

The treaties on the origins of Forensic Medicine, Occupational Medicine and Public Hygiene

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Abstract. Forensic Medicine, Public Hygiene and Occupational Medicine are disciplines that have arisen in different times, with their own skills and different historical developments and have concurred to enriching scientific knowledge over the centuries. This article aims to examine the main treatises and their authors who have contributed to define these doctrines in their origin.

Key words: forensic medicine, public hygiene, occupational medicine, Johann Peter Frank, Bernardino Ramazzini, Paolo Zacchia

The main treaties of Medicine and Public Health, which deal with disciplines such as Forensic Medicine, Occupational Medicine and Public Hygiene - including the old name of Medical Police - are now preserved in libraries or private collections. In particular, our study is dedicated to some authors and their works that have shaped the history of these doctrines. These disciplines exercised their competence in various fields of Public Health: Hygiene and Police Medical and Occupational Medicine have as a priority the protection and improvement of community health, while Forensic Medicine is at the service of criminal and civil justice. In addition, these sciences have very different stories. The concept of hygiene, intended as a safeguard of the physical, mental and social well-being of the individual and of the community, has very ancient origins. Born as a set of often empirical norms, hygiene played a role of great importance already in remote historical periods in relation to religious practices and rites. In the classical age the Hippocratic treatise *Delle acque, delle arie e dei luoghi* emphasized how environmental and climatic factors, soil qualities and hydrogeological conditions can affect the healthy man and the determination of a disease (1). In his Oath, Hippocrates invoked the goddess Igea, mother of hygiene,

and without making direct reference to health, he affirmed the idea of a harmonious development of body and spirit. During the Middle Ages the physicians of the Salernitan School considered hygiene a fundamental aspect for the defense of health. The references to health became explicit by *regimina sanitatis, si tu vis vivere sanum*, or if you want to live healthy, follow the rules of health. The XXIII Rule of the Regimen Sanitatis Salernitanum, entitled *De lotionem manuum*, underlined how the physicians incentivized to follow what is the golden rule of personal hygiene and above all public: to wash one's hands. The Salernitan Medical School showed its modernity also in oral hygiene. Especially in the *De Ornatu Mulierum*, text attributed to Trotula, there were many prescriptions for the care of the mouth and teeth. Trotula suggested rubbing the teeth with a linen cloth wrapped around damp wool and soaked in burned marble dust, burnt date seeds, white natron, a red tile, salt and pumice, the medieval ancestors of the toothbrush and toothpaste. *De Ornatu* also recommended that the mouth should be rinsed every evening with a fragrant wine and frequently chewed fennel, lovage or parsley during the day to keep the white teeth, the gums clean and the scented breath. Furthermore, in the Middle Ages the estab-

lishment of the *Magisteri* or Health Offices manifested the attention for public health. In particular, due to pestilence, also prevention assumed great importance as demonstrated by the first quarantine and health police measures.

However hygiene, as an organic science founded on solid foundations, will assert itself much later thanks to the Viennese clinician Johann Peter Frank (1745-1821) and to his work *A Complete System of Medical Policy (System einer vollständigen medicinischen Polizey)*, published in 1779. In 1785 the Hapsburg government sent Frank to the University of Pavia. He was appointed sanitary inspector general of Lombardy and introduced reforms in medical instruction and practice. Frank inserted the study of the Medical Police and Hygiene into university teaching plans. Their teaching was foreseen in the sixth and final year of the Faculty of Medicine and was entrusted to a single professor who was also to teach Special Pathology and Forensic Medicine (2). At the end of the eighteenth century the concept of Medical Police represented a turning point in science, as it suggested that for the prosperity of Nations governments should protect the health of their peoples, meaning health not a wealth of the individual, but of the whole collectivity (3). Frank proposed that in the field of medicine and health, caring for citizens, the maintenance of the poor and public welfare were the responsibility and task of the State (4). These ideas were at the heart of Frank's contribution to the development of social medicine and public health. Frank has studied and described all the social factors that, from birth to death, can influence human life, providing and outlining rules, regulations and programs for the protection of individuals from diseases and for the promotion of health. He was able to define an extraordinarily detailed system to regulate and promote hygiene by intervening in all aspects of social life:

"The medical police is the custodian who takes care of the health of men living in society and their pets according to equally liberal principles."

Frank's treaty is divided into chapters representing the major problems of the late eighteenth century intervening especially in defense of those categories at greatest risk for the proper functioning of the state. He took care of agriculture, industry, professions, discusses the planning of interventions in favor of motherhood

and children, of farmers exposed to malaria and pellagra, of the artisans of the cities. He addressed the subject of animals, clothing, the healthiness of homes and workplaces, hospitals and shelters for the poor and orphans, urban planning, leisure time, cemeteries and burials, including the regulation of education and activity of the doctor, pharmacist and midwife; he also treated about deaths caused by homicide or suicide, in particular the so-called "honor killing".

As the health director and health official of Lombardy, Frank identified the unfortunate conditions of poverty among the population the main cause that fed the diseases. In his academic speech entitled *De populorum miseria: morborum genetrice*, (The misery of the people: mother of diseases), (1790) Frank attacked frontally and without hiding the situation of inequality and poverty existing as a direct cause of the health problems of the population, emphasizing that:

"Every social group has its own type of health and diseases, determined by mode of living. They are different for the courtiers and nobleman, for the soldiers and scholars. The artisans have various diseases peculiar to them, some of which have been specially investigated by physicians. The diseases caused by the poverty of the people and by lack of all the goods of life, however, are so exceedingly numerous that in a brief address they can be discussed only in outline."

In the introduction of *A Complete System of Medical Policy*, Frank shows interest in Forensic Medicine, outlining the pertinences and skills:

"Forensic medicine is already different from the medical police. The object of this is the general health of the state and the order necessary to preserve it; where the former is concerned with dissolving legal issues, which arise in certain meetings, and belong to the doctor more closely" (4).

The organic constitution of Forensic Medicine thought dates back to the sixteenth and seventeenth centuries with the works of the sicilians Gianfilippo Ingrassia (1510-1580) and Fortunato Fedeli (1550-1630), of the Giovan Battista Codronchi (1547-1628) and, above all, of the roman Paolo Zacchia (1584-1659). His work *Quaestiones medico-legales* marked a fundamental moment in the meeting between medical-scientific knowledge and legal knowledge (5). The chapters of this work are dedicated to insanity, to toxicology, to simulations of illnesses, to pregnancy, to

professional errors and to a long series of medical-legal advice and decisions. Zacchia deals with important issues such as the expert examination of wounds, the control of diseases of prisoners, diabolical possessions, the techniques of assessment of the vein, the qualification of hermaphroditism and the role of torture in the judicial procedure. This treatise has exerted a wide influence in Italy and in Europe in the establishment of Forensic Medicine and in the practice of medico-legal proceedings until the end of the eighteenth century when Legal Medicine was renewed through a new treatise based on updated scientific knowledge. An exponent of this innovative development of Forensic Medicine was the French Francois Emmanuel Foderè (1764-1835) with his work entitled *Les lois éclairées par les sciences physiques ou traité de médecine - légale et d'hygiène publique*, published in Paris in 1799. He aspires to regulate and legitimize the practice of the coroner and to clearly define the specifics of a discipline rejecting medico-legal empiricism based on a practical routine without any theoretical basis.

Finally, our attention is turned to Occupational Medicine. This discipline was born in the eighteenth century thanks to the work of the Italian physician Bernardo Ramazzini (1633-1714) (6). His most important contribution to medicine was his treatise on occupational diseases *De Morbis Artificum Diatriba*, written after forty of medical practice. Ramazzini is interested in diseases that affect the most miserable people and the artisans; in particular during his geophysical investigations he had directly observed sewer workers (7). Each chapter of the treaty is dedicated to the description of the illness associated with a particular work activity followed by a description of the workplace, questions for workers, description of the disease, remedies and advice. He investigated most of the professional conditions that could cause damage to health such as the use of chemical or physical agents and traumas caused by prolonged, violent and irregular

movements and prolonged postures imposed by modern work in factories. The modernity of his thought was also reflected in the opportunity to combat occupational diseases with prophylaxis rather than with therapy. Despite the *De morbis artificum diatribe* was an innovative volume in its content, it remained an isolated study, unprecedented in medical historiography, but also destined to remain unseen for a long time yet. We must await the nineteenth-century innovative medicine in order to see recognition for the study and work of Ramazzini and the revolutionary importance of his argument for Occupational Medicine (8), considered later the founder of this discipline.

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