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## INVESTIGACIÓN/RESEARCH


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### RADIOTHERAPY FOR THE TREATMENT OF CANCER IN THE ADVERTISING OF THE EARLY 20TH CENTURY

#### *La radioterapia para el tratamiento del cáncer en la publicidad de principios del S. XX*

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#### ABSTRACT

The discovery of X-rays and radium generated great curiosity among scientists. Both elements represented the miracle cure that could treat a wide range of deadly diseases, such as cancer, and could meet the expectations of the population. The objective of this article is to analyze the advertising inserts related to radium and X-rays applied to cancer treatment, in the Spanish press at the beginning of the 20th century (1903-1912), in the *ABC* and *La Vanguardia* newspapers. To do this, each and every one of the times that the term "cancer" could be identified in advertisements was selected from the digital archive of both media, to later select only those offering radiotherapy for the cure of cancer. A total of 162 advertisements were published, 146 for *ABC* and 16 for *La Vanguardia*. It can be affirmed that the treatment provided by both media is quite different in numerical terms, although concerning the qualitative aspects there are important levels of coincidences. Advertising was mainly editorial, although little by little image began to gain prominence, the advertising messages were refined and the typographical treatment improved; something that is incipiently noted in our group of advertisements. All this allows us to speak of the progressive consolidation of an advertising market since the first decade of the 20th century.

**KEY WORDS:** Advertising - Cancer - Treatment - X-rays - Radiotherapy - Press - Spain.

#### RESUMEN

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El descubrimiento de los rayos X y del *radium* generó gran curiosidad entre los científicos. Ambos elementos representaban la cura milagrosa que podría tratar una amplia gama de enfermedades mortales, como el cáncer, pudiendo llegar a colmar las expectativas de la población. El objetivo de dicho artículo es analizar las inserciones publicitarias relativas al *radium* y los rayos X aplicadas para el tratamiento del cáncer, en la prensa española a comienzos del siglo XX (1903-1912), en los periódicos *ABC* y *La Vanguardia*. Para ello, a partir de la hemeroteca digital de ambos medios se seleccionaron todas y cada una de las veces que se pudo identificar el término "cáncer" en los anuncios publicitarios, para posteriormente seleccionar únicamente aquellos cuyo tratamiento ofertado para la cura del cáncer fuera la radioterapia. En total se publicaron un total de 162 anuncios, 146 para *ABC* y 16 para *La Vanguardia*. Se puede afirmar que el tratamiento proporcionado por ambos medios es bastante diferente en términos numéricos, aunque en los aspectos cualitativos hay niveles de coincidencias importantes. La publicidad fue sobre todo redaccional, aunque poco a poco la imagen empezó a cobrar protagonismo, los mensajes publicitarios fueron depurándose y mejoró el tratamiento tipográfico, algo que se nota de manera incipiente en nuestro grupo de anuncios. Todo ello nos permite hablar de la progresiva consolidación de un mercado publicitario desde el primer decenio del siglo XX.

**PALABRAS CLAVE:** Publicidad - Cáncer - tratamiento - rayos X - radioterapia - prensa - España.

## A RADIOTERAPIA PARA O TRATAMENTO DE CÂNCER NA PUBLICIDADE DE COMEÇOS DO S. XX

### RESUMO

A descoberta dos raios X e do *radium* gerou grande curiosidade entre os cientistas. Ambos elementos representavam a cura milagrosa que poderia tratar uma grande variedade de doenças mortais, como o câncer, sendo capaz de atender as expectativas da população. O objetivo do artigo é analisar as inserções publicitárias relativas ao *radium* e os raios X aplicadas para o tratamento do câncer, na imprensa espanhola nos começos do século XX (1903-1912), e nos jornais *ABC* e *La Vanguardia*. Para isto, a partir da biblioteca digital de ambos os meios foram escolhidas todas e cada uma das vezes que é identificada a palavra "câncer" nas propagandas, para posteriormente selecionar unicamente aqueles onde o tratamento ofertado para a cura do câncer fosse a radioterapia. No total, publicaram-se um total de 162 propagandas, 146 para *ABC* e 16 para *La Vanguardia*. Pode-se afirmar que a abordagem utilizada por ambos os meios é bastante diferente em termos numéricos, embora nos aspectos qualitativos haja níveis de coincidências importantes. A publicidade foi maioritariamente redaccional, mesmo que pouco a pouco a imagem começou a ter protagonismo, as mensagens publicitárias foram sendo depuradas e melhorou o tratamento tipográfico, algo que se percebe de forma incipiente no nosso

grupo de propagandas. Tudo isso permite concluir a progressiva consolidação de um mercado publicitário desde o primeiro decênio do século XX.

**PALAVRAS CHAVE:** Publicidade - Câncer - tratamento- raios X - radioterapia - imprensa - Espanha.

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## 1. INTRODUCTION

We could say that the history of X-rays began with the experiments of the British scientist William Crookes, but it was the physicist Wilhelm Conrad Röntgen who conducted the experiments with the Crookes tubes and cathode rays which led to the identification of X-rays. He then proceeded with repeating several experiments and determined that these rays created a very penetrating yet invisible radiation; noting that it passed through thick layers of paper and even metals less dense than lead.

Röntgen continued testing until discovering those rays could pass through not only cardboard, but also wood and even aluminum films, as if they were transparent. As he did not know the nature of these rays, capable of penetrating almost everything, Röntgen called them "X-rays", since it was the most used letter as the unknown value in mathematical equations. On December 28, 1895, he presented a paper gathering all his observations to the Physical Medical Society of Würzburg, which was published on January 6 of the following year, titled "Eine neue Art von Strahlen" (On A New Kind of Rays. A Preliminary Communication), for which he received dozens of prizes and scientific distinctions. Therefore, X-rays became a crucial scientific breakthrough that revolutionized medical practice.

The news of the discovery spread at an astonishing speed since, to Röntgen's surprise, it was published on January 5 in the *Neue Freie Presse*, whose owner was the father of one of his friends to whom he had shown the paper and the extraordinary images. The Standard disclosed the "sensational discovery" to citizens in London on January 7, the *New York Times* on the 8, *Le Petit Parisien* on the 10, and on January 31, 1896, it was published on the Spanish newspaper *La Vanguardia* under the title: "El descubrimiento del Dr. Röntgen. La fotografía a través de los cuerpos opacos" [EN: Dr. Röntgen's discovery: Photography through opaque bodies] (*La Vanguardia*, page 4, January 31, 1896).

Röntgen's discovery generated great curiosity among scientists. Among them, the young Polish woman Marie Skłodowska, who in 1896 was in Paris undertaking her

Doctorate at the School of Physics, had decided to conduct her thesis on “spontaneous radioactivity” using different materials. Throughout the course of her investigations she concluded that thorium was more radioactive than uranium, which she reported to the Academy of Sciences in Paris on April 12, 1898. In that paper she suggests that radioactivity is an atomic property, since it is not dependent on the physical or chemical state of the radioactive material and she also foresees that more active elements than those already known could be found.

In 1895, Marie, after marrying Pierre Curie, another prominent physicist who worked at The Sorbonne, worked alongside him and developed methods to investigate new elements, and in July of 1898, they separated a new element from pitchblende by dilution, which they called polonium. In December of that same year, they proceeded with the precipitation of polonium and obtained a new radioactive element, which they named radium. In order to produce a sample of this new element, they received a ton of uranium ore provided by the Austrian Government.

For four years the couple worked in order to finally obtained one-tenth of a gram of pure radium. They both, X-rays and radium, caused multiple biological effects during their implementation that were identified relatively swiftly, beginning to apply this radiation as a diagnostic and therapeutic element (Cornejo, 2004).

The implementation of X-rays in medicine was immediate, first to spot foreign and strange bodies in tissues and to diagnose bone fractures, and subsequently, it was used for other purposes (Casas, 1996), taking into consideration the numerous biological experiments conducted during the first decade of the 20th century to determine the effect these radiations had on the most varied types of cells, tissues, and organisms, noting suppressing effects on cell division, with greater radiosensitivity of growing tissues, and teratogenic effects on embryos (Bohn, 1903; Danysz, 1903).

The anguish in the face of advanced cancer and the pain this incurable disease caused, motivated, in early stages, the indiscriminate use of radiotherapy, making it an empirical treatment, administered by physicians and general surgeons, which was used in private offices instead of academic centers. Radium was distributed in the form of salts and was applied to the body in every imaginable form: in tubes, plaques, radioactive ointment, linen compresses or radioactive iodine, injections, and suspension for oral intake; calculating the dose to be administered based on the response to the treatment.

The observation that proximity or contact of skin with radium could cause lesions as burns, similar to those caused by X-rays, were already described by Germans Walkhoff (1900) and Giesel (1900) in 1900, which its finders also experienced. In 1901, Becquerel caused himself a burn in the abdomen as he was carrying radium in a test tube inside his vest pocket, and Pierre Curie deliberately produced himself a similar reaction on his forearm, and both communicated the effects of radiation in the skin to the Academy of Sciences in Paris in June of that year.

In a similar way, later in November of 1901, Foveau de Courmelles (1904), after analyzing the cutaneous reaction he experienced himself as he carried radium in one of his pockets, ascribed biological properties to this element which he defined as “chemical, penetrating, and destructive”; hence the idea of its use in the treatment of certain dermatological processes emerged. This is why the Curies lent a tube with radium to Henri Danlos, a dermatologist at the St. Louis Hospital in Paris for its experimentation, being the first physician who treated a patient with lupus (Danlos and Bloch, 1901).

Therefore, during the first years of the 20th century, radiotherapy indications were aimed more at nonmalignant cutaneous conditions (acne, eczema, lupus erythematosus, psoriasis, hypertrichosis, nevus, etc.), although there was also experimentation in some types of non-filtering cutaneous cancer. This did not prevent that its possible destructive effect was also used on infiltrating cutaneous tumors, and other body structures such as the cervix, uterus, or rectum, with merely palliative effectiveness and side effects such as burns and necrosis of healthy tissues.

Knight (1986) argued that scientist knew radiation of X-rays and radium was similar, but radium was considered to be the natural version of X-rays and he stated that, in that moment, people around the world believed that radium was marvelous and that it had medicinal properties. It was said to diminish constipation and blood pressure, to heal insomnia by calming the nerves, to increase sexual activity, and it was put on every kind of product, from skin creams to toothpastes; everything about the new rays was dazzling and fascinating to the general public, causing a generalized X-rays mania right after the announcement of their discovery; the amazing “new light”.

On the other hand, it should be noted that during that time radium was promoted on the basis of the beneficial effect ascribed to radioactivity to treat numerous pathologies. X-rays meant the miracle cure that could heal a wide range of mortal diseases, and could meet people’s expectations in this regard. It could be affirmed that it was a moment of uncertainty seized by charlatans, who had no scientific basis.

The discovery of X-rays, just as we have seen (appearing in the media before its official disclosure), was constantly in the newspapers, providing ideas of scientific evidence and effectiveness. It is not surprising these types of processes linked to X-rays had an interesting appeal from the marketing perspective, even for products that had no connection to science or medications. Advertisers could have an extra advertising effect, which made X-rays the ultimate invisible force in 1900, all of this even before the idea of any type of regulation on consumer goods or consumer protection.

In fact, the first advertisement in which this discovery was used, incorporated the radiograph obtained by Röntgen of his wife’s hand, and it appeared in the journal *Electrical Engineer*, only four months after the announcement of Röntgen’s

discovery, inserted by one of Thomas Alva Edison's companies (Seliger, 1995). Therefore, it is not surprising that X-rays were used for diagnostic purposes and possibly for therapy after a few weeks of the discovery's announcement, given the almost ubiquitous fascination of the general public and its immediate generalized implementation in medicine.

## 2. OBJECTIVES

This study's objective is to analyze the characteristics of the advertising inserts related to radium and X-rays shared in the print media of our country, in a society with low literacy levels. Therefore, this study intends to analyze the advertisements for the products and services that were offered at the beginning of the 20<sup>th</sup> century regarding products such as radium and X-rays related to diseases like cancer, conducting, to the extent possible, an approximation of the social reality and people's considerations concerning these products in the period between 1903 and 1912; placing them in contextual terms and determining the image that was being transmitted together with the advertising behavior and scope of words, concepts, ideas, or images used through the advertisements inserted in the print media.

Ultimately, to try to know the image conveyed through the advertisements for these products and its impact on issues related to cancer, specifically in the two general and with the greatest circulation newspapers in the Spanish geographical ambit, of a seemingly different ideology, *ABC*, published in Madrid, and *La Vanguardia*, published in Barcelona, as well as to analyze and compare the results obtained.

## 3. METHODOLOGY

Every investigation work entails a first analysis step of the existing literature regarding the chosen topic, as well as those aspects that approach the proposed research (selection, analysis, the study of the documents and publications). From here on, we established a criteria set to choose the publications analyzed, which is based on the selection of two general and with the greatest dissemination newspapers in the Spanish geographical ambit, from January 1, 1903, to December 31, 1912. The newspapers that met these criteria, and which now comprise this project's sample, are the *ABC* and *La Vanguardia*, the former being published in Madrid, and the latter in Barcelona. Additionally, and based on this characteristic, we have obtained two examples that are representative of the two Spanish cities with the highest population in the years under analysis; hence they constitute an essential part of the new Spanish journalism.

The two newspapers analyzed have been consulted on their digital version through their digital archive. We conducted a search for the advertisements containing the term cancer. Subsequently, we read them to choose only those offering radiotherapy for the cure of cancer.

#### 4. RESULTS

The number of analyzed newspapers included in the study was 7.044, specifically, 3.414 newspapers of ABC, together with its *Black And White* supplement, and 3.630 newspapers of *La Vanguardia*.

Once the study sample was obtained, all the advertisements containing the term cancer were chosen, just as shown in Table 1, in which the number of advertisements per newspaper, year, and their totals are found.

**Table 1.** Advertisements containing the term cancer

Descriptor/Year	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	TOTAL
ABC advertising	---	---	12	21	22	19	26	73	68	38	<b>279</b>
LV advertising	40	1	8	2	---	8	31	3	3	11	<b>107</b>
<b>Total</b>	<b>40</b>	<b>1</b>	<b>20</b>	<b>23</b>	<b>22</b>	<b>27</b>	<b>57</b>	<b>76</b>	<b>71</b>	<b>49</b>	<b>386</b>

**Source:** Authors' own creation.

Quantitatively speaking, in 1910, ABC was the newspaper that published the greatest number of advertisements concerning cancer, with a total of 73 (26.3%) units of analysis, followed by 1911 with 68 (24.3%) advertisements found, and 1912, with 38 (13.8%) advertisements. On the other hand, the year with the greatest number of advertisements published by *La Vanguardia* was 1903, with a total of 40 (37.4%) units of analysis, followed by 1909 with 31 pieces (29%).

In the following Table 2, "*Advertisements with the term cancer offering a cure through radiotherapy*", we can see that the advertisements in ABC regarding this ambit were 146, and for *La Vanguardia* the number was 16.

**Table 2.** Advertisements with the term cancer offering a cure through radiotherapy

Descriptor/Year	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	TOTAL
ABC advertising	---	---	2	2	1		7	61	58	15	<b>146</b>
LV advertising							13	1	1	1	<b>16</b>
<b>Total advertising</b>			2	2	1		20	63	59	16	<b>162</b>

**Source:** Authors' own creation.

In total, 162 advertisements were published and are going to be described hereunder; hence, we are going to order them based on the medium and the publication date, starting with ABC newspaper.

The first advertisement we find has particular characteristics, it is an advertisement that was published ten times and does not follow any special publication pattern, but it appears two times each year: 1905, 1909, 1910, 1911, 1912. It

is inserted as if it were a piece of news, but in reality it is an advertisement. It was sent from Paris (France) via a “special correspondence” and speaks of an almost miracle cure for diseases –including cancer–, carried out by Professor G. A. Mann, which “arouse intense curiosity, great astonishment, and equal admiration”. He claims to have found a certain Law of Nature that is apparently described in the book they promote, among other things, in the advertisement.

In two different formats, one for the *ABC* and the other for *La Vanguardia*, it is important to point out both the headline and subheadings, which state the following: “With his phenomenal power, this man operates miracles”. “The blind can see and the cripples walk. Those declared terminally ill by doctors are cured by him. There is no disease that cannot be cured. He makes the pain to go away, closes wounds; he cures cancer, tuberculosis, tumors, and he does wonders that amaze the modern Medicine and defy every explanation”. Similarly, he offers free visits and cures sick people in their homes, without meeting them, as easily as if they were in his presence, claiming that anyone who wants to write to him will receive indications of the causes of the symptoms they are experiencing and the way to be cured through radiopathy. It is an advertisement with large dimensions, compared to the other ones, which exudes lots of hope and enthusiasm for cancer patients.

The next advertisement was published twice in 1906, specifically on January 27 and February 3. It takes up the entire page and it is a very curious piece with a big headline and many subheadings. In it, there is a rotogravure image with the picture of the self-proclaimed “Great Thaumaturgist”, written in bold and in capital letters, who “restores health to those incurable patients with the use of a subtle force”. The content in this advertisement is similar to the previous one, using multiple accounts of supposed patients who benefited from his treatment.



**Picture 1:** Advertisement. A great thaumaturgist.  
**Source:** *ABC* newspaper (January 27, 1906, page 2).

The next advertisement was only published on April 6, 1907, and states that Dr. Díaz de la Quintana can treat several pathologies, including cancer, with light baths, electricity, and X-rays, with the first visit for 5 pesetas.



A new advertisement titled “*El radio y los tumores malignos*” [EN: Radium and malignant tumors] was published four times between October and November in 1909. A “completely free” consultation is offered to share the benefits of therapy with radium, highlighting the opening of an establishment of the Spanish Society of Radium and its Applications, with the humane purpose of disseminating knowledge and broadening its benefits.

On November 26, 1909, the following advertisement was published one single time, with the headline in bold “*Instituto del Radio*” [EN: Radium Institute]. Stating the availability of “The most recent progresses” to treat skin and mucosal diseases by using simple treatments without any pain, attending morning consultations from ten to twelve o’clock for seven pesetas, and from five thirty to six thirty for free.

The *Instituto del Radio* continued to be publicized with new advertising, such as the following, which appeared six times from January to April in 1910. The format was changed and the term RADIO was highlighted in the headline in bold letters as well as its use for incurable illnesses in that moment. The text informs of the cure for mortal diseases such as cancer by using radium salts, which with their “unlimited radiations transform lesions without leaving any significant traces and without any pain”. These treatments were performed at the *Instituto del Radio*, the only one in Spain, in morning (paid) and afternoon (free) hours. Additionally, it indicated that people could go and witness the treatments to make sure how comfortable these were, and thus see the results.

In the following advertisement, the *Instituto Radiumterápico* [EN: Radiotherapeutic Institute] was publicized for the first time on February 25, 1910, although it was not advertised as such. It informs that Dr. D. A. Gallego Cepeda has acquired the radium equipment to cure different pathologies, including cancer, and presents the characteristics of radium, as well as the “tremendous price of the eagerly coveted metal. One gram alone costs four hundred thousand francs”.

As of the next month, an advertisement was massively publicized, being published seventy times from March 1910 to December 1912, with a weekly release during long periods. The prominent *Instituto Radiumterápico* of Madrid is located at the *Paseo de Recoletos*, 31. Severe illnesses such as cancer, lupus, angiomas, etc., which at the time did not disappear with any of the resources used, are cured with radium.

Similarly, said institute was advertised three times in 1910, although two photographs of a 59-year-old patient, one with an ulcerated epithelioma and one after being treated with radium, stand out, depicting the benefits of the treatment through the images.



**(Cáncer) en un enfermo de 59 años**

Fot. Padró

iones Radiumterápicas (sin dolor)  
Radio. Infantas, 19 y 21. Madrid.  
en Benéfica. Vistasea. Todos los

**Picture 2:** Advertisement, Ulcerated epithelioma in a 59-year-old patient  
**Source:** ABC newspaper (September 17, 1910, page 20).

The next advertisement was published six times from March to April in 1910. It informs about the power of Radiotherapy with “free reports” and “home treatments” just as indicated at the end of the advertisement, which states: “All without pain and without leaving visible traces: The summum of comfort and aesthetics”. It indicates that consultations will be held at the only established Radium Institute with all the radiotherapeutic elements in Spain, Madrid, Infantas Street, 19; and although it does not provide a time schedule, it indicates that clinics are open from 9 am to 7 pm, with free reports and home treatment.

The next advertisement was published five times from May to June in 1910. What stands out is the innovative introduction of the photograph of the façade where the *Instituto Radiumterápico* of Madrid is located. It is similar to a previous advertisement, with an identical text, although they added that it is a “shame that these extraordinary benefits cannot be more easily used due to the tremendous price for such a scarce and coveted metal”.



**Picture 3:** Advertisement, Instituto Radiumterápico of Madrid.  
**Source:** ABC newspaper (May 15, 1910, page 20).

The next advertisement was published three times in June, 1910. The message it wants to convey is emphasized in the last phrase: "In it, consultations are conducted and administered without the enormous costs these surgical interventions generally entail for the sick people." It is the same text as in other advertisements, with some variations in the wording, and it also indicates that just one gram of radium costs 400.000 francs.

A new advertisement for the *Instituto del Radio* commented on the characteristic of being the "First foundation in Spain", being published six times throughout June, July, and August of 1910. It was located in Infantas Street, 19 and 21, and for the first time, it provided a phone number, and indicated the hours for consultations and their prices. It is a variation of another almost identical advertisement.

As a continuation of the previous advertisement, we find a new one for the *Instituto del Radio*, which was published six times from August to November in 1910, adding the photograph of the *Instituto del Radio's* façade, whose sign appears above the entrance, and which communicates what the institute under discussion is. Possibly, the introduction of the photograph was the result of the newspaper's offer, or perhaps it was conditioned by their competitors introducing the photograph of the *Instituto Radiumterápico's* façade in their advertisement. Once again, the body text incorporates the fact of being the "First foundation in Spain", the address, phone number, and the consultation hours and its price.



*Picture 4:* Advertisement, Instituto del Radio.  
**Source:** ABC newspaper (August 28, 1910, page 20).

From October to November of 1910, the *Instituto Radiumterápico* of Madrid included a new simplified advertisement three times, informing of the diseases that could be cured with Radium, only at their facilities.

A new advertisement for the *Instituto Radiumterápico* appeared another four times, between January and February of 1911, in which all the conditions that can be treated with Radium are described. In them, an analogy with similar establishments in Paris and London is drawn, and includes its address.

The next advertisement was published only once, specifically on November 27, 1910, on page 20. It also makes a before and after comparison of an infiltrated and ulcerated cancer in a 50-year-old patient who was cured with painless radiotherapeutic applications. It offers people the possibility of visiting them to obtain medical reports and records, with multiple stories; every day from 6 to 7 in the evening and free medical examination.



*Picture 5:* Advertisement, Infiltrated and ulcerated cancer in a 50-year-old woman

**Source:** ABC newspaper (November 27, 1910, page 20).

A new advertisement was published three times from November 1911 to December 1912, under the heading, "Recommended Advertisement". It is the *Instituto Radiumterápico* of Madrid, which states that it is "common for people who suffer from diseases known as cancer... to claim being tired of using several procedures trying to cure themselves in vain and to watch them suffer until their desperate deaths due to the pain and discomfort"; indicating that those who are in this position have not received treatment with Radium yet, at the *Instituto Radiumterápico* of Madrid. In the *Instituto Radiumterápico* "they would have noted from the very first implementation, all of them, a noticeable improvement, and most of them, would have healed".

Another advertisement was published on May 6, 1912, on page 12, under the Recommended Advertising section and the heading, "*Emanatorio del Radium*" [EN: Radium Emanatorium]. This advertisement, after listing different doctors and clinics, states that this emanatorium has been established to cure internal diseases. Next, it lists some of the diseases for its implementation: rheumatism, gout, deformative arthritis in all its forms, variations, and complications; ankylosis, kidney and heart diseases, bone and joint disorders, exudates remnants in the serous membranes (pleurisies, peritonitis), nervous system diseases (epilepsy, hysteria, neuralgia, pareses, paralysis, hemiparesis, tabes dorsalis, and neurasthenia), diseases of a scrofulous nature, visceral infarctions, and severe skin diseases; they are so notable that seem providential due to the swift benefits they provide to the patient. This piece informs of how harmless this emanation is and its absorption at a pulmonary level, and indicates that it excites certain organ functions such as the hematopoiesis, the pancreas, activity in liver, thyroid, and other organs. Consultations are from 3 to 5 in the *Paseo de Recoletos* for the sake of sick people in Madrid to benefit from such powerful healing means.

The number of advertisements is smaller for *La Vanguardia*, starting with one that was published twelve times between March and August of 1909, indicating that at "Dr. Torres' Clinic, cancer is cured through fulguration by X-rays", and informs that this doctor is a former student of the Hospital of Paris, and his office is located, apparently, in *La Plaza Beato Oriol* in the City of Barcelona.

The next advertisement was only published on March 3, 1910, on page 3. It coincides with another advertisement by ABC newspaper, in which the *Instituto Radiumterápico* is advertised, mentioning Dr. Gallego Cepeda, and similar to others, it indicates the different pathologies for which radium would be used, praising the characteristics of radium and the "tremendous price of the coveted metal. One gram alone costs four hundred thousand francs", stating that in spite of this, Gallego Cepeda, after studying and knowing perfectly the technique for its implementation, has bought the right equipment and presents the address in Madrid where consultations are held.

Finally, it was published three times: on October 23 of 1910, on November 19 of 1911, and on December 15 of 1912; an advertisement for Professor Mann that inserts the same advertisement previously incorporated in *ABC* newspaper, from Madrid, with minor typographical modifications.

As it can be seen in Table 3, “Distribution of advertisers per medium, year, and advertisements’ characteristics”, which we included as a compilation, we could affirm it was a small and more or less limited market; essentially, only two organizations were competing in the city of Madrid, although two professionals apparently wanted to expand their horizons in the market in 1907 and 1909, doctors Díaz and Torres, one in Madrid and the other in Barcelona. Even though most of the activity took place in Madrid, with a high competitiveness level between the *Instituto del Radio* and *Instituto Radiumterápico*, the latter was advertised in *La Vanguardia* to attract citizens from Barcelona to receive treatment at their facilities.

**Table 3:** Distribution of advertisers per medium, year, and advertisements’ characteristics

Advertiser		Medium	Date of 1st advertisement		Characteristics of the advertisement	
1	Prof. G. Mann	ABC	1905	January	Text	
2	Prof. G. Mann	ABC	1906	January	Text	Rotogravure image
3	Dr. Díaz de la Quintana	ABC	1907	April	Text	
4	Dr. Torres Carreras	LV	1909	March	Text	
5	Instituto del Radio	ABC		October	Text	
6	Instituto del Radio	ABC		November	Text	
7	Instituto del Radio	ABC	1910	January	Text	
8	Instituto Radiumterápico	ABC		February	Text	
9	Instituto Radiumterápico	LV		March	Text	
10	Instituto Radiumterápico	ABC		March	Text	
11	Instituto Radiumterápico	ABC		March	Text	Male patient image
12	Instituto de Radio	ABC		March	Text	
13	Instituto Radiumterápico	ABC		May	Text	Façade image
14	Instituto Radiumterápico	ABC		June	Text	
15	Instituto del Radio	ABC		July	Text	
16	Instituto del Radio	ABC		August	Text	Façade image
17	Instituto Radiumterápico	ABC		October	Text	
18	Prof. G. Mann	LV		October	Text	
19	Instituto Radiumterápico	ABC		November	Text	Female patient image
20	Instituto Radiumterápico	ABC	1911	January	Text	
21	Instituto del Radio	ABC	1911	November	Text	



22	Instituto Radiumterápico	ABC	1912	May	Text	
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**Source:** Authors' own creation.

At the same time, the use the *Instituto Radiumterápico* made of image is notable, which elaborated two advertisements depicting the results of their treatment in people and an image of their institute's façade. The *Instituto del Radio* elaborated an advertisement describing their first steps, *La Sociedad Española del Radio* [EN: The Spanish Society of Radium], subsequently constituted as *Instituto del Radio*. The *Instituto Radiumterápico* published 10 out of the 22 advertisements of the period under analysis. Finally, a noteworthy piece of information is that the bulk of advertisements found, 13 advertisements, were published in 1910.

## 5. DISCUSSION

One of the most relevant aspects during those years was the discovery and implementation of radium to cure cancer, just as the newspapers informed. By 1906, twelve books and more than 80 articles about radiotherapy were already part of the North American medical literature, mentioning its benefits, highlighting that it was painless, only leaving small scars without disfiguring, destroying diseased tissue, relieving pain, and reducing fear of surgery. The truth is that this new modality aroused great excitement about its implementation. This interest entailed the creation of the Biological Laboratory of Radium in Paris in 1906, the "Radiumhemmet" of Stockholm in 1910, the London Radium Institute in 1911, and the American Radium Society in 1916.

In 1903, specifically on July 29, on page 4, *La Vanguardia* said that Mr. Mackenzie Davison had just treated a case of cancer successfully using radium.

Months later, on November 24, 1903, on page 10, *ABC* informed that the Royal Society of London had awarded M. Curie a medal for having discovered the proprieties of radium to treat cancer. The next year, on page 6 of January 23, 1904, Dr. Morton appeared in a piece of news in the *ABC* mentioning the satisfactory impact of radium over the cancer growing on skin. And on the front page of April 30, 1904, *La Vanguardia* echoed a piece of news announcing the miraculous therapy for cancer with therapeutic phosphorescence. There was also information on the healing effects of radium and the light in those who suffered cancer, on July 11 and October 29 of 1904, on page 4 of *La Vanguardia*.

Apparently progress had been doing wonders and the implementation of radium had to be considered prodigious, or at least that is how *La Vanguardia* was advertising it on page 5, on May 5 of 1905. The year after, in 1906, four pieces of news regarding the implementation of radium in cancer therapy were published, defining cancer as one of the biggest incurable banes, together with tuberculosis. Similarly, it

was affirmed that Röntgen rays could neither cause cancer nor transform simple ulcers into a cancerous ulcers (August 19, 1906, *La Vanguardia*, page 7).

From 1906 to 1911, there were no reports about radium in none of the two newspapers analyzed. It was on April 16, 1911, on page 11, when *ABC* informed about the use D. Alfredo Gallego Cepeda made of radium to cure cancer. And on page 3 of June 13, 1912, *La Vanguardia* informed that the use of radium bromide, placed in a four-centimeter plaque and through tin foil filters, had cured an eyelid and eye orbit border cancer. However, information on radium was not only placed on news, but also on advertisements. Throughout our analysis, we found a significant number of advertisements addressing cancer treatments; the ones here considered were related to radium or X-rays.

Regarding the advertisement for Professor Mann, it is necessary to address it here although it is not linked to radium or X-rays, mainly because it is a sign that every new scientific or business field typically attracts a group of swindlers and charlatans who, by using similar terms, try to benefit from these favorable environments. In this sense, a completely new technology that could see through living human tissue, that had even promised being the first non-surgical answer to cancer, in which the image of a radiograph transmitted a sense of state-of-the-art technology, and at the same time seemed like magic, an unseen force that could have been always operating. Magic has been at the heart of religion and religion is a parallel system to advertising (Gerson, 2004:547).

The general public considered that X-rays could be used routinely for everything, from the simplest diagnoses and treatments to the most complex ones. "The rays represented the miracle cure that someday, with the flick of a switch, might heal a wide range of mortal ills". Gerson compiles in his paper the opinion of other authors and affirms that one of them stated that the radiology field, in that time, was a "veritable fairyland of science in which the most extravagant hopes might someday be realized" (p. 546). X-rays and radium captured the imagination of scientists and the general public; the latter was simply astonished by X-rays, and charlatans, such as Professor Mann, played with this fascination by making references to this new technology in his speech.

In fact, if we look up the word Radiopathy in the dictionary, which according to Mann was the "Science, marvel of the century", we find that it is a disease caused by radiation, especially the one caused after handling X-rays and radium. The term radiopathy or radium-lesion encompasses all the disorders related to or caused by X-rays and radioactive bodies, such as burns, wounds that could transform into cancer, bleeding ulcers, eye disorders, etc. Therefore, we could infer that Professor Mann, who was well-educated and knowledgeable about certain advancements, who invested himself as an authority by calling himself a "Professor" and who offered miracle cures with the use of a subtle force, started to use this word once the problems, radiopathies, or lesions caused by the use of X-rays or radium, were evident, in many cases in scientific media, without considering mentioning them.



Additionally, there were seven different types of advertisements to publicize the services offered at the *Instituto del Radio* located on Infantas Street 19 and 21, in Madrid. Big headlines were inserted in all of them, informing about the new treatments with radium being implemented to treat multiple ills that were incurable until that moment. This institute was advertised as one of the pioneers in implementing the latest developments in medicine, being the only establishment and the first foundation in Spain. In total, these advertisements were published 30 times in seven different formats, all of them in the *ABC* newspaper.

Another advertisement for radium, which was also frequently published, addresses the *Instituto Radiumterápico* of Madrid, located on *Paseo de Recoletos*, 31. It was published 104 times in ten different formats. All of them were published in *ABC*, except for one that was published in *La Vanguardia*. After studying these pieces, the great benefits that advertising brings, which are embodied in the famous phrase "who is not advertised is not sold" (Rodríguez, 2007), became noticeable, which means there were establishments people did not know about because they were not publicized, demonstrating that advertising during the period under analysis did work, and a lot, for these purposes.

Advertisements attract possible buyers with very little resources: typography and the appeal of words or praising the excellence of the product. Little by little, businesspeople started to realize the effects that advertisements have on possible consumers and, as a result, advertising became significantly important in newspapers. Until that moment, most of the advertisements had been texts that were inserted in the vertical columns, using different fonts to highlight the products being advertised, and sometimes they included very simple illustrations, copied from foreign publications (Rodríguez, 2007).

During the first years of the century, advertising was mainly editorial, in which illustrations were almost non-existent, but as we move forward in time, image gained prominence and presented, almost exclusively, the advertisement to the detriment of the text, which, as of this point, accompanied the image. Something that is incipiently noted in our group of advertisements, in which we find the case of Professor Mann: a picture of him in a rotogravure image. In the following advertisements that included images, there were photographs of the centers' façades, and, in two occasions, the images of patients were used by the *Instituto del Radio* to demonstrate their accomplishments. Obviously this would have been inconceivable today, but the lack of regulation, in that moment, made it possible.

Advertisements were increasingly depicting consumers enjoying the benefits derived from the use of certain articles, thus advertising began to present the benefits of consumption, to sell sensations, and to show the improved lives of consumers due to the use of the products being offered. It was around mid-1910s when advertising started to solidify progressively in newspapers and magazines, increasingly taking

up more space in them, and leaving behind the layout of all the advertisements in static pages to start distributing them throughout the whole publication.

During these first years of the twentieth century, the advertising market in the press was characterized by its instability. The lack of advertisers and the scarce diversity of advertised products were the reflection that the first steps of the consumption society in Spain were still very incipient. The poor visual presentation of advertisements, except for some isolated and exceptional cases, shows us this fragile and yet underdeveloped advertising market, but in which two different processes were taking place, on the one hand the advertising market development that went from the text to a more frequent use of the image, moving from rotogravure to photography, and on the other hand, the dissemination of information on technological advancements, specially, and in this case, the cure for health problems, where professionals, once they had envisioned their business possibilities, and at the same time their competitors', used advertising to offer their services.

## 6. CONCLUSIONS

Throughout our work, we have analyzed the advertisements related to the implementation of radium to treat cancer in two newspapers of a seemingly different ideology, *ABC* and *La Vanguardia*. How both newspapers handled this information is quite different in numerical terms, although regarding qualitative aspects there are important levels of coincidence. The insertion of advertisements is one of the most frequent elements, with completely or partially identical advertisements being published in both media.

In our case, advertising is decisive but this can also be affirmed to a lesser degree regarding preventive aspects, given the predominant belief that conceived cancer as an infectious process. Information on cancer, published in the press with the highest circulation in Spain during the period between 1903 and 1912, correspond to the advertising ambit in which innovative treatments were offered, in a time when cancer was still much unknown. This strong information bias regarding cancer promoted, in society, an excessively optimistic view about cancer treatment, its results, and its prognosis, since treatments that claimed to be "miraculous" and that had "excellent" healing properties to fully cure cancer were being offered.

In conclusion, we have noted that during the first years of the twentieth century in Spain, the press increased the number of pages devoted to advertisements, as well as a more stabilized position in them, and the number of advertisers and advertised products increased. The typographical treatment of advertisements was improved, image gained more prominence, and advertisement messages were refined. These data allow us to speak of the progressive consolidation of an advertising market since the first decade of the 20th century.

Therefore, advertising was the preferred showcase through which the new products that began to overwhelm the market were presented, as well as it became the key tool to introduce new trends and consumption habits into society, working also as a proactive and disseminating tool of the new lifestyles, the new customs, and the new roles of the consumption society. Although we must also consider, based on the aforementioned, that advertising can also be used by charlatans and deceivers to perform fraudulent activities.

There is an important element to consider in this section, which is access to reading, since it is an essential aspect to decode the information contained in the newspapers of that time. It is necessary to bear it in mind given the fact that a high percentage of the population did not know how to read or write, which determined the access to the preventive and therapeutic knowledge regarding health problems, such as cancer; all this, regardless of the predominant theories in the scientific field concerning oncology being more or less accurate.

Being part of a social class or another would determine people's literacy levels, and, therefore, it was decisive in accessing the information sources regarding health, a situation that still lingers today. Cancer is a disease that has a great impact on our society, and people's perception of the risk of getting it, or the actions someone could take to prevent it, or even the use of health services depends, among other factors, on the information received through the media.

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