MEDICINA y SEGURIDAD del trabajo

Medical biographies and their historical significance. The figure and the work of Bernardino Ramazzini (1633-1714)

Las biografías médicas y su significado histórico. La figura y la obra de Bernardino Ramazzini (1633-1714)*

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Abstract

The figure of Bernardino Ramazzini has been the subject of much research in a wide range of fields. The literature varies in its level of interest and in general leans towards a hagiographical approach. Written from the perspective of new currents in historiographical research on the biographies of scientists in general and doctors in particular, the aims of this work are twofold: on the one hand, to review some of the studies made of Ramazzini from different history of science and medicine perspectives, and on the other, to reconstruct the significance and most relevant features of his contributions to the genesis and development of Occupational Medicine.

Key words: *Ramazzini, Bernardino; Eighteenth Century; Occupational Medicine, History, Medical biographies.*

Resumen

La figura de Bernardino Ramazzini ha sido objeto de abundantes acercamientos desde muy diversos ámbitos, de interés desigual, y, en general, con un fuerte componente hagiográfico. Desde la perspectiva de las nuevas corrientes historiográficas sobre las biografías científicas en general y las de los médicos en particular, el objetivo del trabajo es doble: por un lado, hacer un recorrido sobre algunos de estudios a él consagrados desde diferentes perspectivas ofrecidas por la historia de la medicina y de la ciencia y, en segundo término, reconstruir el significado y los rasgos más relevantes de sus aportaciones a la génesis de la medicina del trabajo y la salud laboral.

Palabras clave: *Ramazzini, Bernardino; Siglo XVIII, Medicina del Trabajo, historia; Biografías médicas.*

INTRODUCTION

Medical biographies, the framework of this study, are one of the oldest historiographical genres. There is a long tradition of bio-bibliographical dictionaries which set out the life and publications of the leading medical figures. A paradigmatic example is the *Biographisches lexikon,* published in Berlín in 1929, a useful reference work which provides personal information that we can use in teaching and research. Another important example in Germany is the *Grosse Aertze* (München, 1932) by Henry Sigerist.

Today, this genre is a dynamic area within the field of medical and scientific historiography. In recent years there has been renewed interest in this subject but from positions which differ from the traditional perspectives. It is a genre that lends itself to the development of a presentist view of history and apologetics, among other reasons because it offers suitable conditions for the veneration of the past but also offers an unreliable view of reality[1]. It is not possible to limit the biography to the mere *imitatio herois* of which Laín Entralgo had written in his monograph on the great doctors[2]. Exponents of these new perspectives are to be found in a series of papers that have substantially modified the biographical approaches; either from a reflection on their historical significance[3] or in their application to a specific field such as the case of Michael Bliss on the internist and *regius professor* of Oxford University, William Osler[4], one of the contemporary physicians who has been the subject of the most studies.

This interest in biographical discourse illustrates the tension between the singularity of the individual and his or her unique, unrepeatable life and the representative being of a specific epoch, movement or process. Ramazzini, the Italian author, is an essential reference in the history of occupational medicine, epidemiology, and occupational and environmental health. Indeed, Ramazzini is an icon, and the most literal sense of this iconic vision is the image taken from J.G. Seiller's engraving (1716), which has been widely disseminated and reproduced in numerous historical and current texts on pathology and occupational health.

An example of this interest is the reference to Ramazzini in the pages of the first issue of the *Il Lavoro. Rivista di Fisiologia, Clinica e Igiene del Lavoro*, where he was described as the "glorious Italian doctor" who two hundred years before had aroused interest throughout the World in the health of working people. Edited by Luigi Devoto (1864-1936), the man who at the beginning of the century in Milan inspired the *Clinica of the Lavoro*, the journal became the official voice of the Società Italiana di Medicina del Lavoro set up some years later[5]. However, this recognition came after long decades of neglect of his person and his work. In spite of the initial success of his most emblematic work, of *De morbis artificum diatriba* (1700) which, as we shall see below was reedited with new contributions and translated into other languages throughout the eighteenth century and the early decades of the nineteenth century, in fact his work was largely ignored until the beginning of the twentieth century.

The aims of this article are twofold: on the one hand, to trace some of the studies on Ramazzini from different perspectives of the history of medicine and science, and on the other, to reconstruct the most relevant sense and features of his contributions to the birth of occupational medicine and occupational health.

THE PRESENCE OF RAMAZZINI IN MEDICAL AND SCIENTIFIC HISTORIOGRAPHY

Abundant references to the meaning of the Ramazzini's work are to be found in most general histories of medicine and science. However, he is not included as an entry in the monumental *Dictionary of Scientific Biography* (1970-1980). This absence can be explained if we take into account the fact that the dictionary carries biographies of scientists from all fields of knowledge. On the contrary, we do find references in other general works, from those published in the mid-twentieth century[6] to the most recent[7]. All the entries refer to his pioneering role in the concern of doctors for the health of

working people. They also quote biographical data such as the fact that he was a contemporary of Giovanni Maria Lancisi (1654-1720), the arquiater of Pope Clement XI and professor of the *La Sapienza* in Rome, and had a close relationship with the pathologist *avant the lettre*, Giovanni Battista Morgagni (1682-1771). Mention is also made of his correspondence with Marcello Malpighi (1628-1694) and how he influenced other such authors as Charles Thackrah (1795-1833), who wrote a brief and well-known leaflet under the title *The effects of Arts, Trades and Professions and of civil states and habits on living on Health and Longevity* (Longman, London,1831). The most recent reference book on medical biographies offers a detailed entry on Ramazzini including the most representative secondary bibliography[8].

The contextualization of the Italian author within the framework of the social, political and scientific situation of the time and the manner in which he fits into the scheme of the history of occupational health offer clues to the understanding of his work. The incipient industrialization of Europe during the seventeenth century meant doctors were faced with new health problems arising from new occupational activities. Ramazzini would take his place in the tradition which commenced at the start of the modern period. At the height of the Renaissance, Paracelso described the illnesses which afflicted miners, Georg Agricola (in his treatise on mining techniques) had gone so far as to propose technical improvements to protect the health of miners and Mateo Alemán produced a secret report on the labour conditions in the Almadén mines. In the seventeenth century, there was an increase in the numbers of this type of study and new initiatives were taken such as clinical observation in other non-mining occupations. While not detracting from the importance Ramazzini's work, these studies do indicate that it did not appear spontaneously but was rather another step in a process and tradition which would continue into the future. At the height of the Enlightenment, between 1779 and 1789, Johann Peter Frank published the first systematic treatise on public hygiene which included abundant references to the health of working people and throughout the eighteenth century numerous monographs appeared on diseases related to the world of labour[9]. Classic works include the contributions of two important historians of Italian medicine who in the years between 1930 and 1960, contextualized Ramazzini's work within the context and culture of his time and the cities in which he lived[10]. The great historian of public health, G. Rosen, usually sparing in praise and gratuitous hagiography, considered that Ramazzini's work was as crucial as Andrés Vesalio's *Humani corporis Fabrica* (1543) had been for the history of anatomy or G. B. Morgagni's contributions had been in the history of pathology[11]. Finally, we cannot ignore the existence of the Collegium Ramazzini in Modena, the fact that the *Istituto di Storia della Medicine della Università degli studi di Padova* regularly organizes scientific conferences on Ramazzini and his times, and that testament to his inspiration can be found in other various eponymous societies[12].

Separate attention needs to be paid to the collection of studies written by labour medicine and labour health professionals. As we mentioned above, since the early institutionalization of this field these experts have held the figure of the Italian author as an essential reference. There are huge numbers of studies in journals[13] and specialty monographs, introductions to anthologies of Ramazzini's texts or, even more frequent, the transcription and/or translation of his most emblematic work, *De morbis artificum*. This is the case, for example, of the Spanish edition (1983), produced under the auspices of the National Institute of Safety and Hygiene at Work and based on the Padua edition of 1713 with the addition of the biography written by his nephew and published in *Opera Omnia* (1718)[14]. The dedication and presentation of the work could not be more expressive: the edition was planned as a homage by the National Institute of Health to all those health professionals who had in one way or another focussed their activity within the field of occupational medicine. It would be the start of a "cultural library of occupational medicine, something which links us to our origins and allows us to access the vitality that our authors exude"[15]. Although in chronological terms there was a Spanish language edition published previously in Argentina, its impact was far more limited. The translation of 1983 is extremely thorough and of great interest. It is the work of philologists and has

a well-documented prologue. Recently, in 2007, the National School of Occupational Medicine-Health (part of the Institute Carlos III since 2000) has undertaken the task of reediting the work.

THE FIGURE AND HIS WORK: THE BEGINNING

Unlike the experience with many other authors, in the case of Ramazzini modern-day historians enjoy copious information provided by the author himself through his work and his epistolary with such relevant contemporaries as Morgagni or van Leuwenhoeck (1632-1733), the biography written by his nephew[16], the references of later authors and the historic studies on the figure and his times.

First and foremost it should be said that he was a worthy representative of Baroque medicine and in this sense, we should highlight the range of subjects in which he took an interest; from medicine to experimental sciences, to philosophy or literature. Nor was his interest purely humanistic (his knowledge of the classics and philosophy), it was also human and characterised by compassion. Derived from the Latin term *cum passio*, literally 'suffer together', compassion is a human sentiment which reveals itself through an understanding of the suffering of others[17]. As has often been pointed out and as he himself reported, to a large extent Ramazzini wrote his most emblematic work as an empathic response to some of those people whose professions represented a serious health risk.

The many biographies of the author share the same series of milestones that we will synthesise. According to the information on the cover of the editions of the *Opera omnia*[18] "*carpensis philosophi ac medici*", Ramazzini was born in Carpi, in the Emilia Romaña, on 4 October 1633. After an early training with the Jesuits in his home town, he graduated in philosophy and medicine in 1653, in Parma. He then left for Rome together with Antonio María Rossi (1588-1671) and later practised in Canino and Marta, in the Dukedom of Castro, where he contracted malaria, an endemic pathology in the dukedom and adjacent regions, which forced him to return to his home town.

His departure for Módena, in 1671, provided him with the opportunity to act as assistant to Antonio Ferrarini and it was there, twenty years later, as a result of his growing reputation, that he would be appointed court physician. He was hired as Professor of Medical Institutions and Theory of Medicine in the refounded university. During this stage he wrote various commentaries on Hippocratic texts, hydrological issues and questions of physics and geology. Among other honours, he was invited to join the *Academia Naturae Curiosorum* in Vienna. Ramazzini joined the ranks of the followers of environmental determinism19, first inspired by Hippocrates. Thomas Sydenham (1624-1689) would become the key figure of the movement in the modern period, which explains how he came to be known as the English Hippocrates. Ramazzini, on the other hand, earned the title 'Hippocrates III' or the 'Latin Hippocrates', as he was known to the members of the *Academia Caesareo*-Leopoldina *naturae curiosorum,* In both cases, Sydenham and Ramazzini borrowed from Hippocrates' writings the idea of the so-called "epidemic constitution" in order to explain the variations in presentation of many diseases in relation to changes in the season of the year and atmospheric accidents[19]. Consequently, and in association with the importance given at the time to barometric measurements and the possible influence of alterations in air pressure on the presentation of diseases and in their treatment, Ramazzini took part in some of those controversies that arose and which involved such protagonists as the illustrious G. Wilhem Leibnitz. (1646-1716).

THE CONSOLIDATION OF AN EDUCATOR

Ramazzini's move from Modena to Padua, in 1700, was a milestone in his professional activity and social standing. Buffy he was appointed by the Senate of Venice as Second Professor of Practical Medicine at the prestigious University of Padua and would later

become First Professor and Dean of Faculty. Taking as primary source the biography written by his nephew and included in various editions of the *Opera omnia*, his biographers describe how the new distinctions and prestige social were accompanied by a deterioration in health. After 1705 his sight became so bad that he required the assistance both of a scribe and of those nephews who lived with him and helped in reading to him and transcribing his thoughts. During his time at Padua and as he reached personal and professional maturity, Ramazzini produced what would become a legacy of reflections on different issues such as those included in a fascinating work, published in the year of his death, in which he incites doctors to widen their cultural horizons through travel and contacts with other doctors, just as he had done[20].

It is also important to underline Ramazzini's position in the polemic between ancient and modern[21]. He is considered a disciple of Giovanni Battista Borelli (1608-1689), one of the key figures in the iatromechanics branch[22] which together with the iatrochemistry school was decisive in these times of transition on the path towards new schemes in the history of medicine[23]. His attitude to modern developments is illustrated by the use of the bark of the cinchona tree as an antipyretic, which stands as a type of standard for supporters of a new approach to medicine and which, on occasions, brought direct confrontation with the concepts of traditional Galenic pathology. The success of quinine, which arrived in Spain from Peru and was promoted by the Jesuits, was spectacular; its price even becoming comparable to the price of gold. However it also had its critics, above all among Protestants and Galenists. The former on ideological grounds and the latter because it was incompatible with the scheme of Galenic medicine; it was difficult to understand from the perspective of Galenic doctrine as it was capable of reducing the fever without visibly eliminating the corrupted humour. The iatrochemists claimed quinine corrected the febrile "fermentation" of the blood and dissolved the mucus which obstructed the small vessels. The iatromechanical school, on the other hand, considered that quinine produced a dilution of the blood in patients with fever. In spite of his initial alignment with this school of thought, Ramazzini later incorporated elements of iatrochemical doctrine, displaying again his non-dogmatic open-mindedness. The importance he attributed to this remedy was such that in the *methodus medendi* he did not hesitate to compare the scale of the consequences of the use of quinine with those of the invention of gunpowder *in re militare*[24].

THE HEALTH OF THE WORKING POPULATION AS CENTRAL ISSUE

The appearance of Ramazzini's most emblematic study, the *De morbis artificum diatriba* (Modena, Antonio Capponi, 1700), in the context of the complete works collected a little more than three decades ago by Di Pietro[25], is a landmark in the history of medicine and science. The question of the illnesses caused by different professions or occupations was not new in Ramazzini's trajectory. From his student days and during the time he spent in Canino, Marta and especially Modena, his observations on the extreme poverty of some of the population, the appalling working conditions and the presence of malaria, stirred his conscience as a doctor and as a human being. The list of occupations provided in the work is another excellent source not only for the history of medicine but also for the social and cultural history of the period social and cultural of the period of his lifetime. He studied the guilders and the pharmacists who handled mercury, the poisoning of those who coloured glass and the problems that arose through the use of antimony, the harms of immobility and incorrect postures, the cold or the humidity in the work-place, and so on through a long list of fifty occupations. In short, there were two main risk factors for working people: on the one hand those arising from the harmful effects of the substances and materials used, and on the other, those associated with the work-place and the work processes.

The features of modernity appear in the preface of his work where he outlines the programmatic principles on which it is based, in the revaluation of the mechanical arts;

in his methods of data collection and in the description of *species morbosae* or nosological entities, *more sydenhamniano*, from the direct observation of reality:

> *"From the artisans' hovels —which in this sense are like centres of instruction where you can learn so much— I have sought to extract what may most interest the curious and what is more important, to provide medical precautions, both healing and preventive[26]."*

Modernity also appears in the recommendation to include the profession or occupation in the patography. He was a follower of the Hippocratic teachings on how to commence clinical records[26] but added the new element and finally opted for a doctor-patient relationship tinged with that type of friendship described by Pedro Laín[27] which includes compassion (Ramazzini's biographers constantly repeat the fragment in which he discusses the illnesses of the well-diggers) and which is of fundamental assistance to the technical function of the doctor:

> *"I consider it opportune, what is more, necessary, not to ignore it (the question on profession), especially when dealing with a person of humble conditions; and I have found that, in practice, it is observed on very few occasions or is not taken into account … when it is vitally important if we wish to achieve greater success in treatment[28]."*

The attention paid by scholars to the different editions and translations of the *morbis*… means we have detailed information available which, indirectly, gives us an idea of the widespread significance of the work. Felton's list[29] is fairly complete and pays particular attention to the first edition in English produced by the linguist Wilmer Cave Wright in 1940 from the Latin, which attracted new readers in North America. It also includes quotations from the author used by such emblematic figures as Adam Smith and Karl Marx. Previously, throughout the eighteenth and nineteenth centuries, the works had been translated into English, French, German, Italian and Dutch. As is the case of more recent versions (for example the Spanish edition mentioned above), most were based on the reprint published in Padua by the printer Giovanni Battista Conzatti in 1713, during the lifetime of the author. It includes a supplement of 12 chapters which were added to the initial 41 chapters and a *Dissertation on the health of nuns*. Chapter 25 on the construction workers that appeared in the first edition was excluded. In several translations, editors used the opportunity to bring to the attention of those in government specific problems in their own countries as in the *Traité des maladies des artisans et celles qui resulten des diverse professions d´ après Bernardino Ramazzini* (Paris, Bailly-Baillière 1822) by Philippe Patissier.

The 20 references for works on Ramazzini retrieved from the MEDLINE database (PubMed) and the 122 of the Wellcome Library for History of Medicine and Health, are further proof of the current interest in Ramazzini, not only in his figure but also as representative and legitimization of an exemplary historic tradition of medical interest in the problems of occupational and environmental health. Recent papers, some of which appeared on the occasion of the anniversary of the publication of the work in 1700, in specialized occupational medicine journals and also in epidemiological and public health publications confirm it[30].

Ramazzini died in Padua on 5 November 1714, the victim of a stroke when he was on his way to University to give a class. His friend and co-disciple Morgagni provided an accurate pathological description of the haemorrhaging which had attacked his cerebral ventricles.

The interest of Ramazzini's work lies in the fact that it is the recompilation of all that had been written previously until the eighteenth century, with the addition of new chapters and as the starting point for later works. It is a fundamental text, read, circulated reviewed and used in practice until the nineteenth century when with the appearance of the Industrial Revolution and the process of industrialization there appeared new problems to deal with. From that moment on, the Italian author is seen from his condition

of highly significant historical figure of scientific excellence and pioneer in areas of medical and health specialization. As in the case of other great figures, not only is he a model for the doctors of his time but also, as explained by Henry Sigerist, to some extent we can recognize in him our own image. By stressing his importance we raise the prestige and social legitimacy of the professionals of today. Resisting not only hagiographic temptations, but also attempts to undermine the importance of the great scientific figures, the contemporary significance of a biography such as this31 is that it acts as a microcosm of a scientific, social and cultural context, which on a small scale, enables us to understand better the contents and form of fundamental contributions, such as those of Ramazzini and thus to throw light on contemporary subjects with the assistance of tools that history provides.

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