

**Pietro Giuseppe Corradini: Physician, Hygienist and Public Health Specialist, Epidemiologist**

of the *Antique Book Collection P.G. Corradini Library of the Arcispedale S. Maria Nuova XV sec.-1850*

Article written by Maurizio Bosi – AUSL of Reggio Emilia

The Hospital of Santa Maria Nuova of Reggio Emilia was founded at the end of 14<sup>th</sup> century by means of the bequeath of Pinotto de Pinottis, a member of one of the city's more affluent families. As was the case of other care settings at the time, the facility was created to give temporary shelter and support to the poor and to pilgrims.

The institution's aim based on the religious thinking of the time was to give necessary "aid" to the needy according to the means available to the hospital in whatever form "aid" was needed – shelter for pilgrims, feeding and clothing the poor, taking in and caring for the sick.

In Pinotto de Pinottis' carefully detailed Will specific mention is made of how the sick in need of medication should be treated especially those cared for by the doctors "Magisters Joanne de Blanchis and Gabriele de Medicis." <sup>1</sup>

One supposes that by virtue of this article providing for medical assistance and the administration of medication, S. Maria directed its charity work towards the care of the sick rather than that of the poor and needy.

By the 18<sup>th</sup> century, the hospital treated only medical patients. Records show that between 1704 and 1744, the two infirmaries could host 60 patients with 29 beds for men and 31 for women.

Physicians and surgeons, the chancellor, and apothecary had to govern the hospital according to the regulations set down by the Board of Trustees.

In 1723, before being admitted, it became compulsory for patients to prove their status of poverty and good conduct by presenting a letter signed by the Parish priest or one of the Board members. This established the hospital as a place for the treatment of the poor of the city and district of Reggio which at that time numbered between 15,000 to 17,000. <sup>2</sup>

P.G. Corradini, born in Casalgrande in the principality of Scandiano in 1707 to Giovanni Paolo and Diamanta Corradini, began his hospital career in 1736. He had graduated from the Universitas Medicorum of Reggio on June 14, 1732 and completed his practical training in Bologna. <sup>3</sup> It was during this time that hospitals changed their status from charity shelters to health care institutions. Yet in order for the "pious place" in which people were taken to wait for death to be transformed into a place in which diseases were treated, it needed to be staffed by educated and well-trained doctors willing to work hard to preserve life for patients. Physicians supported not by greed and dreams of success but by the ambition of being useful to others.

Corradini was an excellent example of the latter. Extremely well-educated and up-to-date on the latest scientific discoveries, he chose the lancisian <sup>4</sup> career model dividing his time between working in the hospital and studying in the library. His work being based on a neo-Hippocratic view and on Boerhaave, he too dedicated his entire life to the observation, study and cure of disease.

Although he was widely known for his work (among the pages of his books we found reference to 15 consultations and relative written reports given in several cities in Lombardy), he did not look for notoriety, as did many other of his time by means of correspondence with illustrious people or publishing works of little

scientific value, rather he chose to direct his efforts towards healing the sick and poor of Reggio and in research into the causes of disease.

Scrolling through the regulations, that read both like a job description and guide to organizational structure, we get a general idea of the complexity of medical activity in the hospital.<sup>5</sup> Nothing is left untouched:

- environmental and personal hygiene (the person in charge in the morning must see that the inpatient rooms are aired out and cleaned and the beds changed)
- hotel services (inpatient diet was decided by the hospital in 1781)<sup>6</sup>
- assurance of religious consolation
- visiting hours (twice a day, at dawn and at dusk and whenever necessary)
- the keeping of a rudimentary clinical record
- control over the distribution of medication
- hospital hierarchy defined
- relations between medicine and surgical areas defined
- pharmacy organization
- working hours and salaries
- relations with administration.

In 1763, discussions were held over the building of three small “chemical observation rooms for the dissection of cadavres and anatomical observations as practiced in all well-regulated hospitals.”<sup>7</sup>

Reading these documents, one gets a sense of the functional and organizational structure of a modern hospital.

Corradini was head doctor from 1739 to 1782 and certainly had a hand in establishing many innovations: it is our responsibility to give him due credit.

*“Observations on the most frequent diseases in Reggio”* from 1772 to 1774

For four years, from 1772 to 1775, Bonaventura Corti went beyond old beliefs and deep-rooted error when he diligently tracked and recorded weather phenomena “according to the principles of physics” affording scientific meaning to their influences.

“The state-of-the-art was “lost to the people who were superstitious and looked only to almanacs or star charts”. This being Corti’s bitter observation as he appealed to reason to overcome the “superstitious idiocy” that makes “the choice to cut nail or hair”<sup>8</sup> dependent upon the “positive or negative positioning of planets or on the phases of the moon.”

Corti, certain that the onset of disease was related to seasonal changes and relative atmospheric variations rather than to astral phases, invited P.G. Corradini to publish his observations on diseases over the preceding year and on their remedies and Gian Battista Artoni, an “illustrious physician”,<sup>9</sup> to publish information regarding disease in animals.

The study, perhaps because of its methodology and published deductions, evoked wide interest in the world’s scientific community, Haller himself asked L. Spallanzani to acquire a copy of the publication from Corti.

In 1772, Corradini gave Corti the observations he had asked for<sup>10</sup> but decided over the next three years to sign and publish his articles himself.<sup>11</sup>

In the Venturi manuscripts, we find mention of similar barometrical and meteorological observations dating to the years 1741 to 1747, a demonstration of Corradini's interest in these types of studies.

The observations were run over a four-year period divided into trimestres. Each period has its own list of the diseases the patients had, the number of cases is not recorded. When it was believed that the disease had spread as an epidemic, hypotheses as to causes and treatment criteria were noted.

We also remark the knowledge and use of semeiotics not often used at that time. For example, in a case of Scarlett fever, besides noting the usually remarked symptoms: angina, high fever, exanthema, a certain "intumescence of the tonsils" is noted as well as of the internal and external glands of the neck and of the limbs, having degenerated into dropsy in the more serious cases. In the cases of "*febbri putride*" (abdominal typhus), besides noting "a low pulse rate with a poor frequency", distinctive of this disease, other symptoms were also remarked.

In a case of acute abdominal inflammation reference was made to a "tympanic tension in the abdominal region, painful to pressure."

A careful and complete physical exam of the patients on the part of physicians - who inspected the oral cavity and palpated - was carried out and this was not usual for the times.

Feces and urine as well as any other biological material that the patients excreted were also observed and quantity and characteristics noted. For example, the color, turbidity, and quantity of the material collected from an abscess was assessed and noted for future comparisons. In another case, a stone was observed and described: "the inner part is hard, oblong in shape, about the size of a walnut; the outside is of the same color, smooth in some areas and rough in others, it weighs 10 scruples and floats when put in water."

The treatment protocols followed by Corradini were a sort of compromise between the old and the new, between the application of galenic principles and the use of innovative clinical and pharmacological criteria. It was an inevitable compromise as no physician at the time had enough knowledge to move completely away from old principles while one could, as did our protagonist, use them more appropriately: "so that to treat them we don't have to blood-let copiously or overwhelm through complex treatment ... it is often enough to protect from drafts, keep the skin lubricated with sweet almond oil and administer a bland enema and within 8 to 10 days patients are well again" (this refers to the treatment of an epidemic of benign mumps). The pharmacological treatments described require a solid knowledge of the pharmacopoeia of the time, a great leap forward from the prescriptions of A. Vallisneri at the beginning of the century.

Vallisneri, a physician and scientist known for his advanced thinking and rigorous application of experimentation, did not oppose tradition in his clinical practice and in 1709 continued to prescribe "centipede powder, emulsions of melon, red violet and winter cherry, and a diet of boiled shrimp and chicken broth, a gelatin made from deer horns and an infusion of vipers" for kidney stones. In 1712, he prescribed a diet of black or red goat's milk followed by a glass of water with antimonium tartar" and when taken under the influence of Leo "water down the milk by one third with violet and betony water."

Corradini did not resort to these types of therapies, instead we find a careful use of quinine, cream of tartar, English salts, and sulphurous water.

He himself believed the failure in treating smallpox in children was due more to the old “practice” of making children drink large quantities of wine to “help nature eliminate the pox” than to the violent nature of the disease.

Corradini’s interests went beyond the study of human physiology to include the environment and how people lived. He presented his observations taken in 1773 with a description of the city of Reggio, its geographic position and the presence of possible causes of ill health: “its waters are not of the most perfect kind (water from wells and springs) but this lack is made up for by the air which is not too thick, or too thin, nor sullied by mineral fumes, nor by pernicious vapors and is perfect enough and healthy” and he continues “... to the north and west there are valleys in which, when not preceded by a rainy season, during the summer, the waters remain distant 10 and more miles and so because of this distance, I hadn’t realized; that to date they have prejudiced our atmosphere and do no longer because of the recently excavated rice fields.”

The reference to valleys or marshy areas implied that there was a risk of malaria whose causes were not known at the time although the presence of malaria was already linked to marshy areas; the smell from them thought to poison the air.

The concern over the creation of rice fields near the city was legitimate enough as the incidence of malaria in Reggio was quite high throughout the 19<sup>th</sup> century.

The spirit of the public health specialist shown through once again when he affirmed that even moderately infectious diseases, when combined with destitution and poverty, should make one suspect “the pestilential”: “The reason being that this occurred in poor people, in people, who by their very nature, or due to necessity are used to living in unsanitary conditions, who are forced to live in small and often damp and unhealthy hovels, and where the healthy and the sick all sleep in the same room and unfortunately often in the same bed made of straw; and we may add that the poor have the habit of disregarding bad air: and so, when they are sick they are attentive to not allowing external air into the sickroom not realizing that this only makes the sick continue to breathe in the same bad air that issued from their diseased bodies.”

In his article on “Cases of hydropsy healed through the simple administration of raw and impure Tartar.”,<sup>12</sup> Corradini’s humanity and generosity towards the poor, who must fight against disease, come through even more strongly than in the above quotation.

He didn’t philosophize about the meaning of poverty or on how to eliminate it, rather as a physician, he offered practical and immediate solutions to help prevent or to treat disease. He offered simple, intuitive solutions such as improving ventilation in the rooms where the sick lay or, as a chemist who understood that the active ingredient was present in both forms, he explained to the poor who couldn’t afford cream of tartar, how to procure it in its crystalized form by scraping it off the inside of white wine barrels.

In his description of the diseases reported in the first four months of 1775, Corradini dealt with problems such as alcohol, tobacco, and coffee abuse, substances that affect the nervous system and therefore are favorable to apoplexy.

His efforts to identify how diseases spread within the urban population and to record occurrence with reference to age-group for all diseases that occurred with a certain “frequency”, were done to better understand the endemic or epidemic character of the cases: “The above-mentioned putrid fever persisted for the entire third trimestre and spread to all the quarters of the City sporadically afflicting this person or that, but mainly in the minute population, not frequent enough to be considered an epidemic, the last one

having started in 1765 and lasted in the City until the end of 1768, spreading to the countryside, to Castella and neighboring areas. Besides this, as anyone can observe, they come and go in every time and season and can therefore be considered endemic-epidemic fevers of our area.”

Corradini recorded observations over a ten-year period from 1766 to 1775 of the number of hospitalized patients and recorded deaths, divided by gender. The average number of deaths among hospitalized patients was 19.6%, of which 18.5% were men and 20.8% women.

To assess these statistics several factors that could strongly affect the possibility of cure must be considered:

- for the patients afflicted by centuries of poverty we must associate all the plagues of poverty to the disease, first of all the greater weakness due to lack of healthy food (P.G. Corradini recorded several cases of scurvy) or to chronic diseases;
- only the sickest of patients was hospitalized;
- there were few effective cures/medications and their use only recently put into practice.
- Notwithstanding all this, the results obtained for his times were far from negligible.

Corradini died in Reggio on January 18<sup>th</sup>, 1782<sup>13</sup>, he had practiced in the hospital of S. Maria for 46 years. In his Last Will and Testament he bequeathed his entire library of hundreds of volumes to the doctors of the Hospitals of Reggio and Scandiano because “duty and reason dictate taht a hand be given, that one cooperate as much as possible to their advancement and that the courage to study be constantly endorsed.”

This passage in his Will awakens admiration in the reader for his generosity and philanthropy, typical to the enlightened scholar he was, always aware that in order to forward knowledge one must support study and the training of future generations.