“War and Science. Training and advanced scientific preparation for Spanish military pharmacists after World War I, imparted on main European centers”*

* Project HAR 2009/09564 Ministry of Science and Innovation

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During the first decades of the 20th century and, mainly, at the end of World War I (1914-1918) many international organizations and coordinated working projects concerning public health emerged.

They sought to promote the exchange of experiences and performances regarding hygiene on the scientific and health environment.

In 1920, the *League of Nations* and its *Health Committee* became the main promoters of the development of international networks devoted to approach health problems.
Following this trend, which is sharing knowledge among countries with different backgrounds, this paper aims to analyze the procedures implemented by the Military Pharmacy of the Spanish Army as an attempt to update their own knowledge and review their professional performances.

The Military Pharmacy played a vital role in the Spanish pharmaceutical organization during Franco dictatorship.
The Military Pharmacy Section, at the beginning of the twentieth century, had 150 pharmacists.

The state of the Spanish Army was devastating.

It was small, badly organized, with low and poorly distributed budgets and in great need of urgent reforms due to its precariousness.

The whole country needed, among many other important reforms, a major reorganization of public health.

On the contrary to the rest of the Spanish Army, this section enjoyed a liberal environment:

presence in schools, literary and scientific-literary associations and participations on several publications to expose their knowledge, thoughts and criticisms about the Army.

43rd Military Pharmacy Promotion
(14-5-1920)
This group was well informed about foreign news related to the World War I, due to the monthly publication “War and its preparation” (1916), of the Ministry of War. Their sources of information were military attaches in various European capitals and observers sent to the war field.

Access was also available to professional foreign military health press. In this way, the Military Pharmacy was well aware of the Health Regulations of the rest of the European armies, especially of the French and German colleagues.

La Guerra y su preparación, 1916. Ministerio de la Guerra. Tomo XXV
In an attempt to imitate those more developed countries, the Military Pharmacy made an effort to send their best officers to the most prestigious centers abroad, and even war scenarios.

For this purpose, these pharmacists had two options: receiving an scholarship from the Government or being appointed in a service commission for the army. However, because of different reasons, very few pharmacists managed to do so.

**Act of constitution of the Board for Advanced Studies and Scientific Research (15-1-1907).**

Santiago Ramón y Cajal (Nobel Price in Medicine) was the president of this body. The main goal of this institution was to promote knowledge interchange among developed countries, granting scholarships to young graduates in order to study in the most prestigious centers of the world. Over 3,500 scholarships were granted between 1907 and 1939.
In 1920, two officers of the Belgian and U.S. Military Health (Medical Commander, Jules Voncken of the Belgian Military Health and Medical Col., William S. Bainbridge of the U.S. Navy) put forward the creation of an international organization of military health services.

The following year, the First International Congress of Military Medicine and Pharmacy was held in Brussels, where the International Association of Military Health Bodies was founded, including a Standing Committee entitled to organize successive Congresses every two years.
The main objectives of these congresses were scientific exchange and the implementation of the resolutions adopted at each congress in the adhering nations. The founding members were Belgium, Brazil, Spain, USA, France, Italy, UK and Switzerland.

The committee fixed the items to be covered during the conference, which included evacuation issues, social hygiene, relations between civil and military authorities, disinfection and prophylaxis, and clinical issues, spread over four or five areas: the general organization of services and medical, surgical and pharmaceutical areas.

These international congresses are still celebrated today, although since 1990 their name changed to International Congress of Military Medicine (ICMM).
One of the main sources of information for this article has been a set of reports of the first three international conferences:

- Brussels (1921)
- Rome (1923)
- Paris (1925)

They are mentioned in two official Spanish publications in military medicine and pharmacy of that time:

- Military Health Magazine (1911-1936)
- Military Pharmacy Newsletter (1923-1936)

The extension of the topics covered in this article has been limited according to the following aspects:

1. Temporal proximity of the congresses to World War I.
2. Coincidence in time with the Spanish war in the Protectorate of Morocco from 1920-1925. This conflict was a test for the Military Health Body, which had to put into practice many of knowledge acquired in these congresses.
3. Changes in the professional activities of the Spanish Military Pharmacy.
I International Congress of Military Medicine and Pharmacy  
(Brussels, 15-20 July 1921)

The Belgian King Albert invitation was sent to thirty countries. An exhibition of materials and health service displays were also held in Strasbourg.
During the months of July and August 1921, the Spanish army troops in North Africa faced one of the worst attacks known as the *Disaster of Annual*. More than fifteen thousand men lost their lives in these events in the East of the Protectorate of Morocco.

Immediately after the celebration of the first International Congress of Military Medicine and Pharmacy, Antonio Moyano Cordon, the Spanish delegate who attended to this congress, was appointed to an important *Health Commission* to act in Melilla.
The pharmacist, Antonio Moyano, played a vital role in the course of the investigation. His work consisted in the analysis of the potability of water, cities sanitation (collecting corpses, setting up cemeteries, hygienic matters...) inspection of food and beverage of the soldiers, analytical work in the Laboratory of Melilla and determination of the percentage of chlorine in the water of the territory.

The storage of drugs in the general headquarters of Melilla, Ceuta and Larache was arranged, in January 1922, in order to provide faster medication and nursing materials to pharmacies, hospitals, hospital ships and units health campaign.
The Alhucemas landing, conducted in the Rif area in 1925 by the Spanish army and navy, with some collaboration from the French allied in this conflict, meant the end of the conflict.

The medical knowledge learned since the First World War changed completely the concepts of medical-surgical care in the field, advising now to operate as close as possible to the front.

   Another innovation was the group of mobile surgical hospitals located closely to the front line to shorten the operative time period.

Military health staff in the conflict of Morocco. (1909-1927)
The Italian monarch, Victor Emmanuel III, and his Prime Minister, Benito Mussolini, welcomed delegations from twenty-five countries in the opening session, in Campidoglio. The International Committee of the Red Cross and the National Committee of the Belgian Red Cross also attended the congress.
Certainly, some changes were observed in the Spanish military health care, in terms of professional recognition for pharmacists and their participation in new tasks based on chemistry and toxicology.

However, this situation also increased the desperation of the members of the Military Health Body, that possessed knowledge of what should be changed in the Spanish system, but failed to do so because of the Spanish isolation from the European trends in practically every aspect.
III International Congress of Military Medicine and Pharmacy
(Paris, 20-4-1925)

A total of forty-two countries and 2,700 delegates attended this congress. It was a great success. The president of the congress was the Medical-Inspector Vincent, father of the typhoid vaccine. Parallel to this congress, another important event took place: an industrial and commercial exhibition organized in collaboration with Ministry of Commerce, to show technical material present in field medical units.
The discussion included these four topics:

1. Technical specialization as a base for the Health Service in the Army.
2. Recruitment methods.
3. Etiology and treatment of traumatic arthritis and consequences.
4. Analysis of healing and suture and methods.
The conclusions drown on this issue were implemented in the *Cure Laboratory*, installed in Badalona in 1923, which improved its facilities and perfected its work plan in August of 1925.

Its location in Catalonia, at the gates of Barcelona, the center of trade and Spanish textile industry, made possible to envision the success of the center.

At the beginning, the center worked with cotton wool and gauze, as well as washing machines and folding machines distributed at different locations and departments.
In December of that year, 1925, the specialization courses in military pharmacy were reviewed and updated, providing them with a wider level of knowledge than the previous version.

These courses were distributed into four sections:

– Expertise in Services (Analysis of the pharmaceutical and chemical materials currently used and possible modifications and improvements).
– Chemical analysis of campaign food and other elements.
– Preparation of new products.
– Improvement of product development.
Conclusions

The main objective of these congresses, which could be summarized as sharing new knowledge and information, was successfully met and their repercussion became slowly palpable from 1921.

The Spanish military pharmacists made an attempt to reach the same level of qualification their European colleagues had and they faced important limitations.

– In a theoretical level, this goal was achieved. It is important to remark that, in fact, thirty years later, many of the clinical practice and health regulation developed then were still valid.

– However, the Military Health Body had many barriers that hindered the implementation of these theoretical concepts.

Three key issues remained unresolved until the end of the Spanish Civil War (1936-1939):

– the lack of a general pharmaceutical inspection agency, as an autonomous group from the Military Health Body,

– the ineffective distribution of the storehouses for drugs through the territory, which forced to organize central deliveries, and finally,

– the obsolete regulations for the pharmaceutical service campaign, which included materials in disuse.
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