



## “EVALUATION OF LATIN AMERICAN MATERIA MEDICA AND ITS INFLUENCE ON THERAPEUTICS”.

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The discovery of the new world, in 1492, by Christopher Columbus, brought about a revolution in both spirit and mentalities. Progressive knowledge of it conditioned many activities, giving rise to the vast Spanish American empire, which lasted for more than three hundred years. The data that have been collected, despite all uncertainties, show us a vast, incredible and varied world full of natural riches. The information that has come down to us, through more than five hundred years, still awakens interest among historians. The sources are varied and of heterogeneous significance. But, taken together, they enable us to see an integrated panorama.

Various main blocks of sources that have concerned the specialists can be differentiated. Logically, the first documents are the diaries and writings of Columbus himself and related texts. Next comes the *Chronicles of the Histories of the Indies*. They provided extraordinary information that never ceased to amaze Renaissance society, which welcomed them enthusiastically.

By the middle of the 16<sup>th</sup> century a hundred or so plants with various uses had already been described. Among these were some thirty medicinal plants that have been difficult to identify from the documents, but have been clarified by knowledge of the daily practice.

This information in the *Chronicles of the Indies* was concretised and consolidated in two *fundamental scientific texts*, the books of Nicolás Monardes and the immense work of Francisco Hernández, on which there are excellent studies. In turn these works were the basis for many others.

Other information that has reached us from the American *Materia Medica* comes from *Royal instructions and documentation from the Administration of the Indies*. All this documentation shows that the whole process of discovery and colonization was a policy mediated and directed by the Crown. The Royal Warrant granted by Philip II, in January 1570, appointing “Protomédicos” for the Indies established centralized laws over the organization of American medicine and gave an express mandate that information on medicinal plants, wherever found, should be sent back to Spain, ordering that experiments and all possible trials should be carried out.

The *Relaciones de Indias* also initiated in the time of Philip II, are the result of statistical, historical, geographical and administrative work. They are vital historical sources for all fields. All this scattered and heterogeneous information reached the most important medical and pharmaceutical authors, who tried to *assimilate the therapeutic novelties of the American drugs in medical and pharmaceutical texts*.

Private account and the enormous mass of documents relating to the actions of the religious orders occupy a special place in the sources. We are far from integrating this inexhaustible source of information.

It also opened up an impressive field for naturalists. The new drugs that arrived from America had to be observed, described and tested; Monardes, Clusius and Valerius Cordus played outstanding parts in this task. The most useful materials of our naturalists such as Hernández, Sessé, Ruiz y Pavón, Celestino Mutis, etc. were filed away and dispersed before they became known. They are a series of documents of the greatest importance for the history of science in general.

Following the route in which American drugs were incorporated into medical and pharmaceutical scientific texts requires a differentiated level of knowledge that is essential if we are to make any type of evaluation. It seems that the appearance of Monardes' complete work in 1574, describing close to a hundred American drugs, should mark the path of transmission, assimilation and greater awareness of such information. However, the analysis of Spanish books of the 16th and 17th centuries presents a desolating panorama; the pharmaceutical texts of the 17<sup>th</sup> century speak of only eight fundamental drugs of American origin. We have to wait until well into the 18th century for wider information about American drugs.

A special and extremely suggestive chapter is made up of the medical missionaries' herbaria and some of the Hospital formularies are of great medical and historic significance.

As could have been expected, it was only at the beginning of the 18th century that there is reference to a significant range of American drugs. Eighteen drugs are represented; that would form the nucleus of the principal medical and pharmaceutical textbooks. The situation is even less comprehensible when we realise that American drugs enjoyed greater acceptance and diffusion in Europe than in Spain, in spite of information about them being indirect and dependent on the Spanish trade monopoly. The edition of the *Dispensatorium* of Valerius Cordus of 1592, that is, a hundred years after the discovery of America, refers to ten drugs, and, fifteen new drugs are incorporated in the 1666 edition

Nicolás Lémery, at the end of the 17th century, provides us with an excellent picture of the knowledge of drugs at that time, including those of American origin. Another great pharmaceutical text, the *Dispensatorium Branderburgicum* (1698), gives thirteen American drugs, and in successive editions, until 1781, over the years, lists twenty-six drugs of American origin, sometimes more, sometimes fewer. The *Pharmacopoeia Edinburguensis* (1784) has a similar content. The *Pharmacopoeia Matritensis* I (1739) includes 21 drugs from American plants. It is a very representative selection, which appears in the great majority of the world's pharmacopoeias.

From the end of the 18th century, logically, the extent of the incorporation of new drugs of American origin is very different and requires special consideration. In Spanish pharmacopoeias, similarly to other pharmacopoeias, a further 33 drugs, with slight differences, were incorporated. The *Pharmacopoeia Germanica* I (1872) describes *thirty-two* American drugs. It is not a question of including one more or one less drug in the inventory. Rather it is to search in the texts for the more permanent and widely used drugs in this therapeutic arsenal

Yet we must not forget that the most important factor is *the real of the use of American drugs*. It is without doubt, in research terms, of enormous significance and yet, paradoxically, the one to which the specialists have paid least attention. It is the final link in the chain but no less important for that. It marks the difference between the level of scientific knowledge and the degree to which the drugs were really used.

The level of development of the cities would be a decisive factor. In this sphere, any geographical generalization is a clear error.

The inventories of medicines and, above all, the accounts of medicines made up and dispensed in hospitals, are evidence of unquestionable importance. The prescriptions and accounts represent the true level of therapeutics. Significant data have been established on the first appearance of American drugs, the time they remained in use and their disappearance. The real level of use, as was to be expected, is slight. In the Royal Hospital of Granada, from its foundation, at the beginning of the 16th century, there appears the continuous use only of Guaiacum wood and Sarsaparilla root. In the accounts of the Royal Pharmacy of Madrid, in 1544, only Guaiacum appears to be used; in 1573: Anami gum; *Amyris carana* Humb; Guaiacum wood; *Bursera tomentosa* and Sarsaparilla root

In a private Pharmacy in Madrid, in 1570, reference is made to *Convolvulus mechoacana* Vitm. From 1617, in the Hospital of Antequera, only seven American drugs are mentioned. In 1626 *Sassafras* appears on the scene

The case of *Cinchonas* is the most studied and controversial. It is accepted that quinine arrived in Italy in 1632; some authors state that it was sold in Spain from 1638. Dr. Bravo de Sobremonte, in 1649, makes mention of *Cinchona*. The widespread and continuous use of *Cinchona Officinalis* does not appear in the Hospital of Antequera until 1697. The situation in the hospitals of Seville and Cadiz were, logically, somewhat different. The uninterrupted presence of *ipecacuanha* is only found after 1745, in the College of the Company of Jesus in Madrid. These are only examples, but significant.

In the 18<sup>th</sup> century we have abundant information about the distribution of *Cinchona* from the Royal Pharmacy as a charity to many hospitals throughout the country and to foreign Courts.

First the Royal Pharmacy, and afterwards the Botanical Gardens of Madrid, are two of the Royal Institutions that drove and coordinated the scientific work. Trials of drugs were widely practiced in the Hospitals.

A complementary source is the *reports on the trade in American drugs*. These are decisive for the true evaluation of the presence of American drugs in Spanish and European therapeutics.