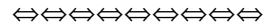


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## THE SOUND OF SILENTS

If you walked into the Warner Bros. Cinema in London's West End to see a first-run movie today, you would take for granted the soundtrack with musical score and dialog. But why have I taken you across the Atlantic to point this out? A lifetime ago a Londoner headed a group of engineers at the Bell Laboratories in New York where they developed the Vitaphone System which by 1926 had successfully integrated sound with film. On the wall in the London theater foyer there is a commemorative plaque; erected in 1996 to celebrate "100 Years of Cinema," it honors two Englishmen who helped to give the big screen its voice. One was George Groves; the other was my father, Stanley S. A. Watkins, and this is the story of his part in the first talking picture.



Stanley Watkins was born in London on May 29th, 1888, the only child of Betsy Caroline Doughty and Sylvester Alexander Watkins. His mother was a former concert pianist; Mr. Watkins was a watchmaker, a mild, gentle man, though not very successful in business. When an uncle in California invited the family to join him on a lemon ranch in Lakeside near San Diego, Stan and his mother went, leaving husband and father behind.

This was quite an adventure for a boy of fourteen. The year was 1902, and the train journey took them through the city of Albuquerque where they ate in the Fred Harvey lunchroom of the newly built Alvarado Hotel. With his box Brownie camera, Watkins took photos of the railway porter, and of some Indian women selling pottery. After an exciting year full of snakes and shotguns, bareback rides to the one room schoolhouse, and "hubbubs" when all the far-flung neighbors would gather for communal entertainment, the Watkinses decided lemon ranching was not for them and returned to England where Stan finished his education. Three decades passed before Watkins would return to the Southwest. But before that, New York beckoned.

From England, the Watkins family had kept in touch with their California friends. The daughter of one had gone East and married Gwylim Miles, a small, Welsh man with a large voice. He was known as "The Great American Elijah" and gave singing lessons at his Mount Vernon, New York, boarding house, where several of his pupils roomed. After Stan had finished at University, Mr. Miles urged him to come over to the United States, and the invitation was accepted.

Watkins had graduated with a degree in electrical engineering from the Central Technical College--later known as the City & Guilds Engineering College of the Imperial College of Science and Technology--in South Kensington, London.

Although this was only 1908, the Electrical Department at Central based its teaching on the new "heuristic" methods. As Watkins described it:

They did not consider that a graduating student should have his head packed with an enormous stock of facts but that he should have been taught how to reason, how to look up things that he didn't know, and...how to write his results in intelligible English. (66-67)

This was useful training for Watkins when he arrived in New York in the late summer of 1911 to look for work. He was twenty-three years old, with \$50 in his pocket. Luckily for him, he also had friends awaiting him.

Gwylim Miles had contacts in the world of engineering which led to several interviews, and Watkins soon landed a position in the Physical Lab at Western Electric, the "Western" part of the name reflecting its Chicago origins. The Engineering Department was based at 463 West Street, New York, and later, in 1925, it was incorporated as Bell Telephone Laboratories.

In his early years with Western Electric, Watkins worked on a variety of projects. By the time the United States entered the First World War, he was exclusively involved in military defense work. This included "gun-ranging," anti-aircraft and anti-submarine detection. Because of this he was exempted from active service. The urgencies of war and the increased funding made available for development produced some technical advances which were to prove useful in Watkins' future projects. He explained:

We came out of the Kaiser's war with some much more sensitive and reliable microphones and with advances in amplifiers and loudspeakers that made it possible to push the development of sound engineering equipment in leaps and bounds. Not to speak of the improvements in radio apparatus.  
(113)

With the onset of better loudspeaker systems, Watkins was given the task of advising on the installation of "the right sort of equipment for specific jobs and seeing that it was used to best advantage" (113). This took him to hotels and ballrooms, sports stadiums, theaters and concert halls around the country. He installed a microphone and loudspeaker system in the Roxy Theater in New York which "seated about 3000 and showed [silent] movies and had a very elaborate stage show as well" (114).

Western Electric had provided "Roxy" (as the impresario, Samuel Rothafel was known) with a microphone and loudspeaker system "to augment the sound from his singers and orchestra," and "a special set up" to help him conduct his rehearsals in the huge theater. However, when excited Roxy would often forget about his microphone and rush around shouting directions anyway, as he had done in the past. This was a problem Watkins encountered later when trying to record artists unused to such new-fangled aids.

Around 1920, Stan Watkins was sent out again, this time to introduce the newly developed hearing aids. These were "miniature versions of our speech amplifying system but using earphones instead of loudspeakers" (Watkins 1964, 115). Replacing ear trumpets, these were elaborate, expensive pieces of equipment, and in the early days only for the wealthy. When Watkins called on

Mrs. J.P. Morgan, she kindly invited him to lunch with her, but at another house he was sent round to the servants' entrance and introduced as "the electrician man" (Watkins 1964, 117). When situations like these arose, my father's easy charm and diplomacy proved invaluable.

While he was improving the sounds heard by individuals, Watkins was also intrigued by a colleague's work with "binaural" circuits, what we now know as stereophonic sound. His appetite for learning new things was nourished by his work on the electronic part of electrocardiographs, and demonstrating a device invented in the Labs for an artificial larynx. He kept up this interest in medical apparatus in later years when working on visible speech equipment for the deaf. All this time Watkins had been working on variations of sound production, but after the war he began work on electronic recording processes and another step was taken towards talking pictures.

By this time, in the early twenties, much experimentation had already been done towards making sound movies. Most attempts used a combination of film and phonograph, such as Thomas Edison's short-lived Kinetophone around 1895, and the more successful but still unsatisfactory French Chronophone. Edison improved and revived his Kinetophone in 1913, but success still evaded him. America followed with the Cameraphone, a prerecorded soundtrack on disc, synchronized (if they were lucky) with the picture film. The German-made Synchroscope was also fraught with difficulties. Along with unacceptable surface noise, one of the major drawbacks of all these systems was the inability to achieve consistent synchronization. Another was the lack of suitable amplification techniques, forcing the actors to shout. Edison insisted that the spoken word belonged on the stage, but in 1921, the idea of a "talking picture...was gathering strength in the laboratory" (Eyman 1997, 25-37). Microphones made the difference.

Edison's phonograph used wax cylinders with large horns as amplifiers. Even with discs that were covered with a thick layer of "metallic soap" that could be shaved to remove mistakes (Eyman 1997, 55), the sensitive mechanism made recording a chancy business for solo artists; orchestras proved even more difficult to record, as each player jostled to be heard. "With electrical recording, using microphones," explained Watkins, "the orchestras and bands can be as big as you like and can sit in the usual arrangement and play as though they were in a concert hall" (Watkins 1964, 135). The condenser microphones were a great improvement and the new equipment was soon put to use.

Record companies such as Victor and Columbia had Western Electric equipment installed in their studios. Watkins was assigned to assist at Columbia where, as he had done in the Labs, he made test records on which he did the singing. According to Stan, the Columbia people considered "one of them was the best recording of that song that they had made." (Watkins 1964, 137) He also recorded artists like Bessie Smith and Eddie Cantor, thus getting his first taste of handling touchy, show business people. Watkins says Cantor "was a bit of a nuisance because he couldn't understand that a new system couldn't be expected to work a hundred percent all the time" (Watkins 1964, 134).

It was not always the equipment that caused problems. Those working on the technical side of the business could also be difficult to get along with. In 1913 Western Electric had bought the rights to the "Audion"--an amplification vacuum tube invented by Lee De Forest. De Forest then pursued his interest in making sound movies "by photographing a voice record simultaneously with the image on the same piece of celluloid" (Eyman 1997, 41). Though he had some

success, his efforts were finally wasted when he fell out with his business partners. This left the field open for the work being done at the Bell Labs.

Stan Watkins had seen his first talking picture (what he called a "single," probably by Edison) in London in 1909. Now, in 1922, he was to take part in making one himself. The idea sprang from an animated film called The Audion, that explained how an electronic valve used in radios and televisions worked. This was shown during lectures aimed at recruiting graduate students into the Bell Laboratories. It was decided to produce a set of records to accompany the film and Watkins was delegated to write a script and make the records. As it was only a commentary to go with the pictures, strict synchronization was not necessary. However, when the first public combined performance was shown at a meeting of the American Institute of Electrical Engineers at Yale in 1922, they were taking no chances. Watkins, whose voice was already on the disc, was to take over the commentary should the equipment fail. From where he was perched with his microphone, up among the organ pipes in Woolsey Hall, he could not see the screen clearly and all the diagrams looked alike. It was just as well that nothing broke down (Watkins 1964, 149).

With that success behind them, Watkins' department decided to try making "a real talking picture." For this they needed sound and picture to be synchronized "to within about a twenty-fifth of a second" (Watkins 1964, 150). Once that had been worked out, and a small room allocated to the production team, they went ahead. Watkins' diary entry for February 23, 1922 reads: "Conference... on talking movie which J.P.M. [Joseph Maxfield, his supervisor] has assigned to me now." Proudly, Watkins recalled

having the distinction of being the first director and one of the first actors on our system. I said a few words about what we were doing, struck a gong, and played a tune on a tin whistle. (Watkins 1964, 150)

The tune played was very simple; the words to it went: "How dry I am, how dry I am, nobody knows how dry I am." As this was during Prohibition, Stan Watkins felt "that the success of talking pictures was due in some small measure to the sincerity I was able to put into that little tune." (Watkins 1964, 151) A modest beginning, perhaps, but this was only the start of great things ahead.

Not unnaturally, the main focus of the Western Electric engineers had to do with research and development towards better telephone communications. Some of the "higher-ups" felt that electrical recording and talking pictures were "unsuitable for a company whose business it was to make telephones" (Watkins 1964, 132). Despite these objections Watkins and Maxfield went on with their experiments. Stan and Joe soon became fast friends. They made a good team, because Maxfield, as Watkins recalled,

was ruthlessly intense in his work and I acted as a sort of safety brake on his impetuosity. He was interested in everything but tackled all in the manner of a specialist while I let my mind range over things. (Watkins 1964, 132)

The electrical recording developments which the Bell Labs were undertaking during the 1920s, in collaboration with the Victor Talking Machine Company and

Columbia Phonograph Company, involved transmitting and recording over telephone lines. Watkins' diary entries for this period show almost daily trips to Columbia where they recorded

music from the Capitol Theatre for our friend Roxy [and] a concert by the New York Philharmonic Orchestra transmitted from Carnegie Hall. We also recorded "important" speeches such as President Coolidge's Inaugural Address. (Watkins 1964, 135)

Sometimes these transmissions also included visuals; as early as 1924 the Bell Labs gave the first public demonstration of a fax machine. But they were still a long way from sound-on-film, or even sound-on-disc which had to be synchronized with moving pictures.

Although the Vitaphone system which finally convinced the world that talking pictures were here to stay used this latter, rather cumbersome technique, moving pictures with sound had been seen before. In fact, Western Electric had been experimenting with recording onto the film itself from 1913 onwards. These early trials required huge areas of the film to be used for the soundtrack, and splicing broken or damaged film caused untold difficulties. To give the early attempts their due, Stan Watkins said:

This was no discredit to the inventors; it wasn't possible with the facilities they then had at their disposal. And when the successful sound picture did appear it wasn't the outcome of any of the earlier attempts but was an offshoot of the phonograph and the telephone. (Watkins 1961, 1)

So Watkins and his group from the Bell Labs continued to concentrate on improvements to the synchronized, recorded disc system.

Ensnconced in the little studio on West Street, Watkins was now busily occupied making short films that combined visuals with sound. The room they had to work in was so small that the noisy camera had to be set up on a flat roof outside the closed window. Often it was my father who was the "star" of these experimental talking pictures, singing the English ballads and folk songs he had learned from New York friends. He had inherited musical talent from his mother and sang unaccompanied in a clear tenor voice. Sometimes "a young lady from the Labs who could play the piano" helped out (Watkins 1964, 133). Sadly, most of those early recordings have been lost, although it is fair to say that their quality was probably far below today's standards. The early discs were, however, a vast improvement on the cylinder recordings, and by the mid-twenties phonographs too had greatly improved. My father had himself been instrumental in inventing some of the improvements. Now recordings of Watkins, and other (professional) artists, were being cut and programmed to synchronize with moving pictures.

Once enough samples of these mini-talkies had been successfully prepared, the "movie people" were invited to come, see and hear. It was now the Spring of 1925. Stan Watkins remembered:

Most of the big fellows came, the heads of Paramount, M.G.M., Universal, etc....The movie tycoons said that we had a very clever and amusing toy but it really wasn't of much interest...it

wasn't "box office" and...the public didn't want talking pictures. (Watkins 1964, 151)

One studio not represented at the demonstrations was the small Warner Bros. group, a family business run by Harry, Jack, Albert and Sam. As chance would have it, Western Electric had an engineer in Hollywood who was a friend of Sam Warner. Major Nathan "Benny" Levinson had seen the Bell Labs "talkies" and recognized their potential; Sam Warner was brought in for a demonstration that immediately won him over. In his turn, Sam Warner brought in his brothers who were also convinced by the sound-film demos, but not entirely. Harry concurred that the Industry needed sound, but only sound, not talking. What he saw was the opportunity to offer equal value to all the Warner theaters. "We'll record music to go with all our pictures," Harry said, "so that even in the smallest theatres they'll have the music of a great orchestra...But no talk in the pictures" (Watkins 1964, 151). Well, it was a foot in the door, and Western Electric in the person of Stan Watkins had a firm grip on the doorknob.

In June 1925 the Vitaphone Corporation was formed between Western Electric and Warners to develop sound movies. My father "was given a year's leave of absence from the Labs at Harry Warner's request to act as Vitaphone's chief engineer and get them going" (Watkins 1964, 152). With ten young Bell Labs engineers as the nucleus of his new "sound department," Stan Watkins set up their recording equipment in Warners' Brooklyn studios. Sam Warner was in charge of production on the East Coast, and he and Watkins soon became friends as they learned about each other's business.

Despite extraneous noises from pigeons roosting inside Warners' old Vitagraph building, and the elevated subways that ran outside, the work of making "shorts" began. At first these were mostly "musical one-reelers," but because of Sam Warner's confidence that talkies were the movies of the future, some of the shorts included speech.

Although he did not share his brother's optimism, Harry Warner did make one concession to his "no talking" rule. This was in one of the shorts that preceded the first Warner Bros. Vitaphone feature, "Don Juan," in which Will H. Hays, President of the Motion Picture Producers and Distributors of America, and "so-called Czar of the Movies" (Watkins 1964, 156), gave a short speech "praising the joint efforts of Western Electric, the Bell Telephone Company, and Warner Bros. for making possible the magic that the assembled audience was about to witness" (Hirshhorn 1986, 32). Michael Pupin, a famous physicist and inventor, considered this the closest "approach to resurrection [that] has ever been made by science!" (Thrasher 1946, 255) but even miracles can go wrong at times. Hays' introductory speech was followed by several shorts featuring musical artists. One evening the wrong record was put on and "Will Hays appeared on the screen--hands and ears outstretched--and opened his mouth to the strains of Roy Speck's banjo" (Watkins 1966, 2). Watkins was deputized to stay around and see that this did not happen again. As a consequence he saw "Don Juan" over ninety times.

This gave my father time to notice things besides the sound, such as the dagger carried in the cleavage of one of Don Juan's spurned lovers. Apparently continuity was not then a priority. "There were several shots in the scene," said Watkins, "and in some of them the tip of the handle is seen just peeping out--and in some of them it isn't. The cumulative effect is that it seems to be popping in and out...After you'd spotted it, you couldn't see anything else" (Watkins 1966, 3). He also learned to sleep silently during the film.

Although he may have wearied of it eventually, in Watkins' opinion "Warners showed good judgment in going all out for a real 'humdinger' of an opening show;" "Don Juan" was, he said, "the most spectacular picture they had made to date." (Watkins 1964, 153) A romantic swashbuckler, starring John Barrymore, it had a musical score by William Axt played by the New York Philharmonic, and atmospheric sound effects but, of course, no talking.

As each reel of the film was completed in Hollywood, it was dispatched to Brooklyn and the images were matched to the score as it was recorded onto seventeen-inch discs. Because of the need for both film and score to be recorded in one long, uninterrupted take, this was time-consuming work, with extraneous noises making many reruns necessary. The work went on non-stop, helped by a friendly osteopath who came in to give the tired crew massages. There was no time to lose. Watkins' diary for this period contains no entries apart from notes of "overtime meals" and taxi fares home in the early hours. It took them several months, but at the end they figured out the correct ratio to produce workable discs.

Unlike commercial records, the groove on these monsters ran from the center of the disc to the outer edge and the recording had to run for exactly ten minutes, the length of one reel of film. These fine tunings required standardizing to achieve the control necessary for accurate synchronization.

One of the things Watkins was proud of was his brainstorming with Sam Warner and the President of the Vitaphone Corporation, Walter Rich, about the speed at which talking pictures should be run. Early film was shot at sixty feet a minute; any faster and the exposure would be inadequate. When it was being shown in the theaters, however, it had to be run faster to avoid flickering. This arbitrary variation would have caused unacceptable distortions for sound films, so after consultation with Warners' chief projectionist, Jack Kekaley, they agreed on ninety feet a minute. This was about what most first-run houses ran their films at, the smaller theaters often speeding them up in order to get in more showings, and therefore, more paying customers. Today, ninety feet a minute is the standard, and amazingly it only took four experts and "a bit of intuition" to make that decision.

The size and speed of the recording discs also had to be decided upon. Based on the size of Victor's presses, they could not be bigger than seventeen inches, and the necessary ten minutes of recording demanded a speed of between thirty and thirty-five revolutions per minute. Constrictions of the Labs' gearing equipment that connected the record turntable to the picture machine finally led to the 33 1/3 speed being adopted. Much of Watkins' work was figuring out these picky but important details.

In The Warner Bros. Story, AT&T archivist, Clive Hirschhorn, praises Stanley Watkins and his colleague, George Groves, for their

painstaking experiments in the field [of sound which] resulted in as perfectly synchronized a picture as was possible at the time, skillfully varying the density and volume of sound as the performers moved from long-shot to close-up.  
(Hirschhorn 1986, 32)

But Stan Watkins was as valuable to the launching of the Vitaphone system in his role as a gracious, public relations figure as for his engineering expertise. In his own words:

Naturally during the run of the Vitaphone production in the Warner Theatre it had great publicity value, and I had to give explanatory talks to a number of press and other groups. The interested parties would meet for luncheon at a restaurant in the Broadway district, I would give a short talk about the birth and babyhood of the talkies, and then I would pass the group into the theatre to see the show. (Watkins 1964, insert 157)

"Don Juan" was a success with the critics as well as the public, and Stan Watkins and his Vitaphone engineers took it around the country setting up the equipment and testing the acoustics in Warners' theaters before each opening. The crew encountered gangster warfare in Chicago, bomb threats from the musicians' union (themselves feeling threatened by the new recording technology), and in Atlantic City when the lights along the boardwalk came on the first evening, the change in voltage had Will Hays' speech alternating "between roaring like a lion and cooing like a dove." Watkins remembered: "One of our chaps had to spend the evening holding onto a bit of string to close a circuit breaker that kept blowing" (Watkins 1966, 3). The second day went without a hitch as a "special feeder" was run in to provide a constant supply of electricity.

Despite the nationwide activity of Western Electric engineers equipping Warners' chain of theaters for sound, many of which were bought especially for that purpose thus creating a ready-made market for Vitaphone talking pictures, the rest of Hollywood still felt this was a balloon ready to burst. Of the major studios, only Fox saw the future of sound as a viable possibility. They developed a system of sound on film, called it Movietone, and in 1927 the first Movietone News was released. Eventually they came in with Warner Bros. and adopted the sound on disc system, although Vitaphone and Movietone News were still shown as separate productions.

There were still relatively few theaters equipped for sound, and the cost of sound equipment was high, but so were the prospects. It was not yet what Stan Watkins called the Sound-Rush of 1928, but the race was about to begin.

In the event, the starting-gun went off almost by accident. The next sound feature film Warner Bros. produced was "The Jazz Singer," which starred the popular entertainer, Al Jolson. As with "Don Juan" this was supposed to have a soundtrack of orchestral music and songs. The letter "s" was less sibilant in songs than in speech, so singing was easier to record, and exact synchronization of voice and words was not quite so crucial. However, where the human factor was concerned, there were other problems to deal with.

Stan Watkins had had experience dealing with the volatile, excitable Jolson during the filming of a Vitaphone "short" in 1926. My father's first wife, Frances Cowles, told me about it.

Jolson began to make such a fuss, he got everybody upset. He was a nervous wreck himself. You know that famous time when he leans forward and says "Mammy", well when they ran it through, he got everybody so upset that it didn't work; he opened his mouth and nothing came out. He blew up and

[Stan] went up to him in his calm, quiet way and said "Mr. Jolson, you are making everybody miserable and upset and you are behaving very badly. If you would just go out in the lobby and smoke a cigarette or something for five minutes until I get this thing [sorted out] and then come back and do it again, I assure you it will be all right." And Jolson went off muttering, and he came back and he did it, and it was all right. (Cowles 1991)

When Jolson was hired to play the Jewish cantor's son who loved singing jazz, he was already a big name on Broadway. Being an irrepressible stage performer, Jolson was soon ad-libbing during the filming of his songs. At first the studio did expensive retakes, but in the end Sam Warner persuaded his skeptical brothers to leave the spoken lines in; they did, thinking there was not enough talking to make a difference. How wrong they were. Watkins knew that Jolson's venture into the Vitaphone studios had turned him on to sound movies, and could not help wondering if this so-called ad-libbing "was a put up job between Sam Warner and Jolson" (Watkins 1964, 158).

The foresight of Sam Warner and his extraordinary efforts, aided by his technical director and friend, Stan Watkins, in bringing sound to moving pictures, was overshadowed by his untimely death just before the New York opening of "The Jazz Singer" on 6 October 1927. Watkins, who had worked side by side with Sam Warner during that first Vitaphone year, felt the loss deeply. They stand next to each other in a Vitaphone group photo, taken in 1926 during the filming of musical "shorts," with Stan in his customary shirtsleeves, Sam beside him in his usual three-piece suit, his hand resting on my father's shoulder. Their partnership brought sound to the movie industry, but Sam died before hearing the clarion call.

"Wait a minute, wait a minute; you ain't heard nothin' yet folks, listen to this." Those few words, and Jolson's hammy, one-sided conversation with his stunned, nearly speechless co-star, Eugenie Besserer playing his mother, launched "The Jazz Singer" as a Talking Picture, and sealed the fate of silent films (and, incidentally, some silent actors) forever.

The gala opening at the Warner Theater in New York delighted the audience, if not all the critics, but neither group were aware of the tensions experienced by the technical crew, and the actors too. As the surviving Warner brothers had flown back to California to be at Sam's funeral, Stan Watkins was put in charge of rehearsals, and attended the opening performance to oversee things. At the last rehearsal, Watkins says:

Al Jolson sat on one side of me and Louis Silver, who had done the music for the film, squatted in the aisle on my other side. Throughout the rehearsal they provided running comments somewhat like this:-

JOLSON: Can't you bring up my voice a bit?  
 SILVER: I can't hear my music. Make it louder.  
 JOLSON: The hell with your music, I want to hear my voice.  
 SILVER: Your voice is OK, Al. Pipe down.

Throughout...I pretended to keep pushing buttons at a rate that would have sent the projectionists round the bend. At the actual opening performance everyone was satisfied with the result...(Watkins 1964, 159A)

So, once again, his diplomacy soothed the prima donnas and ensured that the show went on. Afterwards, Watkins recalled, Al Jolson signed autographs with tears rolling down his cheeks.

Seeing the enthusiasm with which "The Jazz Singer" was received, the other Hollywood studios at last realized they had to get on the bandwagon or miss the parade, and the motion picture industry swiftly moved from 'Sound Pictures' to 'All Talking' and finally '100% All Talking' pictures (although surely, that last claim was somewhat exaggerated?). Warner Bros. had led the way, but others quickly followed. The Vitaphone system, and its engineers, were wooed by all the major Hollywood producers, and Watkins visited studios to discuss licenses for producing sound pictures using Western Electric equipment.

Having been in at the start of the new phenomenon, as head of "the only group who had any experience in handling sound" (159), my father was highly regarded in Hollywood. Warner's musical director, Herman Heller, was a constant companion. He enjoyed the society of Roy Pomeroy, head of sound and special effects at Paramount and a fellow Brit. Eddie Mannix, the head of M.G.M. studios, introduced Watkins to Louis B. Mayer by saying: "Louis, I want you to meet the Pope" (Watkins 1964, 159). The Industry truly respected the sound and other technicians' contribution to the talkies boom. As Albert Warner said, "We supplied the showmanship. The importance of the engineer in the field of motion picture development has never been fully appreciated. Few persons know how much we owe you men" (Thrasher 1946, 229). This deference was not always so patent. Generally the pattern was for the studio to intimidate the visitor. Despite his sought-after expertise, which gave him a position of authority, Watkins was a patient man who was nothing if not adaptable. He soon learned to time his studio appointments according to the whims of the movie executives, rather than the clock.

By 1928, it was time for a change as Stan Watkins' period as Chief Engineer with the Vitaphone Corporation came to an end. But Western Electric had now formed a subsidiary company called Electrical Research Products Inc. "to handle the record and talkie end of the business" (Watkins 1964, 159). Watkins joined ERPI, as the new organization was known, and was kept busy "travelling back and forth between New York and Los Angeles helping the movie people design their sound stages and training their crews to work with sound and so on" (Watkins 1964, 159). When Douglas Shearer from the newly formed M.G.M. sound department was sent to New York to be "instructed" by Stan Watkins, they would go into Central Park, near ERPI headquarters, to "lie on the grass and discuss sound technique." Even in a big city my father cherished being outdoors. When in Hollywood, he took every chance he could to go up to the Hollywood hills for the nature walks that he loved. On one occasion he drove south with his friend, Brian Foy, one of Warner Bros.' directors, to revisit Lakeview, near San Diego. There he renewed acquaintance with some former school friends, to whom he had bid farewell some twenty-five years before.

Now Stan Watkins was once again saying goodbye to good friends, some of the engineers who had helped give birth to the fledgling talking picture

industry. Watkins referred to them as "the gallant little band" and "a wonderful group." Most of them returned with him to the Bell System and Watkins "deployed them in New York and Hollywood according to the changing requirements of the jobs." Some, including his fellow Englishman George Groves who became Al Jolson's sound man, went on to hold key positions in the movie profession. (Watkins 1964, 159)

As Hollywood embraced sound movies, the task of wiring cinemas around the country for sound and installing Western Electric equipment went on apace. A dedicated Bell Labs man, Stan Watkins was proud of the fact that some of the original equipment "turned out at breakneck speed in 1928" was still being used in studios some forty years later (Watkins 1964, 159).

Stan Watkins, forty years on, was retired from the Bell Labs, and back in England writing his memoirs of this hectic, heroic, wonderfully exciting time when the dream of talking pictures became a reality. Two years later, unable to attend a reunion in New York of the ERPI engineers in 1966, my father sent a recorded message (what else?). It included a song he wrote during those heady days, sung to the tune of Eddie Cantor's popular hit, "Making Whoopie." It went like this:

A little band / Of engineers  
 A piece of wax / Some silent gears  
 A little sound work / A little ground work  
     For making ERPI.

A Flatbush barn / Some strips of felt  
 And the acoustics / Oh, how they smelt  
 The things we made work / To do the spade work  
     For making ERPI

Pigeons in every corner  
 Rumble of subway trains  
 Prayers by the Brothers Warner  
 Stop shooting if it rains.

And then the whole world / Was hearing "Mammy"  
 And other things that / Were just as hammy  
 That's, I'm afraid, / The price we paid  
     For making ERPI.

As Stan Watkins said "That pretty well tells the story" (Watkins 1966, 1). In fact, it was only another beginning. My father then took Western Electric equipment to Europe and set up the sound systems in studios over there. But that is another story.

Barbara Witemeyer  
 Albuquerque, NM  
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Approx. 5850 words.