

Science, progress, and livestock engineering in twentieth century veterinary medicine in Spain^b

An awareness of the scientific and technological backwardness in Spain relative to other countries following the "Desastre" (military defeat by the United States of America in 1898 and the subsequent loss of Cuba, the Philippines, Puerto Rico, and Guam) made possible the dissemination and acceptance of modernizing ideas that characterized Spanish social life during the first few decades of the twentieth century. The demand for regeneration of the country that was manifested at the time gave rise to the need to design and carry out a policy of scientific and cultural modernization. In that project lie many of the keys to the transformation of Spanish society that took place in the first thirty years of the twentieth century. Veterinary medicine did not escape the pressure for modernization and reforms were undertaken which emphasized the scientific character of veterinary medicine, to replace the traditional image that it had acquired over the preceding centuries.¹

We would rather become engineers than carry on as veterinarians

Because veterinary medicine was not a new discipline, and in order to avoid any kind of comparison with its past, the reformers launched an active press campaign to change the name of the profession. However, apart from purely semantic questions, a profession was being developed which could undertake new forms of practice that were not traditionally associated with it. In the midst of growing and diversified social division of work, the term *engineer* was not just a casual choice, given that

Abstract

At the beginning of the twentieth century, Spanish veterinarians were faced with reforms that redefined their work. One objective was to promote the transformation of veterinary science in Spanish life, by emphasizing its scientific aspect as evidence of its modernization. Just one formula was applied to support professional interests in the reform and it implied a shift toward two disciplines that enjoyed high social recognition, namely, engineering and medicine. This sociological redefinition focused on the campaign launched by the veterinary press to change the name of the profession.

referred to a profession with high social esteem and with which veterinary medicine wished to compete on an even playing field. In this process of professional reorganization and sociological redefinition, the debate erupted over whether it was a good idea to modify the name of the profession. It is difficult to choose among the many pronouncements and initiatives that were carried out in favor of a name change, but some examples can be mentioned. They show that a change of name was defended by the leading veterinarians of the time and that the campaign, far from being a one-off, remained solidly in the veterinary press for over three decades.

Cesáreo Sanz Egana, Inspector of Livestock Hygiene and Veterinary Health in Malaga, illuminated this point by examining the words 'veterinario' and 'pecuario'. Citing the dictionary, especially that of the acknowledged authority, the Royal Academy, he pointed out that the word *pecuario*, from the Latin *pecuarius*, refers to livestock, while the term *veterinario*, from the Latin *veterinarius*, refers to beasts of burden. Egana, a strong supporter of the name change, reviewed the classical tasks of Spanish veterinarians, centered on horses and mules, i.e., beasts of burden. He added that there were signs of change in the growing interest in bovine and porcine livestock, which had surpassed equine livestock in economic importance. He justified his argument with the predictable demise of the horse as an engine, considering its "death warrant" to have been signed by the automobile and electricity, and he predicted that horses had an uncertain future, limited to rural environments.²

The author presents a very interesting dilemma for veterinarians, to choose between being clinical practitioners and sanitary agents (preferring the term *doctor* preceded by an adjective referring to animals), or being able to renew the livestock and rural world (preferring the term *livestock engineer*).³ Egana maintained that the term *doctor*, together with the epithet *zoological* or *zootechnical*, presupposed a sphere of application with little future, characterized by the decline of clinical practice and a dwindling number of subjects requiring treatment. On the other hand, he considered that the "happy association of vo-

wels" in the term *engineer*, qualified by *livestock*, met the goal of reformist aspirations, which leaned more toward optimal economic use of animals than toward purely clinical questions. In the last paragraph of his article he announced that the *Revista Veterinaria de España* (one of the main professional publications of the time) had found this designation to be perfect and would work to defend it, even if it reflected all the options in its columns.⁴ The approval by the *Revista* is not surprising, given that Sanz Egana was on its editorial staff. The emphasis on including the term *engineer* took on great importance, since *engineer* evoked the concept of higher education equivalent to university studies. The Moyano Act of 1857 divided non-university studies into two categories: "higher" education for engineering, architecture, diplomacy, and notary public, equivalent in prestige to university courses, and "professional" education for veterinary medicine, commerce, navigation, quantity surveying, and teaching, with lower social recognition.

The academic and professional curriculum shared by different specialist areas of engineering (mines, roads, canals, ports, etc.) had features which provided a strong corporate identity and great social prestige. These included six-year study plans based on physics and mathematics, which supposedly impart uniformity, precision, and self-discipline; and lead to employment as State officials; openings for membership of the civil service, etc. The status acquired by civil engineers in the first half of the nineteenth century was decisive in forming and consolidating the elitist image that would shortly thereafter be enjoyed by graduates of the new profession of "agricultural engineer". Course in agricultural engineering were created in 1855 to provide a type of expert in the field capable of correcting the technological backwardness of agriculture in a land that was predominantly rural.⁵

Agricultural engineers therefore became responsible for renewing Spanish agricultural activity and, by extension, taking on the transformation of rural society. Along the same lines, many veterinarians saw themselves as agents with a calling to carry out an analogous function, but exercised through the modernization of livestock farming which, along with agriculture, constituted the main economic activities in rural areas.

In 1911, José Fontela, a student at the School of Veterinary Medicine in Santiago de Compostela, commented in an article on the educational reform project that had just been presented by a group of university professors. The desired reform maintained the academic duration of five years but also introduced modifications in the system of student access. The "Regulations Project for the teaching and creation of a special degree for Livestock Engineers in Spain (now veterinary medicine)" not only changed the name of the profession, but also the method of student admission. As for other engineering degrees, students had to possess the higher secondary education qualification and have previously passed a certain number of subjects in the Faculty of Science. Fontela urged other students in Santiago to coordinate initiatives and exert as much pressure as possible so

that the new school would have the same standards as other degree courses and, from the first day of its existence, would be called the "SPECIAL SCHOOL FOR LIVESTOCK ENGINEERS" (author's capitals).⁶ An anonymous notice that appeared shortly afterwards extended the desire for the new building planned for the school of Aragon, which should satisfy two conditions: it should be hygienically beautiful and carry the inscription of a school for livestock engineers.⁷

The idea of maintaining the duration of the degree course, with the addition of tougher entry conditions, was an attempt to create a filter to ensure that the courses were only accessible to a minority of students from wealthy families. This trend to regulate not only the "quality" of the students but also the "quantity" is especially clear in the article by José Barceló, municipal veterinarian of Barcelona, published in 1911. Barceló considered that at that time there were too many schools (there were five) and that the need for veterinarians would be covered

LOS ALUMNOS DE INGENIEROS AGRONOMOS Y LA DIRECCION DE GANADERIA

Con ocasión del decreto creador de la Dirección General de Ganadería, los alumnos de la Escuela Especial de Ingenieros Agrónomos dirigieron a las Cortes y entregaron al presidente del Gobierno sendos escritos solicitando la revisión de dicha disposición, que lesionaba intereses de la economía nacional, desplazando al técnico de su función privativa, no para ponerle en pugna con otro, ya suficientemente capacitado, sino para substituirle sin admitir siquiera la libre concurrencia.

Al conocer ayer la organización, que aparece en la *Gaceta* del 8, en la que se crea el título de ingeniero pecuario, aumentó el disgusto entre los alumnos, que acordaron no entrar en clase, por considerar inadmisible semejante disposición, que facilita a los veterinarios para funciones que son peculiares de quien posea una preparación más justificadamente ingenieril.

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Fig. 1. News report on students at the School of Agricultural Engineering protesting against the possible creation of a degree in livestock engineering (ABC, 10/12/1931).

LOS INGENIEROS PECUARIOS

El Comité central directivo de la Asociación Nacional de Veterinarios nos ruega la publicación de una copia de las instancias que han dirigido a los ministros de Instrucción pública y de Agricultura, Industria y Comercio, y cuya parte fundamental dice así:

“Se dice una verdad a medias al decir que se autoriza a los veterinarios actuales para adquirir el título de ingeniero pecuario con la sola aprobación de un trabajo experimental o de investigación, porque se silencia que de los veterinarios actuales (cinco mil repartidos por toda España), sólo los que actualmente desempeñan las plazas técnicas de la Dirección general de Ganadería, obtenidas por oposición, o las del Cuerpo de Veterinaria Militar, al que se llega también tras rigurosa oposición, pueden aspirar, mediante un serio trabajo de investigación, a obtener el referido título. Los demás veterinarios, para alcanzarle tendrán que aprobar, sobre los estudios de una carrera, que en conjunto ocupan once años, no un breve cursillo, sino dos cursos especiales intensivos y un trabajo experimental o de investigación, dentro de un plazo máximo de tres años, transcurrido el cual no podrá aspirar al mencionado título.”

Dejando aparte estas excepciones, obligadas en un período de transición, la obtención del título de ingeniero pecuario requiere los siguientes estudios: Primero, el Bachillerato; segundo, doce cursos de carrera; tercero, la aprobación de un trabajo experimental o de investigación. Y precisa adquirir tres títulos: primero, el de bachiller; segundo, el de veterinario, y tercero, el de ingeniero pecuario. Pues después de hecha esta amplísima preparación científica, si quiere prestar sus servicios técnicos al Estado, ha de ganarse la plaza a que aspire mediante una dura y difícil oposición.

No ocurre, ciertamente, lo mismo con los ingenieros agrónomos. El ingeniero agrónomo nace ya funcionario técnico por derecho propio. Al término de su carrera, y sin requerirse para ello la aprobación de un trabajo experimental o de investigación, obtiene su título y queda inscrito en el catastro oficial en espera de destino.

Repetiendo razones que las Cortes Constituyentes de la República reconocieron en toda su poderosa extensión al votar la ley creadora de la Dirección general de Ganadería, siquiera estas razones sirvieran una vez más de dique a las querellas que el interés personal inspira a los ingenieros agrónomos, razones que serían al mismo tiempo

Fig. 2. Letter sent by the National Association of Veterinarians to the newspaper ABC (ABC, 31/12/1931)

by the output of graduates from a single center that taught “true science”.⁸ Indeed, restrictions on the numbers of students had already produced the desired results in the elitist engineering schools. The only agricultural engineering school in Spain, located in Madrid, therefore tightened up its entry requirements in 1874 with the aim of increasing the number of students with illustrious surnames, winning political support and obtaining prestige on the same level as other engineering schools that were not linked to the rural world.⁹

These reformers also placed *livestock engineering* in a privileged position compared with veterinary medicine. This is the only way to understand the heavy demands that the aforementioned base project imposed on those who wanted to obtain an equivalent qualification. According to Regulation 19, the purpose of the parity was to enable those veterinarians who had not done so to pass higher secondary level education, to take the stipulated preparatory science subjects, and to pass the new subjects included in the *Livestock Engineering* course. Similarly, Regulation 20 indicated that those holding the new qualification would have more legal rights than the veterinarians, as well as preference for appointment to official posts.¹⁰ Consequently, it proposed to supply the State with a small body of civil servants who were experts in livestock farming, following the practice governing the field of engineering as a whole.

It is also interesting to analyze the mechanisms used to popularize the new name and the attempts to bring this to the attention of veterinarians. Right from the beginning, as noted above, the use of the word *engineer* evoked an image of higher education that provided a wide range of experts with high social status. Consequently, those who defended a professional project with leanings toward those disciplines considered animals to be like machines. Their use was the same in physical and mathematical principles as the use of falling water to drive a turbine, the effect of heat on the expansion of metals, the working of a dynamo, or the explosive force of dynamite.¹¹

This desire to draw closer to the world of engineering also involved a rivalry that began to appear in the professional press with agricultural engineering, a discipline like veterinary medicine that was closely linked to the rural environment. It was precisely to this field that the municipal veterinarians of Barcelona, Benigno García and Ángel Sabatés, referred when they spoke of a “certain higher class, from a social point of view” that had included a course in animal pathology in their syllabus. According to these authors, the chance of those civil servants successfully diagnosing a medical condition, such as tuberculosis, was the same as that of veterinarians identifying plant ailments by including notions of agriculture and natural history in their syllabuses. They added that this was a deliberate attempt to exclude veterinarians from animal husbandry issues and, consequently, place this type of content in the exclusive sphere of agricultural engineering.¹² The latter was a relatively new discipline which had emerged from the need to offer some type of expert in agriculture in the countryside and which, as a consequence, did not count on a clearly defined space of its own in the employment market at the time of its creation.

Some texts from the reformist era therefore centered on recreating situations of conflict with the agricultural engineers in which the veterinarians fought to defend their territory in a hostile, obstacle-filled environment. As José Orensan, Inspector of Livestock Hygiene of Orense, recognized in 1910, the hoped-for conquest of animal husbandry was still to be decided at that time.¹³

Livestock engineering during the Republic

Félix Gordón Ordás, founder of the *Revista de Higiene y Sanidad Veterinaria* in 1911 (the term *veterinaria* was removed from the title in 1917 and it

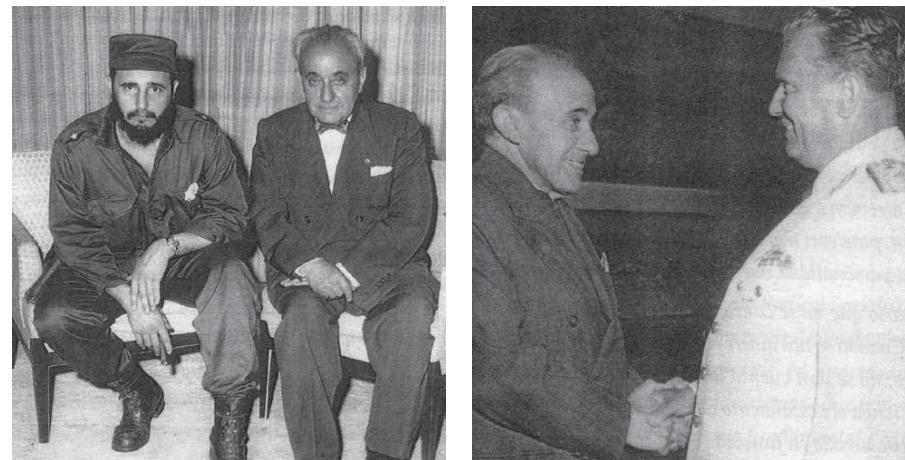


Fig. 3. The veterinarian and politician Félix Gordón Ordás was very active during the Second Spanish Republic (1931-1939) in trying to convert veterinary medicine into livestock engineering. His political career continued in exile after the Spanish Civil War (1936-1939). On the left: Gordón and Fidel Castro (Cuba 1959), on the right Gordón and Marshall Tito (Yugoslavia 1952). Photos taken from the book Félix Gordón Ordás y sus circunstancias. Apuntes para su biografía, pages 70 and 273.

reappeared as the *Revista de Higiene y Sanidad Pecuarias*) also joined the debate. A short time after the declaration of the Second Spanish Republic (1931-39), Gordón, a veterinarian and one of the most influential politicians of the time, introduced the term *livestock engineer* when speaking about veterinary training. In his proposal, Gordón stipulated that candidates for the new qualification would be required to 1) be a veterinarian, 2) take a one-year course (divided into two semesters) in the School of Madrid (which would be renamed the *School of Veterinary Medicine and Livestock Engineering*), and 3) carry out a research project.¹⁴ The civil engineers, now aware that Gordón's political power could make this old aspiration succeed, directly opposed the creation of the new engineering course. The activity of engineers having an influence on the republican parties, the agricultural engineers in particular, led the office of *Public Instruction* to finally shelve the *livestock engineering* project.¹⁵ This brought an end to a longstanding desire, the only aim of which was to modernize veterinarians by making them completely equivalent to engineers. Veterinary medicine would eventually improve both its administrative position and its social recognition, but that would occur by other means, the analysis and study of which is another story.

Notes

- J.M. Gutiérrez García, ‘Laboratory medicine and the identity change of veterinary medicine in Spain at the turn of the twentieth century’, *Dynamis* 30 (2010) 239-260.
- C. Sanz Egaña, ‘La evolución de la Veterinaria’, *Revista Veterinaria de España* 7 (1912-1913) 522-525.
- However, in the literature of that period it is common to find the indistinct use of these terms, even within the same article, to avoid the use of the terms *veterinary medicine* and *veterinarian*.
- C. Sanz Egaña, ‘Ingenieros pecuarios’, *Revista Veterinaria de España* 5 (1910-1911) 417-419.
- It is not surprising in this sense that some veterinarians included among their objectives that of becoming another engineering specialization. The prestige associated with the term engineer did not exist only in Spain, but also in Portugal. However, the equation between engineering and the professional and social elite that was generated on the Iberian peninsula did not occur in other European countries. For Juan Pan-Montijo, this shows that it was political prestige (derived from the process of formation of each individual nation) rather than the needs of an industrial society or technical progress, that was decisive in the genesis of the figure of the engineer. Juan Pan-Montijo, *Apostolado, profesión y tecnología. Una historia de los ingenieros agrónomos en España* (Madrid 2005) 62-71.
- J. Fontela Vázquez, ‘¿Deben llamarse ingenieros pecuarios los veterinarios?’, *Revista Veterinaria de España* 6 (1911-1912) 62-73.
- ‘La futura escuela de Zaragoza’, *Revista Veterinaria de España* 6 (1911-1912) 120.
- J. Barceló, ‘Acerca de la reforma’, *Revista Veterinaria de España* 5 (1910-1911) 483-487. This requirement, which probably had no consideration for civil society, meant that only children from the highest income families could apply for a course that would only be offered in a single school.
- Pan-Montijo, *Apostolado, profesión y tecnología* (n. 5) 105.
- The proposed reform is reproduced at the article by José Fontela. Fontela, ‘¿Deben llamarse ingenieros pecuarios los veterinarios?’ (n. 6).
- Sanz Egaña, ‘Ingenieros pecuarios’ (n. 4).
- B. García Neira and A. Sabatés, ‘El intrusismo profesional como causa de la propagación de la tuberculosis’, *Revista Veterinaria de España* 5 (1910-1911) 103-104.
- J. Orensan, ‘Impresión? ¿Juicio?’, *Revista Veterinaria de España* 4 (1909-1910) 445-447.
- José Manuel Etxaniz Makazaga, *Félix Gordón Ordás y sus circunstancias. Apuntes para su biografía* (León 2003) 304.
- Pan-Montijo, *Apostolado, profesión y tecnología* (n. 5) 269.