

The boundaries of fraud: the role of the Spanish Real Academia de Medicina in the establishment of food safety and quality standards in the late-nineteenth century

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SUMMARY: 1.—Introduction. 2.—The Royal Academy of Medicine. 3.—Foodstuffs subjected to expert evaluation. 4.—The section of hygiene and Gabriel de la Puerta. 5.—Final remarks.

ABSTRACT: In the late-nineteenth century the regulation of food quality and safety experienced a clear turning point with the establishment of new sites for food controls, the emergence of new experts and the passing of food laws. One of the main changes in the regulation came with a reconceptualization of quality based on composition; a change which was in accordance with the standardizing trends then applied in each and every area of knowledge. In Spain, the Royal Academy of Medicine was one of the main authorities quoted in the search for official definitions of edible foodstuffs and for standardized compositions. The paper will focus on the assessment activity fulfilled by the Royal Academy between 1877 and 1902. Taking into account four relevant controversies on food regulation (those dealing with foodstuffs such as oil, wine, saccharin and paprika) it shall address its contribution to the establishment of food quality standards. The paper shows that this task was carried out very poorly and discusses the different factors which can explain this type of contribution. In order to fulfil this latter discussion, the training as well as the social and political activities of the main academicians involved in food quality assessments (such as Gabriel de la Puerta, Ángel Pulido, Juan Ramón Gómez Pamo, and Ángel Fernández-Caro) deserves special attention.

PALABRAS CLAVE: calidad de los alimentos, adulteración de los alimentos, Gabriel de la Puerta, Ángel Pulido.

KEYWORDS: food quality, adulteration, standards, Gabriel de la Puerta, Ángel Pulido.

1. Introducción (*)

The general food laws passed in many countries (UK, France, Spain, USA, etc.) by the end of the long nineteenth century (up to the First World War) were crucial for redirecting food policies towards the implementation of standards¹. As Lawrence Busch has noted, legislative bodies did not usually pass laws defining foodstuffs before the mid-nineteenth century². Of course, there were important exceptions. For instance, the *Reinheitsgebot* was a Bavarian act of 1516 that required that beer only contained barley, water, and hops. Nevertheless, the aforementioned general food laws were unique in introducing a huge amount of definitions and standardized proportions of the constituents of specific foodstuffs.

The agents involved at the time in the establishment of food standards are not clearly identified. However, we do know that scientific and medical academies usually participated in this task. In Spain, the foodstuffs that drew special legal attention eventually prompted reports by the Royal Academy of Medicine. The outstanding visibility of the Academy among the stakeholders involved in the definition of standards thus justifies an in-depth discussion on the actual role of this institution in such an endeavour.

Historians dealing with food safety have tended to focus on the economic and legal dimension of the problem, and have even explicitly disregarded or undervalued the role of the hygienist movement in the establishment of new regulations. This was the case, for instance, with Stanziani's *Histoire de la qualité alimentaire*³. However, the role of several scientific institutions, such as municipal laboratories, has also been thoroughly tackled. These laboratories and, specifically larger ones such as that in Paris, could have had some influence on law-making but these laboratories were more likely involved in applying pre-existing legislation through specific controls, as stated

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1. Young, James Harvey. *Pure food: securing the Federal Food and Drugs Act of 1906*. Princeton: Princeton University Press; 1989; Stanziani, Alessandro. *Histoire de la qualité alimentaire (XIXe-XXe siècle)*. Paris: Seuil; 2005; French, Michael; Phillips, Jim. *Cheated not poisoned? Food regulation in the United Kingdom, 1875-1938*. Manchester: Manchester University Press; 2009.
2. Busch, Lawrence. *Standards. Recipes for reality*. Cambridge, Massachusetts: MIT Press; 2011.
3. Stanziani, n. 1, p. 59.

in the literature⁴. Higher academies and national laboratories had a more decisive attitude in introducing new laws but the role of these institutions in food regulation needs further insight. There are several publications, mainly dealing with specific medical and scientific academies —and tackling food regulation as a minor goal, if at all— such as those by G. Weisz and M. Crosland⁵. Yet, such publications still leave important blanks in understanding the specific role of these institutions and are clearly insufficient to draw the bigger picture. This paper seeks to add to such publications by focusing on a peripheral medical community in contrast with the “central” Parisian community studied by the above-mentioned authors. In so doing, I shall pay special attention to the link between scientists and the State, like in the latter works or in other recent publications by authors such as Robert Fox⁶. The conclusions to which I shall come may, nevertheless, also differ from those in previous publications at this level, as I shall discuss in my final remarks.

I will focus on the period starting in 1877 and ending in 1902. Taking into account four relevant controversies on food regulation (oil, wine, saccharin and paprika), I shall analyse the role of the Spanish Royal Academy

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4. Scholliers, Peter. Food fraud and the Big City: Brussels' Responses to food anxieties in the nineteenth century. In: Atkins, Peter J.; Lummel, Peter; Oddy, Derek J., eds. *Food and the city in Europe since 1800*. Aldershot: Ashgate; 2007, p. 77-90; Guillem-Llobat, Ximo. The foundation of a new site for food safety regulation. The Municipal Chemical Laboratory of València (1881-1936). In: Andresen, Astri; Gronlie, Tore; Hubbard, William; Ryymin, Teemu, eds. *Healthcare Systems and Medical Institutions*. Bergen: Novus Press; 2009, p. 142-153; Atkins, Peter J.; Stanziani, Alessandro. From laboratory expertise to litigation: the municipal laboratory of Paris and the Inland Revenue laboratory in London, 1870-1914: A comparative analysis. In: Rabier, Christelle, ed. *Fields of expertise: a comparative history of expert procedures in Paris and London, 1600 to present*. Newcastle upon Tyne: Cambridge Scholars Publishing; 2008, p. 317-338; Pacquy, Lucie. Santé publique, repression des frauds et action municipale à la fin du XIXe siècle: Le Laboratoire grenoblois d'analyses alimentaires. *Revue d'Histoire Moderne et Contemporaine*. 2004; 51 (3): 44-65.
 5. On the French academies (of special influence for the Spanish) see for instance: Crosland, Maurice. *Science under control. The French Academy of Sciences 1794-1914*. Cambridge: Cambridge University Press; 1992; Weisz, George. *The medical mandarins. The French Academy of Medicine in the nineteenth and early twentieth centuries*. Oxford: Oxford University Press; 1995. On the role of the Academy and French physicians in food hygiene (including mainly issues on nutrition but also on safety), see also: Marchand, Claire. *Le médecin et l'alimentation. Principes de nutrition et recommandations alimentaires en France (fin XIXe - milieu XXe siècles)*. Tours: Université François-Rabelais; 2014.
 6. Fox, Robert. *The Savants and the State. Science and cultural politics in the nineteenth-century France*. Baltimore: The John Hopkins University Press; 2012.

of Medicine as an organ for expert assessment in food hygiene and safety. The period considered is especially interesting because it includes the years in which municipal laboratories were created in provincial capitals and food regulation shifted from mainly relying on organoleptic analyses to depending on chemical testing. This was also the period in which first attempts to establish new general food rules in Spain were made. The Spanish case is otherwise interesting due to its peripheral status as a scientific community while being central in the international food market, especially in sectors such as those including several of the above-mentioned products (oil, wine, and paprika).

The trend towards the standardization of food quality was global, as already mentioned. In Spain, the passing of rules such as the Royal Order of 4 January 1887 and the Royal Decree of 22 December 1908 was crucial in this sense⁷. However, we can easily understand that, although there was a general global trend, there were also visible specificities in the foodstuffs that generated more initiatives or discussion in one or another locality. In this paper, while focusing on the above-mentioned controversies, I will not necessarily deal with the main frauds in Spain at the time or even with the most controlled adulterations. Instead, the impact of these controversies could be best explained by considering multiple factors (cultural, economic, political, as well as medical) which could have appeared in different ways in other local cases. The case studies tackled in this paper will, therefore, be more interesting in evidencing these complexities than to show specific processes that could be easily extrapolated to other localities.

In analysing the role of the Academy in food regulation I will attempt to answer questions like: When was the Academy requested and by whom? Which was the actual role of the Academy in the establishment of food regulations? and How did it deal with its special expertise in food issues? Special attention will be paid to an outstanding historical actor, pharmacist Gabriel de la Puerta, and reference will also be made to other scholars such as Ángel Pulido, Juan Ramón Gómez Pamo, and Ángel Fernández-Caro.

The main materials used in this study include manuscript and printed reports, as well as other publications by the above-mentioned academicians; most of them found in the library of the Royal Academy of Medicine and

7. Guillem-Llobat, Ximo. Losing the global view in the establishment of new limits to food quality. The regulation of the food market in Spain (1880-1936). *Food and History*. 2008; 6 (1): 215-246.

the Spanish National Library. And in order to discuss the contribution of these academicians and evaluate other potential contributions that they could have made, we will rely on the works on experts and expertise by authors such as Harry Collins, Robert Evans and Graeme Gooday. From Collins and Evans, I shall borrow analytical categories such as those of contributory and interactional expertise and, from Gooday, I shall use his distinction between experts and authorities⁸.

2. The Royal Academy of Medicine

As from the 18th century, medical academies started being created throughout Spain. The one in Madrid was particularly relevant and in the 1860s it was transformed into a national institution⁹. The historian of medicine Luis Granjel has argued that the passing of some new regulations for the Academy in 1861 can be understood as a turning point in the history of the institution¹⁰. It was then that the institution became independent from political powers —being able to elect its presidents— and that happened despite its strong financial dependence on the Spanish Government, which became involved in its regular funding. The institution was implicitly identified as a national body (unlike other provincial academies) and it was from then on considered not only a governmental and judicial advisory organ but also a centre for research of increasing prestige.

The members of the Academy -up to 53- were divided into different sections; from these, the hygiene section was normally the one involved in answering queries related to food safety or hygiene¹¹. These requests were put

8. Collins, Harry; Evans, Robert. *Rethinking Expertise*. Chicago: University of Chicago Press; 2007; Gooday, Graeme. *Liars, Experts and Authorities*. *History of Science*. 2008; 46: 431-456.

9. The Medical Academy of Madrid was already active in the assessment of public health issues since the beginning of the 19th century. The works by Ignacio María Ruiz de Luzuriaga in relation to the «*cólico de Madrid*» or on the introduction of Jennerian vaccination stand as good examples of this activity as stated in Olagüe de Ros, Guillermo; Astrain Gallart, Mikel. *Una carta inédita de Ignacio María Ruiz de Luzuriaga (1763-1822) sobre la difusión de la vacuna en España (1801)*. *Dynamis*. 1994; 14: 305-337.

10. Granjel, Luis S. *Historia de la Real Academia Nacional de Medicina*. Madrid: RANM; 2006.

11. Granjel, n. 10.

forward by industrialists¹², courts¹³ or they were referred by the government ministries¹⁴, but only the latter path seemed to be acceptable. Though there is evidence of several requests from courts, I do not have any knowledge of any positive response to these. This was probably not the case with the provincial academies of medicine. There are documents that describe, for instance, a detailed analysis and response by the Academy of Medicine and Surgery of Barcelona to a request filed by a Catalan wine producer¹⁵.

The available documents show that the Academy constituted the ultimate and final source of expertise. When it was finally approached, previous reports had commonly been produced by physicians, provincial health boards, or municipal laboratories¹⁶. And even if no previous studies were mentioned, the reports by the academy were received as conclusive, only to be confirmed on some occasions by an additional report directly issued by some governmental organ such as the *Real Consejo de Sanidad* (Royal Health Council)¹⁷. Therefore, it is not at all surprising that some of these reports were directly included in the texts of food rules passed around 1900¹⁸.

3. Foodstuffs subjected to expert evaluation

The activity of the Royal Academy of Medicine in informing the Government for the passing of food regulations can be mainly followed up in the late

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12. [Regalo del vino ferruginoso natural de la finca Comellar de la Pena propiedad de D. Pedro Nogués]. Real Academia Nacional de Medicina (hereafter RANM); 1891-3.
 13. [Sobre la adulteración de café de bellota]. RANM; 1879; [Sobre la mezcla del aceite de oliva con aceite de algodón]. RANM; 1877.
 14. [Sobre la adulteración y sustitución del azúcar con la Sacarina]. RANM; 1888; [Expediente sobre adulteración de vinos]. RANM; 1886.
 15. The producer wanted to confirm the valuable properties of his wine, which had already been identified by a local physician, Dr. Cuchí, and the Catalan academy proceeded to analyse both the soil and the wine and issued a special report. See: [Regalo del vino...], n. 12.
 16. Codina Langlin, Ramón. Consideraciones sobre el uso del aceite de algodón en la economía humana. Barcelona: Est. Tip. de Narciso Ramírez y Comp.; 1873; [Expediente sobre adulteración de vinos]. RANM; 1886; [Sobre la mezcla del aceite...], n. 13; [Sobre el aceite adulterado]. RANM; 1877.
 17. Pulido, Ángel. Sobre la mezcla del pimentón y aceite. Madrid: Est. Tip. de Enrique Teodoro; 1902.
 18. For instance, the order banning the use of saccharin in food of 3 April 1889 included the report by the Royal Academy of Medicine.

nineteenth and early twentieth centuries, through specific cases such as those dealing with wine, paprika, olive oil vs. cotton oil, and saccharin vs. sugar¹⁹.

From the list of foodstuffs assessed, the first issue I can highlight is that relative to the role that these products played in Spanish society. Although wine and oil could have some nutritional effect, the nutritional state of the Spanish population did not rely on them. All these products had, however, a high economic value and a central role in the food market.

Why then would the Royal Academy focus on these foodstuffs in their contribution to food regulation? We must consider that all these cases implied reactive work on the part of the Academy. The institution reacted following an external request but it never planned actively, in an original way, to which areas of special interest it should contribute. Thus, the selection of the foodstuffs they addressed in their inquiries did not necessarily represent those present in major food-related health problems. This point will be further clarified by considering the four specific cases that I will analyse in the next paragraphs.

In the late 1870s the Academy received several requests about whether cotton oil or the mixture of cotton and olive oils should be considered noxious to the health of consumers²⁰. In January 1877 the requests were raised by the Court of the University District. With some delay, the Academy answered that if the request had mainly a forensic nature it had to be addressed to the *Cuerpo de médicos forenses de Madrid* (medical examiner corps of Madrid). If it was a public hygiene matter, it could be forwarded to the Royal Academy but only via administrative authorities (mainly the Ministry of Public Works).

A few months later the Academy received a new request in relation to the consumption of cotton oil and its mixture with olive oil. On this occasion the request was first raised when the chemist of the municipal laboratory of Alicante, José Soler Sánchez, found several samples of this mixture of oils. The local courts became interested in determining whether this mixture could be classed as being noxious adulteration, and the request was passed

19. Possibly the Academy was involved in other cases related to food regulation during that period, but my search for further information both at its library and among the numerous specific rules then passed in order to regulate the food market, has not been fruitful. Only for the aforementioned foodstuffs have I been able to identify the existence of an official report by the Academy.

20. [Sobre la mezcla del aceite...], n. 13; [Sobre el aceite adulterado], n. 16.

on to the local health board and to the medical examiner corps of Madrid. The local health board stated that, based on its effects on public health, it had to be penalised for adulteration, in compliance with the legislation in force. However, the medical examiner corps reported that the mixture was not noxious at all. The Academy was then summoned by the Governor of Alicante for them to give a final answer to the inquiry.

The Academy answered, once more, by referring the Governor of Alicante to the Ministry of Public Works. On this occasion, as we now know, the suggestion of the Academy was followed by the Governor of Alicante and a report was prepared on the matter²¹. Finally, the report was quoted and used as an important piece of evidence in a specific rule passed in 1880; one accepting the marketing of the mixture of olive and cotton oils (RO 15 June 1880). From a report drafted by the *Consejo superior de agricultura, industria y comercio* and published in the *Gazeta de Madrid*, we know that the mixture was not considered noxious and the controversy was mainly related to difficulties in identifying the mixture. The reports by Dr. Soler, the Royal Health Council, and the Royal Academy of Medicine were cited, and the main recommendation included the use of the thermic aerometer of Mr. Pinchou through a special methodology.

The assessment activity of the Academy did not include original research, and both the delay in answering and the lack of a medical debate point to their rather poor contribution to the controversy. However, it was still clearly perceived as the top authority for the resolution of controversies on food safety. The expertise of the Academy was represented as the basis for the passing of the specific regulations in 1880. But this is not the end of the story.

As discussed in previous papers, as from 1892 new rules were passed with a view to limiting and finally banning the use of other seed oils²². From then on, only olive oil was considered edible without further reference to health issues. Instead, economic interests were the main or even the only argument raised. The Academy's expertise was somehow devaluated, or bypassed to a certain extent, and despite being excluded from the discussion I have no evidence of any critical reaction by the institution. In fact, in their assessment of acceptable practices in paprika production, to which I shall

21. Apparently the Royal Health Council prepared a report in December 1877 in response to this request but the Academy did not do so until the 28 January 1880

22. Guillem-Llobat, n. 7.

refer later, they happily assumed that only olive oil was deemed edible²³. They thus fully accepted a legislation which contradicted the conclusion of the assessment carried out by their own institution.

Despite being bypassed in the controversy on oils, the Academy had been asked to report on other food safety controversies and it would still be asked to do so on subsequent occasions. After the oil report, the Academy received a request on whether the plastering of wine and the addition of salicylic acid should be considered adulterations²⁴. The request was raised by the city council of Zaragoza in 1886 and it finally reached the Academy through the Ministry of Public Works. But again, in this case the path followed by the request is quite informative of the attributions of different assessment organs and about how they were perceived by administrative and judicial institutions. The request originated following a number of analyses by the municipal laboratory of Zaragoza. With these, the staff of the laboratory concluded that some of the samples of wine that they had received had been treated with plaster or salicylic acid. The director of the laboratory then prepared a report in which these wines were described as noxious to health. However, it was not considered conclusive and higher organs were asked to report on such a statement.

The *Consejo superior de agricultura* (National Agricultural Council) was approached first. But this organ did not add to the controversy. It apologised for not participating, alleging that their expertise was in agricultural, industrial and commercial issues and the request did not fit into those categories. Whether or not these wines were adulterated had to be determined from a public hygiene perspective and, therefore, the Royal Academy of Medicine and the Royal Health Council were the institutions to be approached.

The request was finally addressed to the President of the Royal Academy of Medicine and forwarded to the hygiene section of the Academy. This section referred to its report about the adulterations of wines and based its assessment on it; this report had been recently prepared to respond to a previous request by the Ministry of Public Works.

The report of the hygiene section criticized the use of plaster for its health implications on consumers but it finally recommended one of the

23. Pulido, n. 17, p. 609-613.

24. [Expediente sobre adulteración de vinos]. RANM; 1886.

standards applied in France, the acceptance of up to 2 grams per litre of sulphates in wine. This was indeed the standard that Spanish legislation ultimately accepted and the one applied by municipal services for the repression of fraud (by municipal inspectors and chemical laboratories).

No original and specific experiments were quoted in the report. Only some expertise was displayed in relation to the chemical reactions that took place in wine once plaster or salicylic acid was added. However, for the evaluation of the health consequences of these additions, «hygienists» were generally quoted, with no specific reference to the work of one or another author. One of the central arguments against the addition was, nevertheless, a more general one linked to fair trade and the need to avoid fraud. The report stated that any substance extraneous to that of the normal composition of wine should be considered an adulteration and therefore banned. Moreover, it explicitly asserted that the issue raised by the request was not so much a public health one —those for which the Academy had its main expertise— but a commercial one. These statements and the contents of the report were therefore not in complete agreement with those that one could expect after having heard about the initial answer by the National Agricultural Council. The Academy, however, did not refuse its right to report on the issue of the request.

The 1886 report on the adulteration of wine was drafted by a special commission of the hygiene section. It included its president Joan Vilanova and its secretary Juan Ramón Gómez Pamo but the reader and main author of the text was Gabriel de la Puerta. The composition of this special commission was identical to that formed two years later to inform on the potential impact of saccharin on public health (a controversy of unprecedented magnitude in the international scene which has been studied in previous papers)²⁵. For the saccharin controversy, the report of the Royal Academy of Medicine concluded that saccharin had to be considered a drug and the trade of foodstuffs containing saccharin had to be banned. However, as with wine, the members of the academy did not carry out any original research and the alleged damage on public health (in this case, the lack of nutritional value and links to dyspepsia) did not seem to justify the regulatory action.

25. The drafting of the report about saccharin by the Royal Academy of Medicine has been analyzed in detail at: Guillem-Llobat, Ximo. The sugar industry, political authorities, and scientific institutions in the regulation of saccharin: Valencia (1888-1939). *Annals of Science*. 2011; 68 (3): 401-424

Moreover, in analysing the process by which the report was drafted I have been able to identify the deliberate omission of information which could have changed or qualified the Academy's conclusions²⁶.

Gabriel de la Puerta was also the author of the other major report of the Academy related to its expert assessments for the regulation of food safety, that on the mixture of olive oil and paprika²⁷. On this occasion, the controversy brought into conflict farmers and exporters of paprika from the regions of Murcia and Alicante. The former were against the mixture of ground pepper with olive oil because, according to them, this mixture would not allow them to control the price of the product and would be used to conceal all kinds of adulterations. The latter were in favour of a mixture that was very successful in the international market (beating Hungarian paprika in terms of sales at the time). The conflict was eventually tackled in Parliament, resulting in an incredible number of studies and regulations.

The mixture had been traditionally prepared in the provinces of Murcia and Alicante but the Governor of Murcia banned it in early 1902²⁸. In Alicante the mixture was still legal and —worried about the economic consequences that this could have for his region— the Governor of Murcia urged state authorities to ban the mixture throughout Spain. The request was redirected to the Royal Academy of Medicine and a special commission led, once more, by Gabriel de la Puerta drafted a report that declared the addition of olive oil not to be noxious and that it was not relevant as a way of concealing other adulterations. The Academy did not identify any significant public health issue supporting the ban and stated that the controversy was nurtured by economic arguments and the particular interests of the stakeholders involved²⁹. A couple of weeks later, the Royal Health Council drew up a new report which basically confirmed the points made by the Academy, and thus advised against the ban³⁰.

The reports were drafted, once more, without any original research and stood as rather poor contributions. However, one of the members of the

26. Guillem-Llobat, n. 25.

27. [Sobre el pimiento molido en la provincia de Murcia]. RANM; 1886-7.

28. Martínez Carrión, José Miguel. Agricultores e industriales en el negocio del pimentón (1830-1935). *Revista de Historia Económica*. 1999; 17 (1): 149-186.

29. Puerta, Gabriel de la. De la Sección de Higiene, referente a la mezcla del aceite con el pimiento molido. *Anales de la Real Academia de Medicina*. 1902; 23: 163-167

30. Pulido, n. 17.

hygiene section of the Spanish Royal Academy of Medicine, Ángel Pulido, had an extremely different approach to the issue.

Pulido, who was then Spain's Director General for Health (*Director General de Sanidad*), visited the region in the spring of 1902 and prepared a monograph with an in-depth analysis of the controversy³¹. His 600-page monograph included interviews with all the stakeholders in the controversy and the analysis of numerous issues related to the legitimacy of the mixture (including hygienic, chemical, agricultural, industrial, commercial, moral and legal issues). Health issues were considered from several perspectives, such as in relation to consumers as well as to workers' well-being. Pulido did not analyse any samples of paprika and he did not carry out any experiments on the physiological consequences of its consumption either, but his mastery in crossing the data and perspectives developed by the stakeholders involved in the dispute was impressive. His study and his participation later in the discussions on the regulation of paprika in Spain's Congress were in clear contrast with the usual operations of the Academy in expert assessment, i.e. those described for the paprika, wine and saccharin cases³². Nevertheless, despite Pulido's special participation and the report by the Academy, both considering the mixture legitimate, a RD finally banned the mixture on 31 December 1902. Again, the outcome was probably independent from the expert assessment of medical authorities, but still we must note that an alternative to the usual expert evaluations of the Academy existed and could therefore be resorted to.

Pulido's contribution showed that expertise could be practised in a more ambitious way. There was no need to follow the ineffective practices of the Academy, and yet, there was no visible change. It may be worth considering in more detail who was specifically involved in the drafting of these reports and try to understand why the Academy built its medical and chemical expertise in such a poor way.

4. The section of hygiene and Gabriel de la Puerta

The Royal Academy of Medicine included several sections dealing with specific topics. Food safety issues were normally tackled by the hygiene

31. Pulido, n. 17.

32. Pulido, Ángel. Discursos pronunciados en el Congreso de los Diputados a favor de la mezcla de pimentón y aceite. Madrid: Imprenta de los hijos de M. G. Hernández; 1902.

section, which included a number of members that fluctuated from 5 to 9 during the period considered in this paper. Among these, Gabriel de la Puerta was the most active member in the field of food safety³³. His involvement in this area of knowledge was not limited to his work at the Academy. He was also an author and a lecturer on the topic and was appointed director of the *Laboratorio de Análisis del Ministerio de Hacienda* (Laboratory of the Treasury Department) in 1893. But, as we shall see, he was not the only member of the Academy or of the section with potential expertise in food hygiene.

Gabriel de la Puerta was born in 1839 in Mondéjar, a village 60 km east of Madrid. He completed his high education in Madrid and went on to take a degree at the Science Faculty of the *Universidad Central*. He finished his degree in pharmacy in 1862 and his PhD dissertation a year later. He started lecturing at that same university and in other institutions shortly after, and by the end of the decade he was already Professor in Organic Chemistry. His career took different avenues, teaching other subjects such as history of pharmacy and inorganic chemistry. He was also involved in management tasks, as he was elected Dean of the Faculty of Pharmacy in 1900, a post that he held until his death. Gabriel de la Puerta was also a member in some of the main advisory organs; the Royal Academy of Medicine, the Royal Academy of Science, the Royal Health Council, etc. For the purposes of this paper we must also note that, as already mentioned, his specific expertise in food quality and hygiene was not only applied to the reports he prepared as member of the Academy of Medicine. This expertise was also successfully applied to his activity in and management of the Laboratory of the Treasury Department, as well as in his work as a senator. In the latter case, he was the author of a special private bill for the regulation of food quality and safety which was finally stopped by the lower chamber of the Spanish Parliament.

From this short overview of his career, we can already assume what could be confirmed in a deeper analysis, i.e. that Gabriel de la Puerta was seen as an «expert» or, in Graeme Gooday's words, an «authority», in food regulation³⁴. Based on his studies, his high academic positions and his

33. Gómez Pamo, Juan Ramón. Biografía de D. Gabriel de la Puerta y Ródenas. Madrid: Est. Tip. de la viuda e hijos de Manuel Tello; 1910.

34. Gooday, n. 8.

presence in the main advisory organs of the Spanish state he deserved to be considered as such. But, what kind of authority was he?

For his professorships in organic and inorganic chemistry at the *Universidad Central* and his involvement in the writing of influential handbooks in these subjects, as well as for his activity at the laboratory of the Treasury Department, Gabriel de la Puerta showed contributory expertise (as defined by Collins and Evans)³⁵ in chemical analysis. That was clear in several articles he published (before being elected member of the Academy) in relation to one of the above-mentioned controversies, that on edible oil³⁶. This expertise, however, was not always obvious in the reports he prepared as a member of the Royal Academy of Medicine. For instance, in the report on wine adulteration there was some reference to the changes in the chemical composition of wine after the addition of plaster but no further debate on the methods of detection and their limitations.

In the report about saccharin, this lack of use of his chemical expertise was even clearer³⁷. On that occasion the report did suggest a method of analysis to be used in the persecution of fraud. But this method was precisely the one included in the documents sent by the Spanish Government in their request. Thus, the report was not original in this sense and did not even include a brief reference to the limitations of a method which was soon strongly criticized.

As for the report of the Academy concerning the mixture of paprika and oil³⁸, one must note that it presented no detailed discussion about the difficulties that the mixture could imply for the detection of fraud; an issue which would prompt in-depth analyses and discussion at the time. Instead, it quoted three renowned French authors, Macé, Chevallier and Soubeiran, and focused on the description they made of frauds on an adulterated condiment similar to paprika. From the methods of adulteration described by these authors, the report highlighted the large number of them which did not imply the use of oil as a disguising treatment. The argument was thus not an original one and moreover it did not refer specifically to the product under discussion.

35. Collins; Evans, n. 8

36. Roldan Guerrero, Rafael. Diccionario biográfico y bibliográfico de autores farmacéuticos españoles. Madrid: Imphoe; 1976.

37. Guillem-Llobat, n. 25

38. Pulido, n. 17.

Gabriel de la Puerta had contributory expertise in food analysis but this was not apparent in the reports he prepared as a member of the Academy. Moreover, the Academy was mainly approached for its expertise on food hygiene and, in this sense, Gabriel de la Puerta can only be attributed interactional expertise (as defined by Collins and Evans). To some extent, this expertise can be assumed from his participation in events such as the welcome reception for the newly elected member to the Royal Academy of Medicine Juan Ramón Gómez Pamo. In his speech, Gómez Pamo presented an in-depth analysis of the state of the art of the sciences of nutrition, dietetics and food hygiene³⁹. Gabriel de la Puerta also participated as the discussant elected by the Academy, showing his interactional expertise in these topics.

Although he was not an active researcher in toxicology, physiology and other experimental sciences that were increasingly perceived as the basis for nutrition and food hygiene advice, he did have some knowledge, which enabled him to discuss these issues building on the work of other researchers. But once more, this expertise was usually absent in his reports.

In the wine report, when dealing with the noxious character of plastering or the addition of salicylic acid, he only included a general reference to hygienists with no detailed discussion or explicit quotation to specific research. In relation to the mixture of paprika and olive oil, he argued that the issue was more a commercial problem than a hygiene one. Thus, he did not refer to any study dealing with its toxicology or its nutritional value but, as I have already stated, he did not decline to write the report.

Furthermore, in his report on saccharin he not only avoided a detailed discussion of nutritional and hygiene matters but he also consciously omitted relevant information; namely, discussions to which he had access through the French report on saccharin; the one prepared by Brouardel, Pouchet and Ogier⁴⁰.

There are strong reasons to state that the problem with Gabriel de la Puerta was not one of ignorance, as I have just argued. Moreover, he was

39. Gómez Pamo, Juan Ramón. Discursos leídos en la Real Academia de Medicina para la recepción pública del académico electo D. Juan Ramón Gómez Pamo, doctor en farmacia, el día 15 de Marzo de 1885. Madrid: RANM; 1885.

40. Brouardel, Paul; Pouchet, Gabriel; Ogier, Jules. Saccharine. Son usage dans l'alimentation publique; son influence sur la santé. Annales d'Hygiène Publique et de Médecine Légale: 1888; 3(20): 300-318.

not alone in the hygiene section and, among his colleagues both from the section and from the Academy, there were several scholars with obvious potential expertise in the areas of food hygiene and the repression of food fraud.

Among others, I could mention the pharmacist Juan Ramón Gómez Pamo, who has already been cited for his welcome reception speech about nutrition, dietetics and food hygiene. Born in Arévalo (Ávila) in 1846 and trained as a pharmacist in Madrid, he interacted with the hygiene section of the Royal Academy of Medicine as from 1885 and remained there for several years until he changed sections. He was a co-author in the reports on wine and saccharin, where he could have contributed his expertise on nutrition and hygiene and mainly on food analysis (he was the author of an important handbook which included specific references to food analyses, *Manual de análisis química aplicada a las ciencias médicas*)⁴¹. However, as is the case with Gabriel de la Puerta, I can conclude that his contributory and interactional expertise was not fully applied in the drafting of the reports in which he participated.

In the hygiene section of the Royal Academy of Medicine there was another scholar with acknowledged expertise in food quality regulations and who was otherwise very well connected with the most relevant international initiatives for the establishment of common food regulations. I am referring to the hygienist Ángel Fernández-Caro, who was born in Barcelona in 1845 and studied medicine at the *Universidad de Sevilla*. Fernández-Caro was the main Spanish representative in the *Commission internationale pour la répression des falsifications* and since its creation, he was a very active member in the drafting of reports and in the main discussions. However, he was arguably not involved in the production of the above-mentioned reports on food regulation. He was neither quoted in them nor mentioned as a member of these commissions. As for the saccharin report, there is evidence that he officially asked for a copy of the text, which means he probably did not have access to it until it was already finished.

Another potential expert for the assessment activity of the Academy in relation to food hygiene was Fausto Garagarza⁴². Born in Hondarribia

41. Gómez Pamo, Juan Ramón. *Manual de análisis química aplicada a las ciencias médicas*. Madrid; 1874.

42. Puerto Sarmiento, Francisco Javier; Cobo Cobo, Josefa. *El Laboratorio Municipal de Madrid en el último tercio del siglo XIX*. Dynamis. 1983; 3: 149-172.

(Guipuzkoa) in the 1830s, he was appointed as Professor in chemical analysis at the *Universidad Central* after holding a position at the Universidad de Santiago. In Madrid, he also held the director position in the municipal laboratory for more than a decade. Thanks to his background and his close relationship with Gabriel de la Puerta, with whom he collaborated in the reform of the Pharmacy studies in 1886, he was a perfect candidate to participate in the drafting of the reports. But, once more, this was not apparently so. No reference to his work was included in the reports.

Ángel Pulido, from the hygiene section of the Academy, was another potential candidate for the food special commissions. Born in 1852 in Madrid, he graduated in medicine in 1873 and received his doctorate a few years later. He became member of the Academy in 1884 and it was in this position that he worked on a huge variety of medical and scientific topics. Most likely, he did not have the prominent specific credentials in food analysis of other members of the Academy but, as mentioned earlier, he was the author of the most relevant in-depth assessment of the period, that on the mixture of paprika and olive oil. The methodology he used in this study was clearly in contrast with that used in the assessments of the Academy (including that on paprika) and yet I do not have any evidence of any discussion or comments comparing both approaches.

Finally, in order to consider the expertise available for the members of the hygiene section of the Academy, one can also refer to the correspondent members of the institution. Since 1889, the Academy had, among its correspondent members, one of the main international players in the fight against adulteration, the Dutch hygienist Dr. van Hamel Roos. His main contribution highlighted by the academicians to accept him as correspondent member was his leading participation in the journal *Revue internationale scientifique et populaire des Falsifications*, so he was definitely valued for his important contribution to food regulation. Prior to his affiliation, Hamel Roos was already considered a renowned scholar by the members of the hygiene section⁴³. In any case, I have not identified any real involvement by such an international expert in any of the assessments; neither in previous ones nor after his appointment as a correspondent member. We do not even know if his journal was actually read by the writers of the reports, though Ángel Fernández Caro and Juan Ramón Gómez Pamo did not hesitate to

43. [Remisión de obra en opción al título de Socio Corresponsal]. RANM; 1887-1888.

praise the journal and its director in the evaluation reports of Hamel Roos' candidature (and although there is evidence of the reception of at least the first issue of the journal).

The list of scholars who could potentially have contributed to the assessments on food quality and safety can be further extended. However, there is arguably no need to do so in order to conclude that the lack of expertise was not an issue among the members of the Royal Academy.

5. Final remarks

In Spain, in the midst of the important redefinition of food regulations in the late-nineteenth and early-twentieth centuries, the Royal Academy of Medicine was, as explained, the most quoted medical authority. However, despite its prominent position, I have been able to identify important deficiencies in its involvement. I have highlighted that the foodstuffs they assessed were definitely not the essential ones in dealing with malnutrition. Contemporary authors would surely agree with this point and could possibly explain it by noting the role of the Academy as a reactive institution (in food quality assessments) rather than an active one. Particular economic interests led influential stakeholders to ask State authorities to force the revision of specific legislation, and only then did the Academy evaluate and report on food quality issues.

Moreover, when the members of the hygiene section engaged in assessments, they did not carry out original research on physiological or chemical issues. Their action was restricted to the revaluation of previous reports by other scholars or institutions, and finished after crossing the arguments and evidences considered in each case. The lack of original experimental work cannot be explained by the lack of expertise, as already stated. However, other factors may account for it. For instance, we could argue that the lack of funding and infrastructures made this original experimental work totally impossible. In 1865, for example, the Academy strongly complained to the state authorities because they were given less than half the funds allocated to other academies such as History and Moral Sciences⁴⁴. The Academy also had serious difficulties in finding a suitable seat

44. Granjel, n. 10

and when this finally happened in the 1880s, the premises did not include a laboratory or other similar research infrastructures. When in 1861 the Academy was relaunched as a «centre for research of increasing prestige», this did not really mean it would become a site where original research would be developed. In fact, it just meant that the scientific sessions in which academicians discussed current scientific research would be resumed⁴⁵.

It has been argued, however, that several members of the Academy had proven expertise to develop original research and even access to the necessary infrastructures; so was the case, for instance, with Gabriel de la Puerta, who had his laboratory at the University, and as from the 1890s also headed the laboratory of the Treasury Department. Moreover, the deficiencies detected in the assessments on food quality and safety were not only related to the lack of original research but also to a poor evaluation of existing data. They were unable to put not only their contributory expertise into practice but also their interactional expertise. Why didn't they build on this expertise then to deal with food hygiene requests? Although I do not have a straightforward answer to this question, I can conclude by making reference to the main factors that may explain this situation.

A first conclusion of the research project leading to this paper is that the authority in food regulation of the Royal Academy of Medicine was only 'noticeable' when its reports were in line with major economic interests. Thus, for instance, the report concluding that saccharin was to be banned from the food market was published in the Official Gazette as the decisive explanation for the ban, but the 1880 report on oils did not avoid the passing of rules considering olive oil the only edible oil. The members of the Academy probably knew it was not worth their effort (as with Pulido in relation to paprika) opposing certain regulatory initiatives. However, as already stated, they not only presented poor reports but also ended up contradicting their own views in cases such as that on edible oils and even deliberately omitting information relevant to their assessment task (as in the saccharin case).

45. George Weisz deals with the Medical Academy in Paris in a similar manner. He also mentions its low budget, if compared to other academies such as the Academy of Sciences, and explains how this would limit the possibilities to undertake, for instance, collective research. However, he does refer to the existence of a laboratory, or even laboratories, of the Academy. The Spanish case would thus be in contrast with the French one in this sense.

These two latter cases need further explanation. They could initially be explained by the theory of Political Capture. Despite their presumed independence from political power, the institution's economic dependence on the State Government may explain these bad practices as argued for the French Academy of Sciences by authors such as Maurice Crosland⁴⁶. The filtering of all requests through the Ministry could have contributed in this sense as well. However, I have no evidence of the personal conflict this could have generated among the academicians involved in the commissions. Conversely, I have evidences pointing to a different direction. Maybe the members of the Academy, especially those involved in food regulation, had a high sense of responsibility towards the State; higher than one would expect a priori.

Several of the above-mentioned scholars did not only have high academic credentials; they were also very active politicians. Moreover, their political activity was usually strongly committed to the regime; two of the main academicians who have been cited, Puerta and Pulido, were very active in one of the two large parties of the Bourbon Restoration period, the liberal party. Several of the members of the hygiene section (including Puerta and Pulido) would also be senators representing the Academy, and scholars such as Ángel Fernández-Caro were high-rank military. It thus seems more accurate to search for an explanation considering this 'shared statesman identity' rather than the existence of external and unwanted pressures. And in such case, one could understand why they ended up accepting and assuming regulations that benefitted strong local corporations such as those producing olive oil and beet-sugar.

The acknowledgement of the statesman identity of the academicians leads us to a very different context in the analysis of the role of the Royal Academy of Medicine. Instead of explaining the poor scientific practices of the special commissions, it suggests that, indeed, the assessments on food quality were never undertaken from a purely scientific perspective. Arguably, the hybrid nature of the evaluation was internally assumed although rarely disseminated.

I shall finish by suggesting that this approach could also be interesting in order to revisit further controversies on food regulation, those taking place at different sites and in different periods. Unfortunately, the strength

46. Crosland, n. 5

of the rhetoric of scientism has not made this possible (or easy) neither in the past nor today.

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