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The disease of a plague. A study proposal of the sample of individuals from the convent of S. Rocco in Merate

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Abstract. San Rocco in Merate is a hill town in which were hospitalized the victims of Plague epidemics of 1524 and 1576, which had hit Lombardy causing around 50,000 and 10,000 dead. According to the written sources, near the oratory dedicated to Saint Rocco were buried about five hundred victims. Today a huge granite column, erected around 1854, persists in correspondence of the common grave in which the dead of the plague were buried. This evidence is an important case study that allows to analyze a bioarchaeological context pertaining to documented episodes of epidemic, permitting to investigate the mortality rate and demographical data of the examined population, which reflect the nature of the crisis. The analysis of the sample allows also to highlight eventual selective compositions of the population, therefore to investigate the selectivity of death and whether it is linked to age, sex and the pre-existent health status of the individuals.

Key words: Merate, plague, epidemic, bioarcheology, paleopathology, anthropology

S. Rocco is a small hill, located about one kilometer from Merate. The name originates from a deeply rooted folk tradition that called upon the saint to be the protector of the plague victims during their hospitalization in 1524 and 1576.

In the years between 1524 and 1529, the plague, known as Carlo's V plague, profoundly affected Lombardy, upsetting the life of its territories and causing many victims, a staggering 50,000 people died alone in Milan. We believe that in Brianza, the plague was a consequence of the raids of French troops during the war between France and Spain for the possession of the duchy of Milan. In 1512, French military troops settled in the castle of Trezzo and from here they would conduct their bloody raids in the Brianza and Bergamo areas (1).

During similar epidemics, it was customary to collect and isolate the sick in places far from inhabited areas. For this reason, the municipality, made available a plot of land of 50 perches, placed on a hill about a mile north of the town of Merate. In this place, initially nominated "Field of charity", the citizens of Merate built straw huts to support the sick and erected a small oratory dedicated to San Rocco, from which the place took its name. Many of the sick were hospitalized and eventually, many found a burial plot on the After the plague, the sanctuary of San Rocco remained forgotten for half a century until in 1571, when during a pastoral visit, Cardinal Borromeo passed by San Rocco and blessed the burials (2).

In 1576, the disease spread again in the Milan area causing more than 10,000 victims: this epidemic is known as the Plague of St. Charles, because the contagion occurred precisely during the episcopate of the bishop S. Carlo Borromeo, who did strived to help the plague victims. This wave was less bloody than the previous thanks to the extremely rigid quarantine to which all the Milan citizens were subjected.

During 1578, the disease spread also to Merate, the huts were rebuilt around the oratory of San Rocco to support the new wave of sick. According to written sources, there were about five hundred victims who

were buried on the hill, which was over a quarter of the entire population of the village and the nearby hamlet.

Shortly after the end of the plague, in 1578, by order of the archbishop of Milan, a Capuchin convent was built here. The history of the hill continues for another five centuries, from the original destination of lazaretto to the transformation into a convent; in XIX century it was transformed into a private villa, then into a nursing home and finally became a branch of the Brera Academy (3).

Today, in memory of the plague victims of 1524 and 1576 and of the Capuchin convent, a monument persists on the hill of San Rocco: a huge granite column surmounted by an iron cross, built around 1854. According to the inscription at the base of the column, the monument would have been erected in correspondence of the common grave in which the dead of the plague were buried: it is an important testimony, full of symbolic meaning, of the epidemic that caused thousands of victims.

In ancient times, the scourge of the plague disastrously appeared in different parts of the world, sowing an incalculable number of deaths: three major waves of Plague are known to have hit Europe and the Italian peninsula between the ancient times and the Modern era. The first is the famous Justinian plague, which struck Italy, raising from Egypt in 541 AD. The second and most famous began in India, China or the steppes of Russia, spreading then to Europe through Messina (Sicily) by the autumn of 1347. This second pandemic wave returned periodically and lasted for about five centuries in Western Europe, with peaks in different periods. The third pandemic originated in regions of China in the mid-nineteenth century, spreading around the world through steamship commerce (4).

The analysis of past epidemics is an interdisciplinary subject that encompasses and closely links archaeology, anthropology and documentary sources. The presence of burials in San Rocco in Merate, probable evidence of episodes of extra-mortality linked to the prior mentioned plague epidemics, have been hypothesized on the basis of historical data and documentary sources. Only a thorough excavation of this site and the study of the osteological sample would allow us to verify the thesis supported by the documentary evidences.

Through systematic study, which associates taphonomical excavation and bioarchaeological analysis, it is possible to reconstruct the stratigraphy of the site, the organization of the cemetery spaces, the phases and time spans of the depositions and to build the biological profile of the buried individuals. The latter phase is strictly necessary even to construct the mortality profile of the individuals in analysis and to identify possible anomalies in the demographic data, which could reflect the nature of the crisis that affected the population (5). By the fact a pandemic crystallizes the health and morbidity status of the individuals, shown by the absence or presence of any skeletal lesion reflecting exposure to physiological stresses, we are able to highlight possible selective compositions of the sample and compare it to contexts of a plague-type epidemic, allowing us to verify the initial thesis.

Comparison should be also done with a non-pandemic sample, possibly from the same geographic area and dated back to prior to the crisis, to assess the differences in mortality rate and selectivity of death in normal conditions and during epidemics. Sharon DeWitte previously conducted a study on selectivity of the Black Death on the East Smithfield sample in London, compared to a non-epidemic, pre Black Death assemblage, to verify the relationship between mortality and age, sex and pre-existing health conditions of the individuals. At last, she verified that the plague was selective in respect to age and pre-existent health status of the individuals and then to their frailty (6, 7).

In summary, archaeological and bioarchaeological approaches are needed to verify the hypothesis of a probable epidemic burial site, based on reliable documentary sources, and to confirm the nature of the crisis; furthermore, they allow investigation of the reaction of the population to the pandemic and the way to manage burial spaces in front of an episode of rapid surmortality. The anthropological study, in particular, is necessary to examine the pre-existing state of health of the buried individuals, and the way it has influenced their resistance to the disease, in the light of studies that have shown a close connection between frailty and the increased risk of succumbing to an epidemic.

At last, we have to keep in mind that only molecular analysis are able to establish whether an indi-

vidual died from a plague and to fully explain the epidemiology of the disease, reconstructing the genome of *Yersinia pestis*, as previously done by Bos et al., and Duchemin et al. (8, 9), and elucidating the mechanism of pathogen evolution. Although this specialized analysis is highly recommended, also through a systematic study that connects bioarchaeological and anthropological approaches it is possible to understand the behavior of the epidemic at the time of the crisis.

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