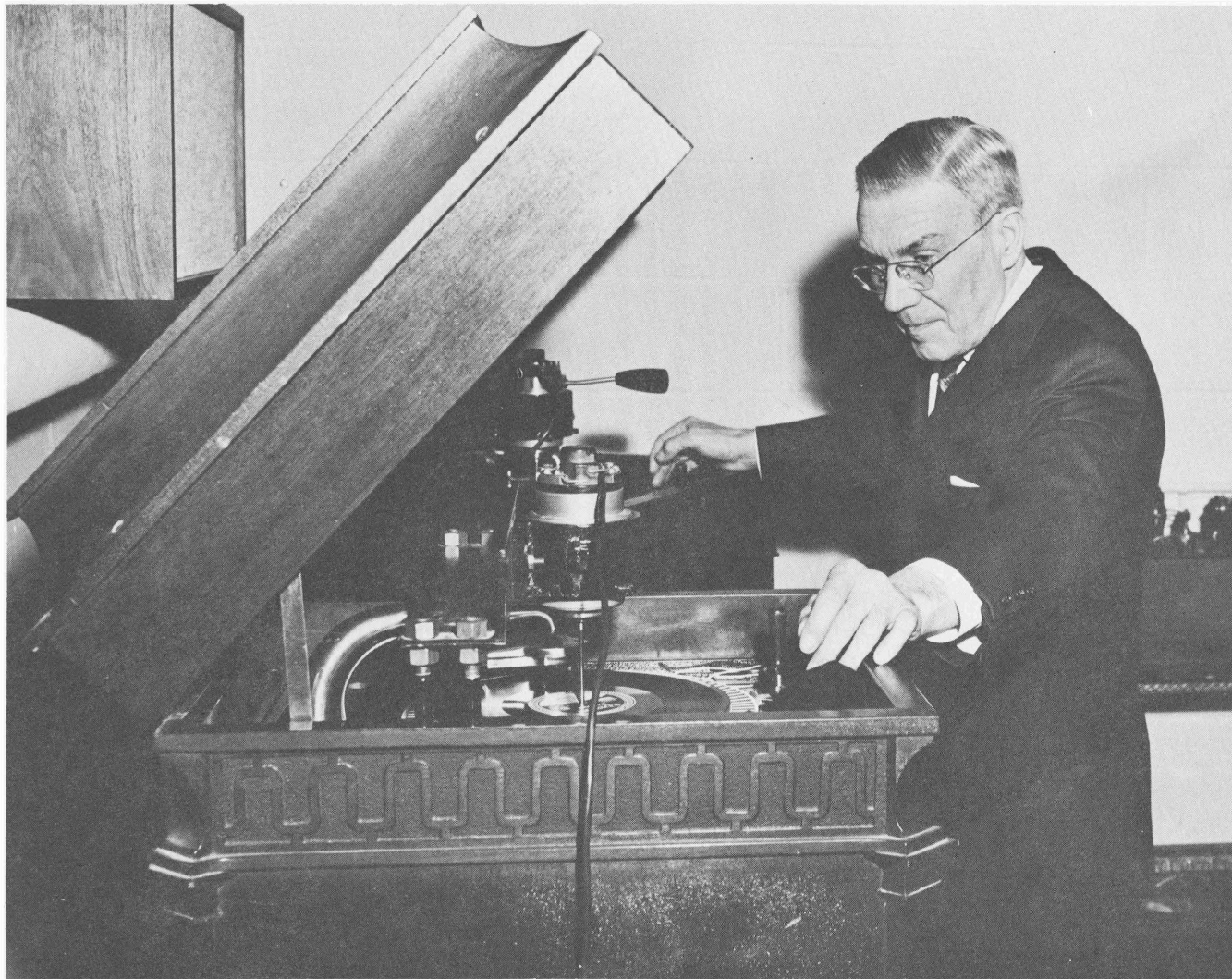
by Frank S. Macomber

Most antique shops have one in a back corner, dusty, wood-finish dulled, the metal slightly rusted. The horn stands near by, looking more like a slightly ridiculous dunce cap than a purveyor of music. Occasionally there will be found one of the heavy mahogany cabinets of the twenties, with its stand-up lid and crank, with its doors opened, looking ever so like a big square open mouth. Ancient relics which our forefathers took very seriously, but which we find only curious.

These relics conjure not only hazy images of a more naive age, but inevitably the image of Thomas Alva Edison. It is, of course, thanks to his genius that ours is the first century in history which may re-experience the sounds and sights of both past and present.

At first glance the Syracuse University Audio Archive and Edison Re-recording Laboratory looks like an antique shop. Old phonographs, cylinders, posters of a by-gone era are everywhere; there is even a relief of the Victor dog. But there are great differences in action and atmosphere from an antique shop, for at the Archive the "relics" are living machines, and the ancient cylinders are taking on a modern, full-toned life. Here, modern techniques of cleaning, reprocessing and re-recording are giving new sounds for old. Here, the staff is finding ways for the sounds of the past to function as realities in the present, and they are preserving them to continue as useful aids for the future.

Dr. Frank S. Macomber is an associate professor in the Department of Fine Arts at Syracuse University. In addition to being a teacher and music historian (he is an authority on the works of Bach), he is a practicing musician and a concert reviewer.



DIRECTOR WALTER I. WELCH IN THE RE-RECORDING LABORATORY

The existence of the Archive is the result of a confluence of currents which came together almost by accident. Until the late 1950s, Syracuse University had concerned itself with sound recordings only in conjunction with classroom teaching in music. The library held a modest but adequate collection of 78 and 33 rpm recordings needed for this purpose. But during the late fifties and early sixties several forces, separately and unknowingly conspiratorial, worked to extend the concepts of collection and retrieval of sonic information at Syracuse to a degree previously undreamed:

1. Donald Ely, the director of the Audio-Visual Center (now the Center for Instructional Development) and Wayne Yenawine, director of Libraries and dean of the School of Library Science, began discussions with Frank Piskor, vice-president for Academic Affairs, on the formation of an audio archive. The archive would care for the small but growing group of rare records and tape materials of historical importance already on campus and would see to making significant additions.
2. The School of Library Science began a series of investigations into innovative methods of storage and retrieval of all types of information. This led to a reform of the direction of the school, with greater stress on the computer as a library tool. (It later became the School of Information Studies.)
3. A major collection of historical importance, containing cylinders, records and tapes, needed a home. In 1962 Syracuse University was to become the owner of the Joseph and Max Bell Collection of Sound Recordings.
4. Walter L. Welch, associate professor of Landscape Architecture at the State University College of Forestry at Syracuse, and a distinguished scholar of the history of the phonograph, was available to oversee the total operation of the archive.

Though the present E. S. Bird Library building was almost a decade distant, its planners were aware that the library school and others were expanding traditional library functions. Thinking centered especially in the areas of what materials might be housed in addition to books, manuscripts and other related printed materials and how best to place these materials in the hands of those who need them. Strong emphasis was placed on the use of the computer as an aid to information retrieval.

The combination of new directions in thinking, availability of important materials, the presence on the campus of personnel who were interested in building a historical resource and capable of running it, and the vision of Chancellor William Pearson Tolley in agreeing to find funds for the purchase of the Bell Collection – all resulted in the formation of the Audio Archive as a part of the Syracuse University Libraries in 1963, with Walter Welch as curator.

Thus far, the most potent factor in the formulation and growth of the Audio Archive as a unique entity has been Curator Walter Welch. When he assumed the curatorship, Welch had already been a long-time fan of Thomas Edison and was committed to that inventor's empirical approach to research and invention. Welch himself was to become by necessity an inventor of re-recording processes. He had also been a keen student of the history of the phonograph. His book, *From Tinfoil to Stereo*,¹ tracing the complicated legal eddies and currents of the early years of the phonograph as a public medium of communication, and assaying the tortuous paths of a move from acoustical to electrical recording and thence to stereo and magnetic tapes, is still considered the best study of its kind. He has also written a volume on Charles Batchelor.² He owns a large personal collection of cylinders, Edison discs, and early machines.

Welch's continued concerns about the state of the recording industry and his insistence on the highest standards for that industry in the interest of authenticity have been met with less than enthusiasm, but the climate is changing. He has found strong supporters in the Thomas Alva Edison Foundation; the Edison National Historic Site at West Orange, New Jersey; the Edison Institute in Dearborn, Michigan; the Association for Recorded Sound Collection; and the Charles Edison Fund.

The Collection

The basis for the Archive is the Joseph and Max Bell aggregate of recordings which encompass some cylinders and many 78 and 33 rpm records, air checks, tapes and books. Below is a listing of only a few artists and personalities represented. In addition, there are children's records, film scores, musicals, folk, western and religious music, sports, bird calls, language instruction, games, hypnotism, foreign popular and folk music, and much more.

Classical

Enrico Caruso	Elena Gerhardt	Ernestine Schumann-Heink
Nellie Melba	Axel Schiøtz	Elisabeth Rethberg
Feodor Chaliapin	Gerhard Hüsch	Titta Ruffo
Walter Slezak	Allessandro Bonci	Leopold Auer
Adelina Patti	Ezio Pinza	Jascha Heifetz
John McCormack	Aurelio Pertile	Mischa Elman
Rosa Ponselle	Antonio Scotti	Pablo Casals
Kirsten Flagstad	Beniamino Gigli	Jan Paderewski

¹Read, Oliver and Welch, Walter L., *From Tinfoil to Stereo*. New York, Howard W. Sams and Co., 1959. Second edition 1976.

²Welch, Walter L., *Charles Batchelor: Edison's Chief Partner*. Syracuse, New York, Syracuse University Press, 1972.

Popular, Jazz, Folk

King Oliver
 Louis Armstrong
 Bix Beiderbecke
 Fletcher Henderson
 Benny Goodman
 Glenn Miller
 Tommy Dorsey
 Count Basie
 Duke Ellington
 Glen Gray
 Kay Kyser
 Fred Waring
 Paul Whiteman
 Morton Gould
 Andre Kostelanetz
 Bing Crosby
 Frank Sinatra
 Russ Columbo
 Perry Como
 Andrews Sisters
 Ella Fitzgerald
 Tony Martin
 Buddy Clark
 Dinah Shore
 Ted Lewis
 Bessie Smith
 Sarah Vaughan
 Ma Rainey
 Mildred Bailey
 Billy Holiday
 Jimmy Rushing
 Dinah Washington
 Peggy Lee
 Charlie Parker
 Leadbelly
 Dizzie Gillespie
 Stan Kenton
 Kate Smith
 Helen Morgan
 John Jacob Niles
 Oscar Brand
 Alan Lomax

**Literary, Political
and Theatrical**

Fred Astaire
 Noel Coward
 Gertrude Lawrence
 Al Jolson
 Eddie Cantor
 Marlene Dietrich
 Fritzi Scheff
 Bea Lillie
 Maurice Chevalier
 Sophie Tucker
 Mary Martin
 Ethel Merman
 Flo Ziegfeld
 Greta Garbo
 George Gershwin
 James Joyce
 Robert Frost
 Somerset Maugham
 T. S. Eliot
 Oscar Wilde
 George Bernard Shaw
 Edith Sitwell
 Walt Whitman
 Carl Sandburg
 P. T. Barnum
 Thomas Edison
 Albert Einstein
 Guglielmo Marconi
 Florence Nightingale
 Franklin Roosevelt
 Winston Churchill
 Mahatma Ghandi
 Warren G. Harding
 Teddy Roosevelt
 Josephine Baker
 Pola Negri
 Marie Dressler
 Amelia Earhart
 Aimee Semple McPherson
 Calvin Coolidge
 Lenin

William Howard Taft

John Gielgud
 The Barrymores
 Edna St. Vincent Millay
 O. Henry
 Langston Hughes
 Norman Corwin
 Gertrude Stein
 Dylan Thomas
 Arnold Toynbee
 Edgar Wallace
 Leon Tolstoy
 Ellen Terry
 Bertrand Russell
 Fiorello La Guardia
 Walter C. Kelly
Classical
 Enrico Caruso
 Nellie Melba
 Feodor Chaliapin
 Walter Slezak
 Adelina Patti
 John McCormack
 Rosa Ponselle
 Kirsten Flagstad
 Elena Gerhardt
 Axel Schiøtz
 Gerhard Hüsch
 Alessandro Bonci
 Ezio Pinza
 Aurelio Pertile
 Antonio Scotti
 Beniamino Gigli
 Ernestine Schumann-Heink
 Elisabeth Rethberg
 Titta Ruffo
 Leopold Auer
 Jascha Heifetz
 Mischa Elman
 Pablo Casals
 Jan Paderewski
 Josef Hoffmann
 Pablo Sarasate

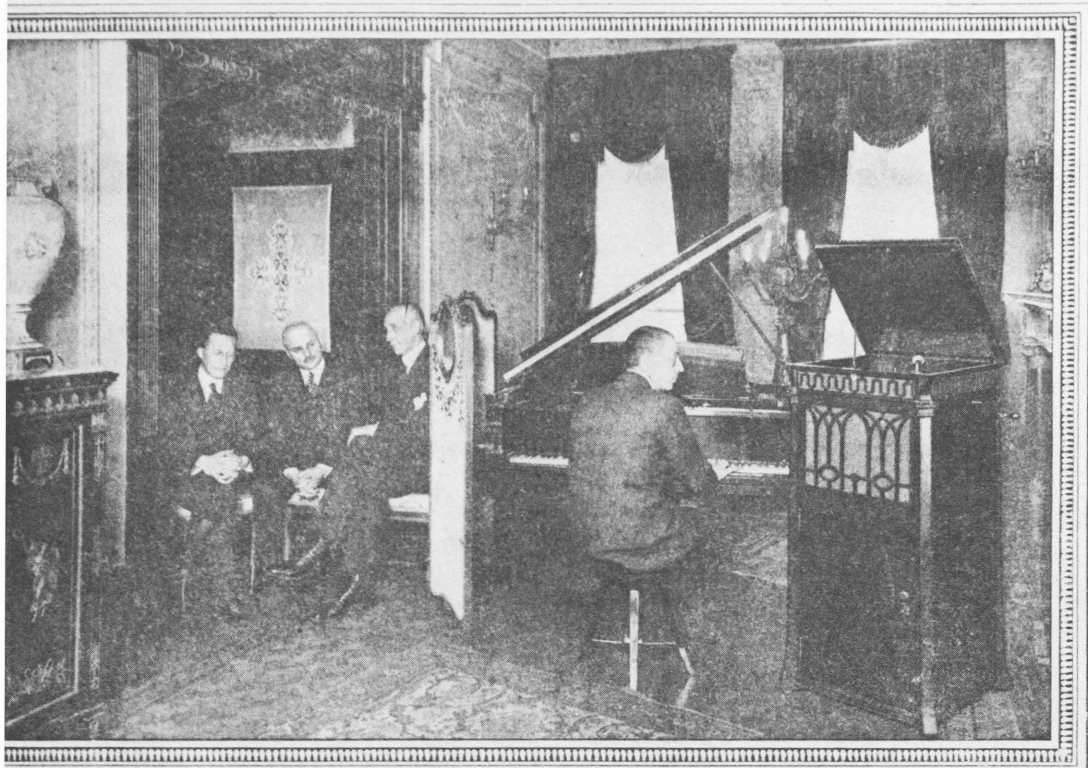
The presence of the Bell Collection has encouraged additions from private and public collectors, the most noteworthy that of Duane Deakins, comprising cylinders from the earliest period of the phonograph. Other important collections have been purchased from funds made available by the Charles and Rosanna Batchelor Memorial. Complementary to the Bell Collection are the Angus Joss Collection of cylinders and the Herbert W. Schmid Collection of Edison Diamond Disc records. With additions from other libraries and museums via tape copies, the current holdings of the Audio Archive number about 160,000 items.

Though there is great potential for the Archive resources as communicative history, and while liaisons for the exchange of re-recordings are in process of being set up with other institutions, it is the Thomas Alva Edison Re-recording Laboratory operation of the Archive which is currently most active. Because the small Archive staff is not now in a position to furnish re-recordings to faculty, staff and other agencies, the Archive functions almost exclusively as a research and cataloging facility.

With the parade of succeeding decades and the continuing production of staggering quantities of recordings, it has become obvious that private collectors cannot keep up with the total flow.³ As it becomes increasingly clear that recordings are a major research tool for historical study in our century, it has come to museums and libraries to act as major repositories for the vast quantities of extant sonic materials. So far, the presence of such large quantities of materials in museums and libraries has raised more questions about their use than we can answer. Of that quantity of art and life which finds its way onto records and tapes, how much should be kept? And for how long? Who will carry responsibility for storage, upkeep and retrieval of information? Who will make judgements as to how true to the original source the recorded product is? What standards are to be used to assure that this "truth" is carried through into the re-recording and retrieval processes? Often a review of known information from a particular period in the history of the phonograph record will help to point the way to experience a given performance today.

Not many of us today give much thought, for example, to that sonorously rich era which ended with the advent of electrical recording shortly before the Depression. If we do think at all about acoustical recordings, it is in images of tinny sounds emerging from a wind-up victrola, or in re-recordings of early jazz and classical music on long-playing discs. Occasionally we will be pulled back to an earlier time when a television program uses appropriate historical recordings, with their crackle and hiss and remotely distant sound, to enhance a visual image. We don't expect too much

³Cylinders; discs at 16, 33 and 78 rpm; reel, cassette and 8-track tape; video tape in reel and cassette; film in reel and magnastriped cassettes; and the upcoming video disc – many of the above in a choice of monaural, stereo and 4-channels.



From an actual photograph taken in Mr. Rachmaninoff's home, in New York City

Hear Rachmaninoff on the New Edison

Now you can make a straightforward comparison and find out which is the best phonograph. Rachmaninoff himself, the great Russian pianist, gives this opportunity.

He has made recordings for one of the latest talking-machines. We are very glad that he has done so. For now you can compare.

Your Edison dealer will gladly play Rachmaninoff's RE-CREATIONS on the New Edison for you. Watch for his announcements in your local newspaper. You must hear this most astonishing phonograph comparison,—before you buy your Christmas phonograph.

The photograph, from which this illustration

is reproduced, was taken in Mr. Rachmaninoff's home, in New York City. It shows the great Russian pianist playing the Second Hungarian Rhapsodie (*Liszt*), while the New Edison RE-CREATED his previous rendition of the same composition.

The three music experts who listened from behind the screen, were amazed and astounded at the absolute fidelity of the RE-CREATION to the artist's original performance. Once more, the New Edison's perfect Realism triumphed in the test of direct comparison.

Be sure to look for your Edison dealer's announcements. Hear Rachmaninoff on the New Edison. THOMAS A. EDISON, Inc., Orange, N. J.

- Edison
Rachmaninoff RE-CREATIONS
Now on Sale
- No. 82169 Second Hungarian Rhapsodie (*Liszt*) Part 1
 - No. 82169 Second Hungarian Rhapsodie (*Liszt*) Part 2
 - No. 82170 Second Hungarian Rhapsodie (*Liszt*) Part 3
(With Mr. Rachmaninoff's Cadenza)
 - No. 82170 Pastorale
(*Scarlatti-Tausig*)
 - No. 82187 Prelude in C Sharp Minor, Op. 3 (*Rachmaninoff*)
 - No. 82187 Polka de W. R.
(*Rachmaninoff*)
- (Others to be released later)

The NEW EDISON "The Phonograph with a Soul"

(Photograph by Harry Bosch)

from these experiences, because, after all, we *know* that real “truth” in recorded sound was not introduced to a wide public until the period of the second World War. The advent of London’s “Full Frequency Range Recording,” the invention of the long-playing record and the introduction of stereophonic sound brought the reality of the live musical experience into living rooms for the first time. Or was it the first time?

Particularly intriguing is the newly-raised possibility that recordings of the acoustical era (pre-1928) may contain better sound – more “truth” – than we have previously thought.

The Edison Tone Tests

The advertisement on the preceding page from the 1920 Christmas issue of *Etude* fills us with indulgent amusement. Rachmaninoff is stiffly posed at the piano, with the three “music experts” in attitudes of involved listening. The “new Edison” phonograph is an imposing mahogany mass in the right foreground. But it is the text with its promise of “absolute fidelity” and strong suggestion that the experts could not tell the “Re-Creation” from the original performance which strikes us as ridiculous. After all, we are sophisticated enough not to believe most advertising claims of the present, much less those of a quarter-century ago. These performances of Liszt, Scarlatti, and Rachmaninoff are still to be found on the original 78 rpm discs in addition to being available in recorded versions.⁴ We can hear the swishing surface noise, the thickness of sound, the lack of presence.

If we look further into reports of listening experiences which may be found in the press at the time these records were issued, we are in for a surprise. As early as 1908 RCA Victor had run experiments with hidden phonographs in public places to which the reactions were astounding. The Rachmaninoff advertisement came out after the Edison Company had completed five years of public “Tone Tests” which seemingly confirmed time after time that audiences could indeed be fooled by Edison’s machine.

In 1915, after four years of new experiments on recording and playback techniques, Edison had begun a program of sending his recording artists throughout the country in an attempt to prove that his recording processes *did* re-create the original artists’ performances with real fidelity. Artists would appear standing next to a phonograph on stage, performing in conjunction with a recording. From time to time the artist would stop, while the audience strained to ascertain which they were hearing – the artist or the machine; and they failed. On occasion, the lights would be slowly lowered during the rendition, and when raised again at the end of the selection, the audience would be amazed to find that the artist had left the stage, while they had listened with satisfaction to the machine.

⁴*The Complete Rachmaninoff*, Volume 1. RCA Victor ARM 3-0260, 3 monaural discs. The Liszt is also on *The Sound of Fame*, Thomas Alva Edison Foundation, 1 monaural disc.



GERALDINE
FARRAR

Which is which?



Victor III
\$40

You think you can tell the difference between hearing grand-opera artists sing and hearing their beautiful voices on the *Victor*. But can you?

In the opera-house corridor scene in "The Pit" at Ye Liberty Theatre, Oakland, Cal., the famous quartet from *Rigoletto* was sung by Caruso, Abbot, Homer and Scotti on the *Victor*, and the delighted audience thought they were listening to the singers themselves.

Every day at the Waldorf-Astoria, New York, the grand-opera stars sing, accompanied by the hotel orchestra of sixteen pieces. The diners listen with rapt attention, craning their necks to get a glimpse of the singer. But it is a *Victor*.

In the rotunda of Wanamaker's famous Philadelphia store, the great pipe organ accompanied Melba on the *Victor*, and the people rushed from all directions to see the singer.

Even in the *Victor* laboratory, employes often imagine they are listening to a singer making a record while they really hear the *Victor*.

Why not hear the *Victor* for yourself? Any *Victor* dealer will gladly play any *Victor Records* you want to hear.

There is a *Victor* for every purse—\$10 to \$300.

Victor Talking Machine Company, Camden, N. J., U. S. A.

Berliner Gramophone Co., Montreal, Canadian Distributors.

Victor



FROM *COLLIER'S*, OCTOBER 10, 1908

(*Photograph by Harry Bosch*)

To say the least, we find this hard to believe. When we listen today to the Edison Diamond Discs, played at 78 rpm on our modern phonographs with their superior playback capabilities, the pale imitation of *real* sound makes us question the sophistication of the ears of the predecessors. Surely they cannot have heard what they thought they did. Obviously, we must conclude that they were incredibly naive, wondering children, captivated by the idea of the phonograph, ready prey for the big bad record companies to lead them about by the ears.

Naiveté of course played some part in their reactions, and if we were reading reports only from the provinces⁵ it would be an easy task to dismiss the demonstrations as advertising fodder for the hicks. But major cultural centers found musically knowledgeable audiences by the thousands reacting with great excitement to the "Tone Tests."

The *New York Tribune* headed a 1916 review, "Edison Snares Soul of Music:"⁶

**Mahogany Prima Donna
and Rappold Sing as One
on Concert Stage**

VOICE BLENDING STARTLES 2,500

**Newest Phonograph Catches Over-
tones and Reproduces Essence
of Melody.**

Startlingly novel even in this age of mechanical marvels was the concert that drew 2,500 persons to Carnegie Hall yesterday afternoon.

Alone on the vast stage there stood a mahogany phonograph, apparently exactly like the tamed and domesticated variety that has become to be as much a part of the furniture of the ordinary drawing room as was the wheezy melodeon a generation ago. In the midst of the hushed silence mysterious regions behind the a white-gloved man emerged from the draperies, solemnly placed a record in the gaping mouth of the machine, wound it up and vanished.

Then Mme. Rappold stepped forward, and leaning one arm affectionately on the phonograph, began to sing an air from "Tosca." The phonograph also began to sing "Vissi d'Arte, Vissi d'Amore" at the top of its mechanical lungs, with exactly the same accent and intonation, even stopping to take a breath in unison with the prima donna.

⁵Decorah, Iowa; Saginaw, Michigan; Fargo, North Dakota; Greeley, Colorado; Durham, North Carolina; Ogdensburg and Syracuse, New York; Peoria, Illinois; Cheyenne, Wyoming; Mexico, Missouri; St. Johns, New Brunswick; and Moose Jaw, Saskatchewan are a few cities from which newspaper review of the Tone Tests are extant.

⁶*New York Tribune*, April 29, 1916.

Audience Guesses on Voices.

Occasionally the singer would stop and the phonograph carried on the air alone. When the mechanical voice ended Mme. Rappold sang. The fascination for the audience lay in guessing whether Mme. Rappold or the phonograph was at work, or whether they were singing together.

At the end of the song the singer bowed, patted her stiff-jointed mahogany friend on the back and left it to amuse the audience with a piano solo.

Whether it is disrespectful to call Mme. Rappold's double a phonograph or not remains in doubt. According to the press agent, it is the latest triumph of Thomas A. Edison, perfected after four years' work. Exactly what is the distinction between the mahogany marvel on the Carnegie stage yesterday and the domestic variety of phonograph no one besides the inventor knows. It is popularly supposed to lie somewhere in the reproducer.

The secret of the new phonograph lies in the fact that Edison has been able to reproduce the overtones in musical sounds. These overtones, of which the domestic phonographs have so long been deprived, are apparently the intangible essence of music. Now that they have been captured, it is easy to imagine visions of future voiceless and instrumentless operas and concerts. Given a battery of mahogany overtone producers and enough romantic scenery and there should be no future need of paying gigantic salaries to mere human beings.

The *New York Morning Telegraph* of the same date reported:⁷

Mme. Rappold and Self Sing Duet.

A moment after Madame Rappold appeared there issued from the cabinet beside her a soprano voice of appealing quality singing Gounod's "Ave Maria." All eyes turned at once to the prima donna's lips, only to find them closed. Many in the audience were astonished to find that the human-like voice was not hers—those familiar with Madame Rappold's voice could hardly believe that the voice they heard did not belong to her.

⁷*New York Morning Telegraph*, April 29, 1916.

Critics from time to time commented on the quality of the "Tone Test" audiences:⁸

The indisputable fact that a phonograph can perfectly reproduce artistic vocal and instrumental music was graphically demonstrated last Friday afternoon at Carnegie Hall.

The immense auditorium of this temple of musical art was crowded to its capacity by a representative Carnegie Hall audience—musically cultured and musically critical.

Mme. Marie Rappold, of the Metropolitan Opera House, and Thomas A. Edison's new phonograph both sang. They sang a few measures in unison, then the singer ceased, but her beautiful voice continued to fill the hall. Again she joined her voice with its phonographic re-creation, and again grew silent.

The ear could not tell when it was listening to the phonograph alone and when to actual voice and reproduction together. Only the eye could discover the truth by noting when the singer's mouth was opened or closed.

The *Boston Sunday Herald* made a point of the presence of a large segment of the prestigious Handel and Haydn Society at a "Tone Test" featuring contralto Christine Miller:⁹

Those who heard Miss Miller need no stimulus to arouse them to the wonders that Edison has accomplished. This "tone-test," as the inventor terms it, was an unique and artistic a performance as ever regaled music lovers and musicians in Boston.

Anyone who yesterday heard Miss Miller's voice swelling out the auditorium and then heard that voice superbly matched in all the delicate variations of tone and color by the instrument, cannot fail to be impressed by the almost human qualities of Edison's invention. Equally wonderful was the performance of Arthur Walsh, violinist, who re-created the beautiful tones of Gounod's and Schubert's "Ave Maria," respectively, recorded at the Edison laboratories by Albert Spalding, the great American violin master.

Perhaps the artistic merit of Mr. Edison's invention can in no way so well be attested as by the fact that 600 members of the Handel and Haydn Society of Boston were yesterday seated in Symphony Hall.

⁸*New York Evening Mail*, May 2, 1916.

⁹*Boston Sunday Herald*, November 21, 1915.

Four years later the Edison Diamond Disc Phonograph had lost none of its persuasive power:¹⁰

UNIQUE PHONOGRAPH TONE-TEST CONCERT HELD

One of the most enjoyable and interesting musical events of the season thus far in Boston was the unique Tone-Test concert recital given in Jordan Hall Monday evening by Mlle. Alice Verlet and the Edison Diamond Disc Phonographs, assisted by Mr. Victor Young, the pianist.

It had been announced that Mlle. Verlet, the distinguished coloratura soprano from Paris, would sing in direct comparison with the Edison recreations of her own voice, and the audience was challenged to make the most critical comparisons and see if it were possible to detect the difference.

Alice Verlet Appears.

When the dainty Parisian prima donna appeared there was a hush of expectation. She took her position by the side of the beautiful studio model of the Edison phonograph which occupied the center of the stage. The first number was the famous Caro Nome aria from Verdi's "Rigoletto." The instrument began the opening chords. It was as though an invisible orchestra was playing. Then Mlle. Verlet's voice took up the beautiful melody and sang the first exquisite phrase. Again the orchestra—one could hear and distinguish the different instruments. Again the voice of the singer rising higher and higher as the theme develops in dramatic power. Suddenly we realized with a little shock of surprise that Mlle. Verlet was no longer singing! She stood quietly by the side of the instrument with closed lips smiling slightly. But the voice—her voice—went on and on rising to the supreme climax of the sustained high note.

¹⁰*Boston Sunday Herald*, November 30, 1919.

Miracle of Edison's Genius.

It was in very truth her voice—the very same. The same purity and sweetness of tone, the same appealing human quality, the same in timbre and color. It was in fact Verlet's voice recorded at the Edison laboratory in Orange, N. J., and imprisoned by the genius of an Edison, now being re-created before our unbelieving ears—a human voice with its every human quality produced by an instrument of wood and metal.

The effect was simply astonishing. The audience broke into prolonged applause, which was a spontaneous tribute both to the beautiful voice and the finished artistry of the prima donna and the genius of Mr. Edison's which had produced the marvel of the re-creation.

Another record was placed on the instrument—a song from Paganini's "Carnival of Venice." Again Mlle. Verlet's voice rose in perfect unison with the Edison re-creation. Then she stopped but the voice went on—and one must be a close observer indeed to tell when she left her other voice—the re-created Verlet voice—to carry the song alone. She played with her other voice as she wished; now pausing every other measure, giving the effect of a duet in which two voices answered each other—two voices but the same voice!

Voice From an Empty Stage!

The audience applauded long and enthusiastically. The skeptics were silenced. Every music-lover present entered fully into the enjoyment of a rare treat, as triumph succeeded triumph. The climax was reached in the well-known Carmen waltz number. The audience had been warned that the lights would be turned out for a space of three or four minutes and told to observe carefully and see if they could tell when Mlle. Verlet was singing and when her re-created voice sang alone. Darkness came at the dramatic climax of this beautiful waltz song. The voice continued, floated up and up in an ecstasy of musical expression. Suddenly the lights were turned on, when, behold! a vacant stage! Then, as the voice continued and finished the song, Mlle. Verlet returned to the stage from the wings to receive smiling the tremendous burst of applause from the audience.

Not all critics went expecting to be overwhelmed; but the Edison machine continued to make its conquests:¹¹

Soul Versus Mechanics

Let me state at the outset that this is not an ad, a boost or a boom. It is simply the statement of honest conviction—another instance of a man convinced against his will.

I went to Gray's Armory Wednesday night pretty well convinced that a machine was not the habitat of soul, that all mechanical contrivances for the reproduction of music were at the best only an approximation, that the soul of art could not be satisfactorily reproduced, that personality and individuality were indigenous to humans.

I came away thoroughly persuaded of my error, and am willing to admit that there are quite a number of things concerning which I am in error—darkness, if you so wish to call it. My only redeeming quality is my willingness to be convinced. I might add, too, that such is one of the qualifications of a critic.

Rappold and Edison Phonograph Co-Stars.

What I write about all happened at the concert given by Mme. Rappold, Metropolitan star, assisted and truly emulated by the new Edison phonograph, one of the master achievements of that wizard of invention.

When I saw the stage bare of any accompanying instrument, I asked the New York representative how Mme. Rappold was going to sing satisfactorily without accompaniment.

He pointed to the two cabinet phonographs upon the stage and said, "Wait."

I indulged in the smile credulous and waited. In due time Mme. Rappold appeared, and, standing beside one of the phonographs, alternated with it in interpreting some of her recorded songs.

And, truly, it was a difficult matter to distinguish the real voice from the recorded one.

¹¹Cleveland Press, October 12, 1916.

How, then, do we reconcile the enthusiastic, even incredulous responses of musically mature ears with that which greets our ears – we who so often have to “listen through” inadequacies to “get to” the realities of the music? If we accept the premise that the records really did sound like the live artist, then we must have lost something on the way to that which we experience today.

Research presents us with three important facts. First, the records were very carefully recorded and molded. Note the label shown opposite. Even today, an Edison Diamond Disc record in pristine condition (a rarity) has almost no surface noise. Second, the entire process from cutting the record to the moment of its sound striking the listener’s ear was a carefully designed totality. Recording machinery and playback machinery were designed to be compatible. Third, Edison introduced no room acoustical properties onto his records. The artists were recorded in a “dry” fashion, the idea being that the room in which the recording was played would function as it did normally for live music. It would not, therefore, be adding room acoustics on top of recorded room acoustics introduced in the recording process.

Edison had also worked to record and reproduce overtones more truly, and to capture the sibilant sounds of the human voice.^{1 2}

Walter Welch believes that the techniques of recording in the past have consistently been ahead of the techniques for recovery of the information. He has spent many years conceiving and effecting techniques of re-recording which will allow the sounds of the past to reach the ears of the present with a minimum of “listening through.” Today, well-meaning recording engineers find it attractive to “enhance” the dry sounds of the acoustic records with echo and room resonance. In addition, the size of the reproducing stylus used today and the filtering through electronic equipment move away from the original concept of matched components. The result is a distorted picture of the information which was originally etched into the recording surface.

How can we the public best hear these records? It is not practical to suggest that new pressings be issued and that listeners be provided with Edison Diamond Disc phonographs for the limited amount of listening of this type one might do. Nor can one rely on today’s record and equipment manufacturers to do significantly truthful re-recording, for they have a sad history of service to the public. Most commercial record companies have made no effort to keep even a complete archive of their own recordings and have destroyed masters by the thousands. Neither have they shown any enduring interest in the preservation of products which are no longer major profit items.

It should not be necessary to ask of what interest and value are old recordings to us today. The several answers are self-evident to any person with an interest in cultural history or with a knowledge of the current wave of nostalgia for the arts of the ‘teens and twenties.

^{1 2}A common complaint of earlier acoustical records was that the *d* and *t* sounds were not audible.

WARNING

DO NOT PLAY THIS RECORD WITH ANY ATTACHMENT OR ON ANY INSTRUMENT EXCEPT THE EDISON DIAMOND DISC PHONOGRAPH AND WITH THE EDISON DIAMOND DISC REPRODUCER. IF YOU DO, YOU ARE LIKELY TO RUIN THE RECORD.

The record groove on the Edison Diamond Disc is a long spiral having microscopic undulations which correspond to sound waves. The diamond point which travels in this groove and actuates the diaphragm of the Edison Diamond Disc Reproducer is ground and polished by expert workmen and with mathematical accuracy to fit this groove and track the same without cutting or wearing down the small undulations. Furthermore this diamond point is mounted on a floating weight so designed as to cause the diamond to press down upon the record groove with the correct pressure, sufficient for proper reproduction and not enough to cut or wear the record. On account of the shallowness of this groove, it cannot be used as a means to propel the reproducer across the record. Therefore the Edison Diamond Disc Phonograph is equipped with a mechanical feeding device for propelling the reproducer and preventing all lateral thrust and wear of the diamond point against the side walls of the groove. These features, which are indispensable to correct reproduction, are found only in the Edison instruments, and therefore

THIS RECORD SHOULD NOT BE PLAYED ON ANY INSTRUMENT EXCEPT THE EDISON DIAMOND DISC PHONOGRAPH AND WITH THE EDISON DIAMOND DISC REPRODUCER, AND WE DECLINE RESPONSIBILITY FOR ANY DAMAGE THAT MAY OCCUR TO IT IF THIS WARNING IS IGNORED.

Form 956 4-15-14 THOMAS A. EDISON, Incorporated

FROM A DIAMOND DISC RECORD SLEEVE
(Photograph by Harry Bosch)

We already possess a great deal of information about the processes of recording and producing recordings of the acoustical era from laboratory notebooks, patent information and memoirs. Using this information as a base for experimentation, Walter Welch has developed processes which involve a minimum of electronic tampering. The results give a clear picture of the aural truth engraved on the original cylinder or disc. He describes his re-recordings as *ambinaural* (two-channel, but not stereo in its current meaning), with both channels containing the total information from the original source. Each channel reflects the information in a slightly different fashion, and the total effect seems to free the listener from the monotony so often associated with early monophonic recordings. The listener seems thereby made closer to the impression of a performance, as in the originating studio.

An important part of Walter Welch's current research activity is the question of how one deals with the preparation of materials for educational institutions. Most student listening in this country is done in listening library or listening laboratory-type facilities in which records, reel, and cassette tapes are the source materials to be heard through headphones. A different set of acoustic properties operates when sound is heard through headphones from when it is heard through speakers in the open air. Thus far, commercial recording companies have not made efforts to produce recordings explicitly for either educational or commercial use through headphones, and perhaps they cannot be expected to do so. In addition, the fact is that many commercially important innovations in equipment have not made a great impact on the education front, and the basic quality of the product most students receive in listening laboratory and library listening facilities is at best inadequate.

At Syracuse, experiments in sound for educational purposes have taken a different direction. A series of supportive library directors and an innovative music library staff have taken the view that the best is none too good when historical research is undertaken. Special equipment for student use has been developed by the staffs of the Audio and Visual Support Services, the Audio Archive, and the music collection in the Fine Arts division, Bird Library. Recent developments from the industry in cassette recording and playback have encouraged Professor Welch to find new methods of re-recording specifically for this medium and for educational listening in the library environment.

Other areas of current research activity include investigations into new storage and retrieval methods for sound materials in libraries; the reproduction of sound via laser beam rather than stylus;¹³ recovery of sound on worn records from beneath the grooves; and chemical research to develop anti-fungus formulas for cleaning damaged cylinders.

¹³The Philips Company is already using a reflected laser beam as the "stylus" in its *Tel Dec* video playback machine, available in Europe.

In spite of the Archive's direction towards research, some significant and tangible results are being made available to the public and to educators. Several long-playing records have appeared on the market, all on the Thomas Alva Edison Foundation label.¹⁴

The Bernice P. Bishop Museum of Hawaii has an ongoing program with the Archive for the re-recording of cylinders made in the South Seas early in the century. Of special interest to anthropologists and ethno-musicologists, the cylinders contain examples of folk and ritual musics, many of which are no longer known or practiced.

The Archive has furnished the original music for the movie *The Age of Bally-Hoo* featuring views of America in the 1920s and '30s. The film, narrated by Gloria Swanson, is unique in that much of the footage had never been seen publicly, and it is the first film to use only recordings contemporary with the matching events seen on the screen.

A recent project involved re-recording over 500 cylinders owned by the Musée de l'Homme in Paris. The cylinders are original recordings of events from the Paris Exposition of 1902 and thereafter.

The Musée de l'Homme cylinders contain spoken and musical reflections of the countries and cultures which exhibited and visited the exhibition. Their interest will lie in the fields of sociology, ethnology, and ethno-musicology.

A particularly exciting and historically vital project which is shortly to be undertaken is a re-recording of the complete Edison Blue Amberol series of cylinders which spans the years 1908-1929. The complete series is owned by the Edison Institute in Dearborn. The Blue Amberol series is important for several reasons. It gives a strong representative selection of the total output of Edison's recording career from 1908 to 1912. Many early wax recordings from 1908 to 1912 were dubbed onto Blue Amberols later, and a large selection of Diamond Discs from 1915 to 1929 were also made available on the Blue Amberol format. The advantages of these cylinders lie in the constant groove speed under the stylus and in the fact that the plastic material was impervious to the mould which plagued the wax cylinders. The Blue Amberol cylinders had 200 grooves to the inch (near to our present stereo groove size) and were played with a diamond needle – in 1912! This series had surfaces of such quality that many of them are still in fine, clean, playable condition.

Once the series is re-recorded through Professor Welch's dual cylinder process, cassette copies will be placed in the Syracuse University Library.

How do these recordings *really* sound, after the Welch re-recording processes? Not like modern stereo records, not like monaural 78s or the lps of the '40s, not in any way like the experiences we have ever had with the sounds of the past. Those sounds were recorded by different standards and

¹⁴*The Sound of Fame*, 1961; *An Edison Memorabilia*, 1966; *Giovanni Martinelli*, 1968.

used different values of performance and playback from those we use today. The results of Professor Welch's processes show a freshness and vitality which we do not normally expect from recorded products of an early era; they seem unspoiled, and leave the impression that for the first time we are hearing the intent of the performing artists.

Today consumer advocates provide us with daily bulletins to alert us to the dangerous additives which are in the food we eat and in the air we breathe. Cleaning the environment outside and the body inside has become a major industry. We have been the victims of aural pollution as well, not only in the quantity of sound which fills our lives, but at the hands of a recording industry which produces "note perfect" but electronically polluted products.

It is, therefore, refreshing to sample from our sonic past, to taste the delights of a less smoggy age, presented with clarity and truth. This is what the Syracuse University Audio Archive promises. Its efforts so far are setting a high standard for others to follow.