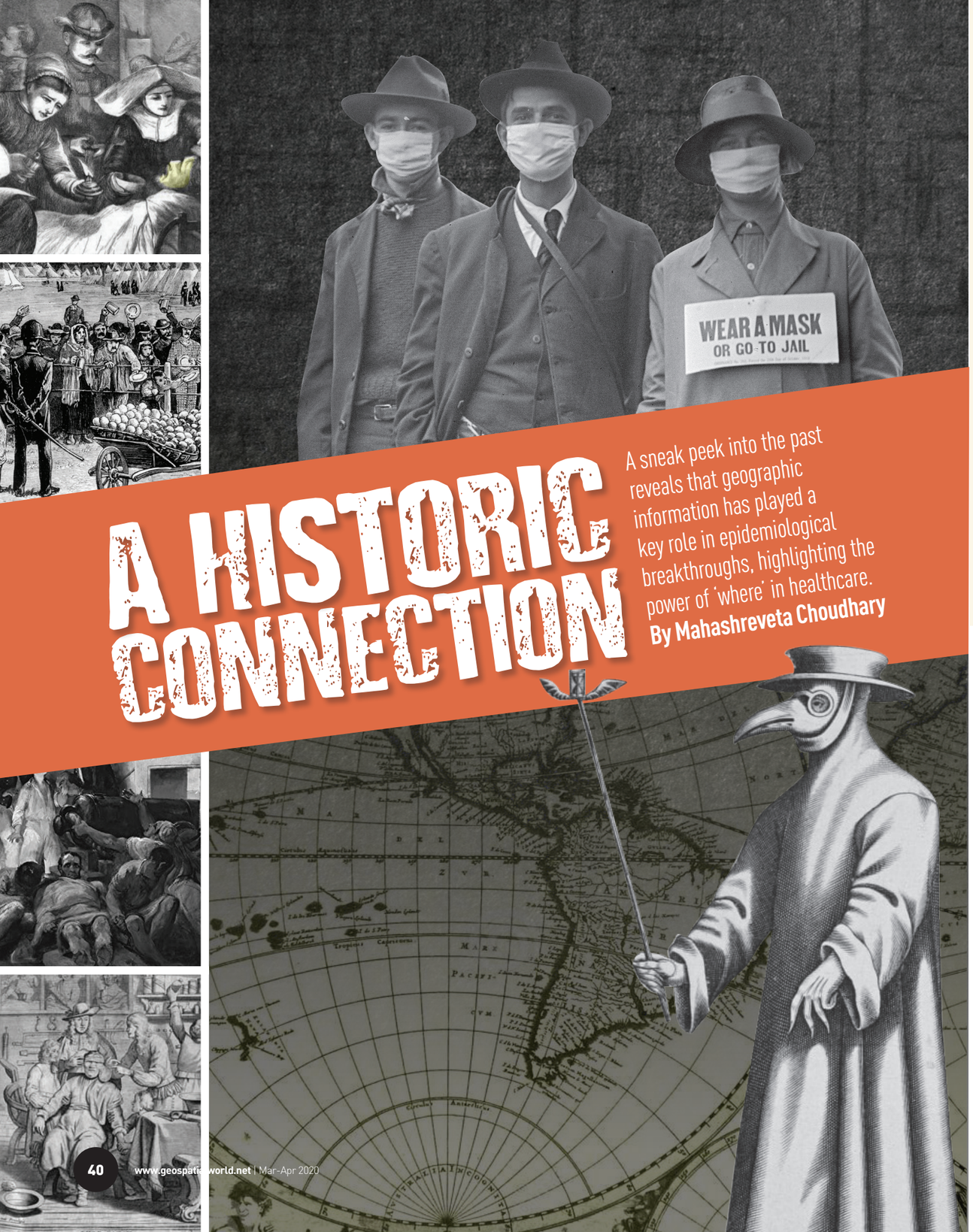


A HISTORIC CONNECTION

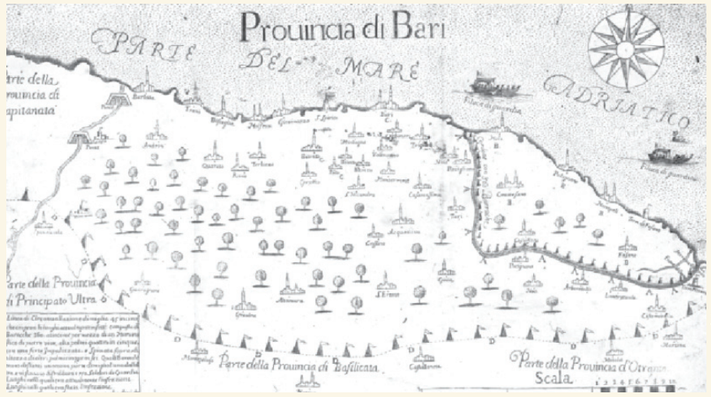
A sneak peek into the past reveals that geographic information has played a key role in epidemiological breakthroughs, highlighting the power of 'where' in healthcare.

By Mahashreveta Choudhary

We all are dealing with a common enemy today — SARS-CoV-2, or the Novel Coronavirus, which originated from Wuhan, China, towards the end of last year. Apart from causing deaths and infecting millions of people worldwide, the virus has quite literally pushed the global economy into recession, forcing our well-connected global village into self-quarantine. The picture is grim, but could have been a lot worse, if we hadn't figured out the origin of the virus, and could not track its movement.

History is replete with instances in which geographic information has played a key role in epidemiological breakthroughs, highlighting the power of 'where' in healthcare. Even today, governments and medical experts are extensively using maps to deal with all aspects of the pandemic — to from tracking cases to planning relief measures.

The practice of tracking a disease goes back to the 17th Century in 1692 when plague was wreaking havoc in Europe, Fillippo Arrieta, an Italian royal auditor, spatially visualized the strategy for containing the spread of the disease in Italy's Bari region. On Arrieta's map, Bari was separated from the rest of the country by a dashed line that represented a cordon sanitaire, which is similar to a containment zone of our times. The map shows two areas within Bari, separated from the cordoned-off province by a thick line.



Through this map in 1692, Fillippo Arrieta, an Italian royal auditor, spatially visualized the strategy for containing the spread of plague in Italy's Bari region

Courtesy: ResearchGate

There are several such fascinating stories, telling us about the strong connection between geographic information and epidemiology. Let's turn the pages of history to revisit some of these stories.

Yellow fever mystery

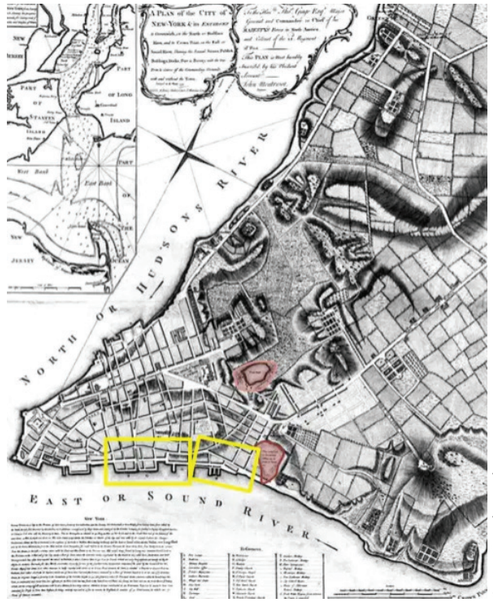
In 1793, Philadelphia city in the US state of Pennsylvania lost nearly 10% of its population to yellow fever. At that time, the authorities assumed that the fever springs from 'corruption' of the air, and that its 'violence' is in proportion to the continuance of the heat and moisture. In areas with high mortality, sanitarians assumed that the 'corruption' in the air originated from the foul odor emanating from stagnant ponds and unsanitary streets, where human and animal waste was left uncollected for days. Contagionists, on the other hand, believed that the fever was not locally generated, and was in fact 'imported' in the cargo holds of trading ships that brought slaves and raw goods to American ports.

In 1796, ***Dr Valentine Seaman***, with the help of maps designed on copper plates, attempted to correlate the location of yellow fever cases with waste sites in the city streets. Through his maps, Dr Seaman defined the nature of the disease and the scale of response required by public officials to prevent recurrent epidemics.

DR VALENTINE SEAMAN

(1770-1817)

Later, Dr Seaman also overlaid the location of yellow fever cases with the position of dumping areas and sewage sites in lower Manhattan. He marked these sites with a thick 'S'. Reflecting upon his observations, he concluded that the deadly outbreak was linked to certain areas with putrid emanations.



In 1780, Dr Valentine Seaman overlaid the location of yellow fever cases with the position of dumping areas and sewage sites in lower Manhattan

Courtesy: Briandotonemyth