

# The figure of the sound engineer in the film industry: leading technicians at the beginning of Spanish sound pictures

**Marco Antonio Juan de Dios Cuartas**  
Universidad Complutense de Madrid  
mjuanded@ucm.es

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**ABSTRACT**

The origin of the figure of the sound engineer has scarcely been touched on from a historiographical perspective. This research aims to focus on the origins of this profession as a leading actor in a specialised work environment that can take different forms as a film studio, post-production studio or a dubbing studio. The desire to synchronise sound to picture goes back to the very origins of film itself and defines the story of many inventors whose projects were abandoned due to problems with their commercialisation. Sound's ultimate incursion into film production compelled film studios to adapt acoustically and technologically, and led to the creation of the sound department and the first prominent technicians. It was during this period that the names of specialised sound technicians first appeared, such as José María de Guillén-García, Ricardo María de Urgoiti, Adolfo de la Riva, Rosendo Piquer, Federico Gomis and León Lucas de la Peña. During the early years of sound pictures, sound engineers usually came from a scientific rather than an artistic background and were highly versatile, changing medium primarily from radio to film.

## **The first film studios and the long road to synchronising sound and picture**

From the very beginning, film's close relationship to technology has meant a continuous struggle between technological innovation at the service of narrative discourse, debates about authenticity that derive from any cultural manifestation in which technology is an important part of the creative process, and the threat that each new technology poses for the industry "establishment" at that time. As reflected in much research undertaken prior to that presented here (Gubern, 1977; Gorostiza, 1993; Falcó, 1995; Arce, 2009), sound has been a concern since the very beginnings of film. In light of this, it is appropriate to review the list of the main figures who focused their research on trying to introduce a workable system that would allow a sound recording to be synchronised with the picture. The repeated attempts to integrate the images with the usual musical performances, effects or dubbing that sometimes accompanied "silent"<sup>1</sup> films in an enduring way not only came up against technological difficulties, but also faced problems in terms of commercial exploitation due to the lack of investors. In some cases, this was an insurmountable barrier that meant a particular system was introduced while the rest were relegated to anonymity.

There were many attempts at synchronisation during these early years. Thomas Alva Edison developed the Kinetophone by combining the Kinetoscope – a single-viewer system for watching moving images – with a wax-cylinder phonograph. The Lumière brothers' standardisation of the *Cinématographe* in 1895 led to numerous other attempts to combine this device with different sound systems such as Edison's phonograph and Berliner's gramophone. One example of this is the synchronization system presented by León Gaumont at the Paris World Fair in 1900, which, like Edison's, was based on a cylinder phonograph connected to a film projector<sup>2</sup>. In 1910, Gaumont exhibited the Chronophone, a system that substituted the wax cylinder for a flat ebonite disc.

The *Cinéfono* was another system that appeared during the early years of the 20th century, patented in 1910 under number 49039 by José Salvador Roperó, an artist from Almería who had settled in Barcelona. Roperó's *Cinéfono* worked by synchronising a gramophone with the projector, but it was never used commercially due to its complexity. Preserving both the picture and the sound in an enduring format was therefore a challenge from the very early days of film, although the problems created by synchronization did commercially consolidate a "silent" format that would endure until the technical problems and commercial viability of the new systems were resolved, at which point both film studios and screening rooms had to be refurbished.

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1 According to Arce (2009), the term "mute" is preferable to "silent" to refer to film before the standardisation of sound systems, bearing in mind that film screenings have always been accompanied by different sounds. [*Translator's note: unlike English, Spanish uses the terms "mute film" and "silent film" interchangeably, although this author suggests the term "mute" due to the fact that the absence of a human voice in a projected film does not necessarily mean it is devoid of sound. Whilst this is true, this article will use the term "silent film" as this is the widely used term in English*].

2 In 1908, Gaumont's sound system was demonstrated a few times in the Coyne cinema in Zaragoza.

It is only possible to talk about the existence of film studios during the era of silent film in Spain, with other venues such as phonography and radio studios being used for sound recording. The distinction between film studios and sound and dubbing studios takes on transcendental importance bearing in mind that film studios were specifically built for producing moving pictures from the start. For this reason, at the very least we should establish an initial “pre-sound” era and a later “sound” era during which film studios had to adapt to capture the “sound events” in addition to images, and find a way to synchronise them. Sound and dubbing studios, on the other hand, emerged as a new business model required by the film industry in the face of the inroads sound was making into moving pictures. Under “studios” in the *Diccionario del Cine Iberoamericano*, Delgado Cavilla (2011) addresses the origins of film studios and their initial boom in Spain between 1895 and 1931. These buildings designed for filming were at first called galleries and contained fairly rudimentary sets made of painted cloth on wooden frames:

“In 1908 Fructuos Gelabert built one of these galleries in La Granja Vieja, a large house in the Horta district of Barcelona. It measured nine metres long by six wide; [...] it was probably the first structure in Spain to be used as a place for filming.”<sup>3</sup> (Delgado Cavilla, 2011, p. 612).

There seems to have been a desire to establish permanent spaces for filming besides outdoor locations right from the beginnings of film, which also led some production companies from Madrid, such as Patria Films, to look for enclosed spaces with similar characteristics: small spaces with understated decoration. These small studios were spaces within existing buildings and were not financially worthwhile in the end. Some, unable to adapt to the changing times, went bankrupt in the face of competition from other studios which were acoustically and technically equipped to make films using the new sound technology. In an age when film research was focused on the issue of synchronisation, acoustic refurbishment of spaces to be used for recording was more of a concern for the phonograph and the gramophone industries, whilst film production and distribution companies were concerned with commercially exploiting “silent” films.

Lee de Forest – who would go on to revolutionise the field of radio broadcasting and lay the foundations for electric recording with his invention of the thermionic valve – presented his optical recording system called the Phonofilm in 1923, which imprinted sound information on the film itself (analogue optical recording). Whilst minimising the synchronization errors that had typified the first film sound systems, it did not manage to win over the film production companies, who were reluctant to incorporate sound with moving pictures<sup>4</sup>. Ultimately, Phonofilm was one of the many sound systems that regularly appeared from

3 [Translated from the original.]

4 In 1925, Lee de Forest began to tour Europe looking for financial assistance to market his invention, leading him to Spain. At the end of 1927, he exhibited his device at the Callao cinema in Madrid followed by an outdoor demonstration in Parc Güell in Barcelona the following year, but was unable to attract interest from either of the major cities.

the start of the century, although it was not until Warner Brothers' Vitaphone in 1925 that things really "took off, not so much in terms of talking films but in terms of big production companies' willingness to adopt new sound synchronisation systems"<sup>5</sup> (Arce, 2012, p.17). Talking films, despite reservations from some sectors which saw them as a threat to the very essence of film itself, were inevitably a commercial success in the end. By 1929, American production companies had fully adopted sound pictures, which had obvious consequences for the Spanish industry in terms of film production and importation.

### **New work environments in the era of sound: the first dubbing and sound studios**

As in other countries, the advent of sound in Spain brought with it the creation of new and essential work environments: sound and dubbing studios. Sound and dubbing studios meant performances could be decontextualised from their original location. Sound studios completely disassociated the sound from the visual discourse and brought it into a completely acoustically neutral space whilst providing controlled acoustic conditions that provided benefits such as making dialogue more intelligible. This way of working has a great deal in common with the later development of the production process in the music industry and enables us to talk about "inherited practices" and professional crossover between different media.

It is important to link the origin of recording studios in Spain to the appearance of the first film sound and dubbing studios from the end of the 1930s. Despite pioneering attempts by phonography studios at the start of the century, soundproof and acoustically-designed spaces for recording equipped with a control room and with built-in recording equipment seem to have reached the world of radio first, followed immediately by film, before they reached the music industry. It was common practice in the world of music production during the first decades of the 20th century to go to wherever the orchestra or soloist was performing and record in situ during rehearsals. The world of radio, due to its inherent characteristics as a broadcast from the intimacy of the booth with the potential to reach a large number of listeners, and the introduction of dubbing and the requirements resulting from sound post-production in film, paved the way for the development of small spaces optimised for recording.

It is not the aim of this research to debate the whys and wherefores of dubbing or its subsequent role during the Franco dictatorship, but rather to focus on the technological issues that went with this new way of working and how this influenced the emergence of the first sound professionals. The dubbing industry developed to solve the American film industry's problems selling their films internationally by translating them into other languages. Production companies initially responded to the challenge of selling their talking films worldwide by making multi-language versions, as at the time it was technically impossible

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5 [Translated from the original.]

to implement a system that enabled dubbing into the language of each country. This gave rise to Hollywood productions in Spanish, French, German and Italian, a situation which could have derailed a Spanish film industry which lacked technical and financial resources and so was unable to react to this new development.

Multi-language versions, however, merely represented a brief period of transition before the first dubbed films were made. Curiously, the first dubbing in Spanish was done in France rather than Spain, in the Des Reservoirs studios in Joinville-Le Pont – a town near Paris that was home to the European offices of Paramount<sup>6</sup>. The start of dubbing in Spain was controversial given that the first dubbing into Spanish was done outside the country. On 1 February 1933, Mauricio Torres – editor of the film section in the *Heraldo de Madrid* newspaper – demanded that politicians introduce a dubbing protection bill and condemned “the invasion of a host of films ‘dubbed’ in Spanish, most of which – 98% – have been synchronised in foreign studios”. Torres demanded immediate regulation, positing the absurdity of “Spain having several studios equipped to ‘dub’ films and yet receiving ‘dubbed’ films from abroad”<sup>7</sup>.

Devil and the Deep (*Entre la espada y la pared*) by Marion Gering was the first film dubbed into “Castilian Spanish” in 1932 in the Joinville-Le-Pont studios<sup>8</sup> and would be followed by a significant number of dubbed films – Broken Lullaby (*Remordimiento*) (1932), Six Hours to Live (*Seis horas de vida*) (1932), and many others – until the opening of the TRECE (*Trilla-La Riva Estudios Cinematográficos Españoles*) studios in Barcelona in July 1932, which pioneered working exclusively with dubbing and collaborated with the actor Félix de Pomés<sup>9</sup>.

Just a year later, in 1933, the Italian businessman Ugo Donarelli opened the *Sociedad Fono España* in calle Claudio Coello no. 124 in Madrid. It had three recording studios where, as stated in an advert in *Cinegramas* magazine (no. 8 from 4 November 1934), the “best artists and technical support in Spain”<sup>10</sup> with Western Electric sound could be found<sup>11</sup>. A fledgling industry around dubbing and rivalry between recording studios was by now firmly established.

6 It was Paramount engineers who, in 1928, managed to record a dialogue synchronised with the actor’s lips for the first time for the film *The Flyer*.

7 [Translated from the original.] Published in the *Heraldo de Madrid* on Wednesday 1 February 1933. Available at: <http://hemerotecadigital.bne.es/issue.vm?id=0001019719&search=&lang=es> [Consulted: 21/12/17].

8 The first dubbing into Spanish was recorded in 1929 for Luther Reed’s film *Rio Rita*, which used Hispanic American actors in what was the first attempt to dub into “neutral Spanish”.

9 Heinink (1998) cites the Trilla-La Riva studio as the first known permanent sound and dubbing studio, tracing its activity back to September 1931.

10 [Translated from the original.]

11 Western Electric, together with Bell Laboratories, was behind the introduction of sound pictures (in collaboration with Warner Brothers, Inc.) as well as some of the most important advances in recording.

### **Leading technicians at the beginning of Spanish sound pictures: consolidating the figure of the sound engineer**

The origins of the sound engineer in the film industry have scarcely been considered from a historiographical perspective. The isolation of the camera led to the creation of the “specialised technician” responsible for recording the sound during filming. The origin of the technician specialising in the capture and subsequent post-production of sound that adds meaning to the visual discourse undoubtedly goes back to the introduction and subsequent consolidation of sound pictures during the 1930s, although we have to go back at least a decade further to establish the connections to other media such as radio, the music industry and film itself. But the figure of the engineer should not be looked at in isolation; they were a cog in a nascent film industry that required certain facilities, both during filming and the later post-production phases that both the picture and the audio had to undergo. López Martín (2009) cites three possible backgrounds that gave rise to these “specialists” in charge of operating the apparatus employed in the sound recording process during filming and post-production: the first was radio, where some had previously worked as operators; the second was phonographic recording, and finally, the electricity and telephone companies and technical schools.

The link between the worlds of radio and film is clear in the case of Orpheus studios, which was created in Barcelona in 1932. It is important to link the activity at Orpheus to engineer José María de Guillén-García, who founded the first legal radio station in 1924 (Radio Barcelona EAJ1). As the technical director of Orpheus Film on the new version of *Carceleras* in 1932 (the first film shot with live sound), de Guillén-García should be considered one of the pioneering engineers in sound pictures in Spain.

Ricardo María de Urgoiti, director and engineer at Madrid Unión Radio, SA, also came from a radio background. At the end of 1929, Urgoiti opened a studio to industrialise the *Filmófono* system<sup>12</sup>, using synchronised gramophone discs and two turntables<sup>13</sup>.

But as Romà Gubern says, “the colonial dependence on foreign sound technology would come to typify the nascent Spanish talking film industry”<sup>14</sup> (Gubern, 1977, p.18). In the area of screening, in Spain Western Electric had overtaken German company Tobis-Klangfilm and was training sound engineers in short intensive courses. Gubern adds that: “sound engineers had huge power in the days of early Spanish sound pictures; they had the right to reject films whose sound quality they judged unsatisfactory and were paid their salary in dollars.”<sup>15</sup> (Gubern, 1977, p.18). Despite the fact that in theory Fono España had the exclusive right to use the Western Electric sound system, its technical director Ugo Donarelli

12 Although the *Filmófono* was initially a film synchronisation system developed by Ricardo María de Urgoiti in 1929, in 1935 it became a film company.

13 For the first time, Urgoiti used his system to add music and comedy noises to Florian Rey’s comedy *Fútbol, amor y toros* [Football, love and bulls] in 1929.

14 [Translated from the original.]

15 [Translated from the original.]

ended up championing an in-house recording system known as F.E. (the letters of the company Fono España), which was lower quality but more cost-effective. Sound engineer Adolfo de la Riva – together with his brothers Carlos and Enrique, who also had a background in radio like so many others – also designed their own system; the *Rivatón*, which introduced better recording technology and began to be used in the TRECE studios in 1935. In addition to the Riva brothers, some of the sound engineers related to this studio include Rosendo Piquer (the engineer in charge of studio 2) and assistants Jaime Estela, Pedro Rovira, José Vallverdú and Enrique Llor.

Another important figure in early sound pictures in Spain was Federico Gomis, technical director and sound engineer at the Ballesteros studios located at calle García de Paredes no. 53 in Madrid. The 30th edition of *Cinegramas* magazine, published on 7 April 1935, included an interview with Gomis stating that he “did a science degree and studied in the industrial school”, also indicating his specialisation in the world of radio, like many other engineers at the time; and his ambition, also like many of his contemporaries, to design his own recording system, declaring: “He specialised in the secrets of radio, and has just built a device with a new system for recording sound that has been patented in several other countries.”<sup>16</sup>

Nevertheless, the recording system from Spain with the greatest international circulation during these years was patented in 1932 by the engineer and professor of electricity at the School of Engineering, Canals and Ports of Madrid, Alberto Laffón; and Doctor of Science, Ezequiel Selgas. This was a new “multitransverse” system to photoelectrically print sound. It was a remarkable improvement on previous systems that made Spain the third country in the world to have its own photographic sound system, after Germany and the USA. Even though the Laffón-Selgas system would have a great impact in specialised media and be recognised by the most important sound engineers worldwide such as Santini, director of Alex laboratories; and Certes, technical director of Pathé-Cinema, it did not manage to displace the American technology that was already widespread and dominant in the industry. Despite the difficulties of competing on the international market, the system created by Laffón and Selgas continued to be developed, and in 1943 *Primer Plano* magazine published a short interview in which the inventors drew attention to the increased dynamic range and its implications for recording orchestras:

*Could you tell me about the new improvements you have made to your apparatus?*

Quite simply, it can now faithfully record the sound of an orchestra of considerable size.

As you know, recorded music never gives the feeling of a big orchestra because recording equipment offers little amplitude.

<sup>16</sup> [Translated from the original.] “Ángulos nuevos: Los técnicos del cinema nacional”, *Cinegramas* [no. 30, 7 April 1935, p.14]. Available at: <http://hemerotecadigital.bne.es/issue.vm?id=0004941183&search=&lang=es> [Consulted: 14/12/2017].



*In other words, there is no difference between recording a concert by a large orchestra or one with only fifteen or twenty musicians.*

Exactly right, and we have channelled our efforts into improving this problem with this in mind.<sup>17</sup>

Expanding the dynamic range and frequency spectrum was one of the challenges faced by the different sound recording systems, and the Laffón-Selgas system made an important qualitative leap forward in this respect. The system was still used on some films in the 1950s, such as *Parsifal* (1951), even after the introduction of tape recording in the music and film industries<sup>18</sup>.

Other leading names came from two of the most important film studios of the 1930s: EC-ESA and CEA. ECESA studios in Aranjuez (Madrid) were associated with sound engineers Miguel López Cabrera and Alfonso Carvajal. At CEA studios (*Cinematografía Española Americana*) in Madrid, León Lucas de la Peña was the most senior technician in charge of the sound equipment. Luis Marquina is one of the few sound engineers that made the leap to become a film director. An industrial engineer trained as a sound technician in the Tobis-Klangfilm studios in Paris and Berlin, Marquina returned to Spain in 1933 to take up the post of head technician at CEA studios, and made his directorial debut in 1935 with *Don Quintín el amargao* under the supervision of Luis Buñuel, who himself would direct this same film in Mexico in 1951.

The work of foreign sound engineers living in Spain should also be noted: for Orpheo Films, the work of French sound engineer René Renault, who imported new technology from France, should be mentioned alongside that of José María de Guillén-García; the German engineer Luis Linnartz, who in 1933 created Linnartz studios on the Conde de Barajas plaza in Madrid using portable Lignoise sound recording equipment; and the Hungarian sound engineer Foldbary, who was linked to the dubbing and sound studios set up by Metro-Goldwyn-Mayer in 1933 in Barcelona, and who designed a recording system that used Telefunken microphones placed at different distances from the source sound; a pioneering approach to close and distant miking techniques<sup>19</sup>.

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17 [Translated from the original.] Interview with Alberto Laffón and Ezequiel Selgas by Pío García Viñolas for *Primer Plano* magazine, no. 162, 21/11/1943.

18 Recording took place in the *Palau de la Música Catalana* with the one hundred and sixty two performers required to record the music by Wagner.

19 Capturing sound with microphones based on the combination of different sound planes depending on the distance between the microphone and the source is common practice both in the music and film industries.

## Conclusions

Every new technology related to the world of sound or image has provoked uncertainty and a crisis around the existing business model. The ultimate incursion of sound recording into the film industry enabled a consumer product to be created for the entertainment sector, but also presented a threat to the existing business model, which had to adapt by creating new professional profiles and working environments. We can identify two stages related to sound engineers' contribution to the world of sound pictures: the first when the challenge was to create a technically and commercially viable system of synchronisation, and a second characterised by rivalry between the sound and dubbing studios through their engineers, who also competed to produce their own sound systems. Although there is an ongoing relationship between the worlds of film and music, the latter eventually using film as an important means of promotion, the first prominent technicians specialising in capturing sound to accompany moving images mostly came from the field of radio. At first, sound engineers working in film usually had a more scientific than artistic background, in many cases combining their sound recording work with research aimed at improving the quality of recordings. Despite several innovative devices such as that developed by Laffón-Selgas being introduced during this era, the commercial power of brands such as Western Electric would irreversibly turn Spain into an importer of technology.

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