

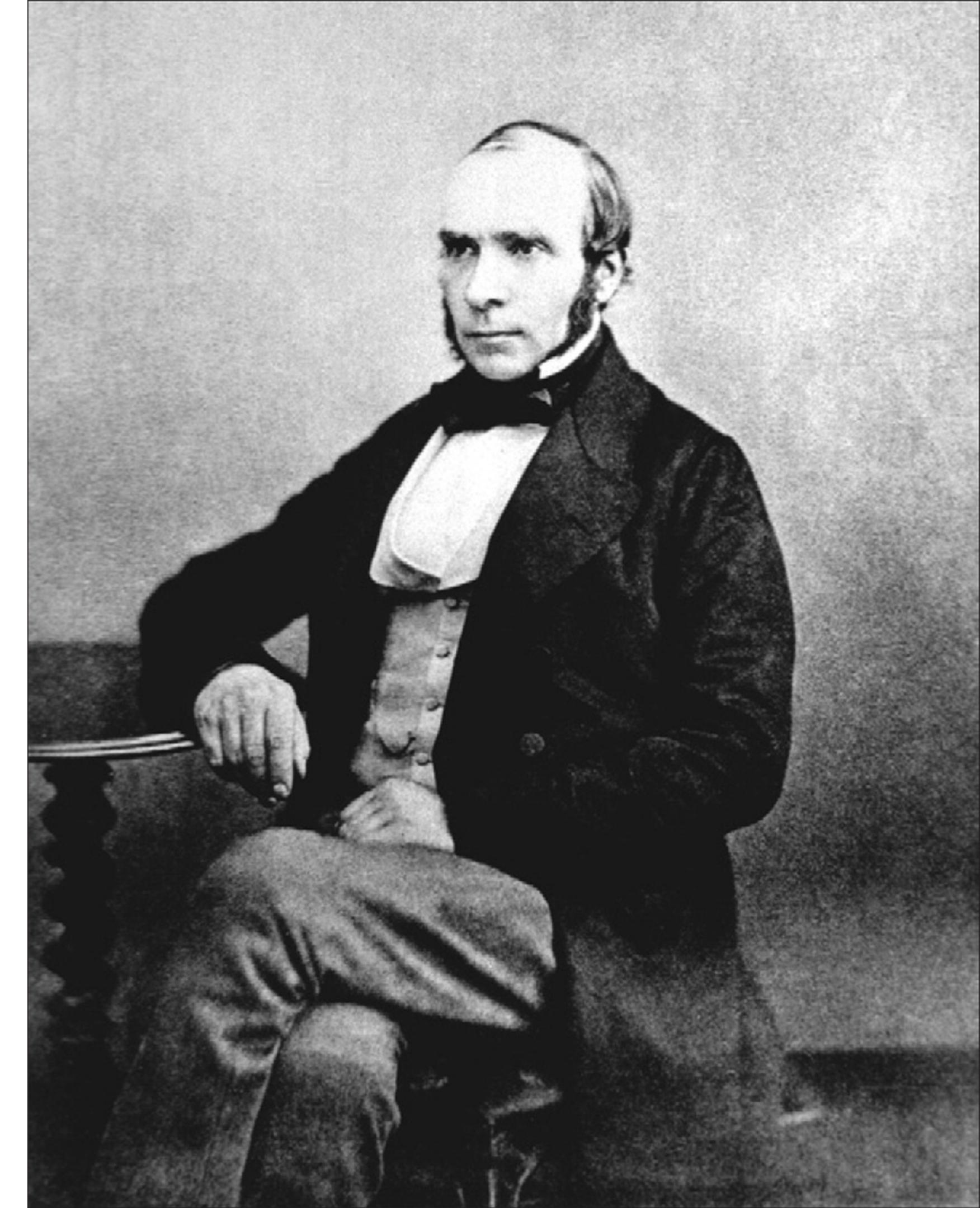


1813-1858

How Visualizations Gave Birth to Modern Day Epidemiology

PSYC 6135

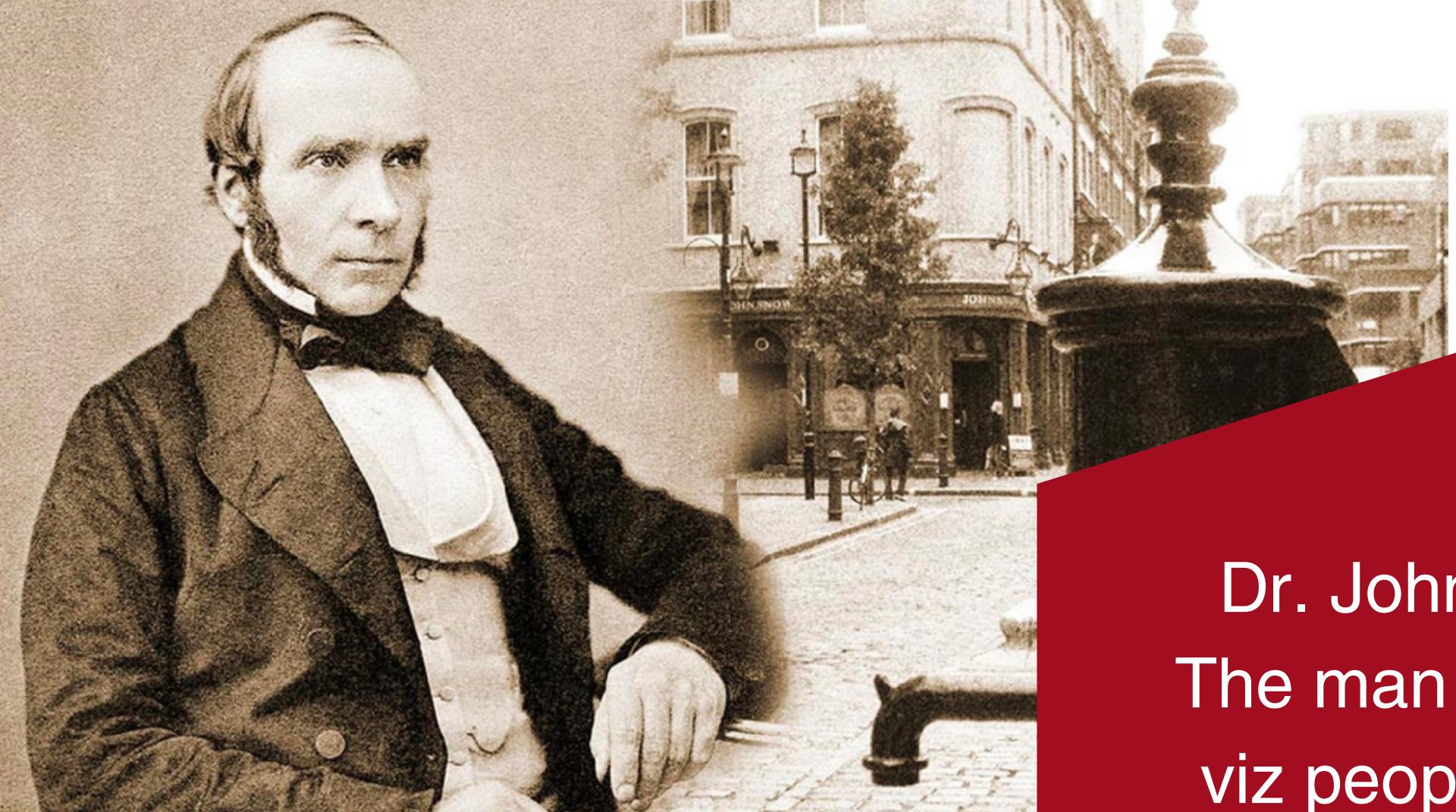
- Carmel Camilleri
January 25, 2022





The John Snow
We Know

GAME OF THRONES



Dr. John Snow.
The man that data
viz people know.



NOTICE.

**PREVENTIVES OF
CHOLERA!**

Published by order of the Sanitary Committee, under the sanction of the Medical Counsel.

BE TEMPERATE IN EATING & DRINKING!

Avoid Raw Vegetables and Unripe Fruit!

Abstain from COLD WATER, when heat-

Understanding London in the 18th-19th Century



Cholera and water born diseases

Large scale migration brought in a growing population

Overcrowding in poor housing, inadequate or nonexistent public water supplies and novel waste-disposal systems

Sewers and toilets drained into the Thames river, leading to an open sewer

Resulted in cholera, dysentery, tuberculosis, typhoid fever, influenza, yellow fever, and malaria

Between 1848 and 1854, cholera outbreaks occurred in areas of London

Why is John Snow Important?



Miasma Theory

Cholera was caused by airborne transmission of poisonous vapors from foul smells due to poor sanitation



Snow's Theory

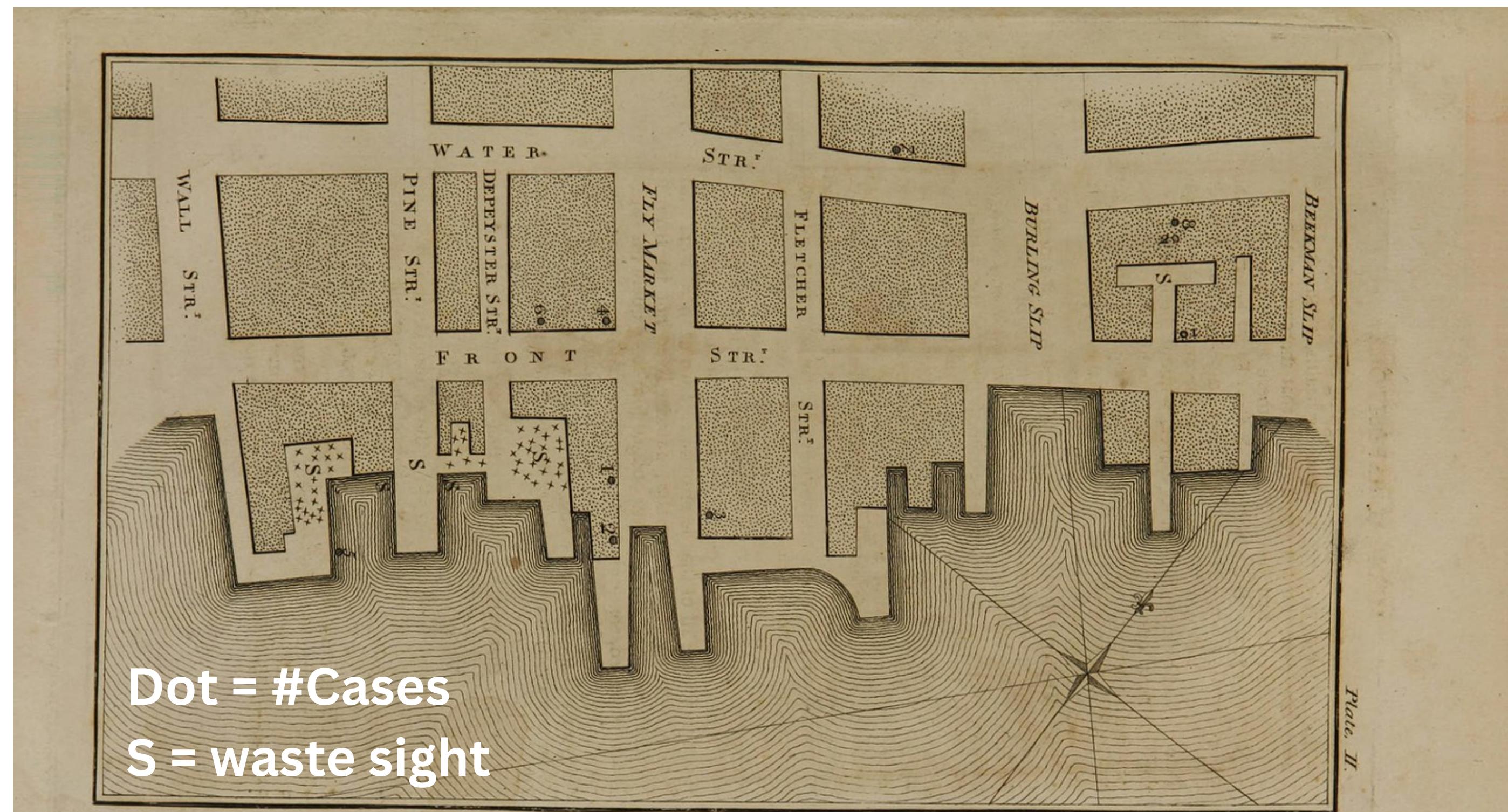
The cause of cholera was due to contaminated water as the main form of transmission



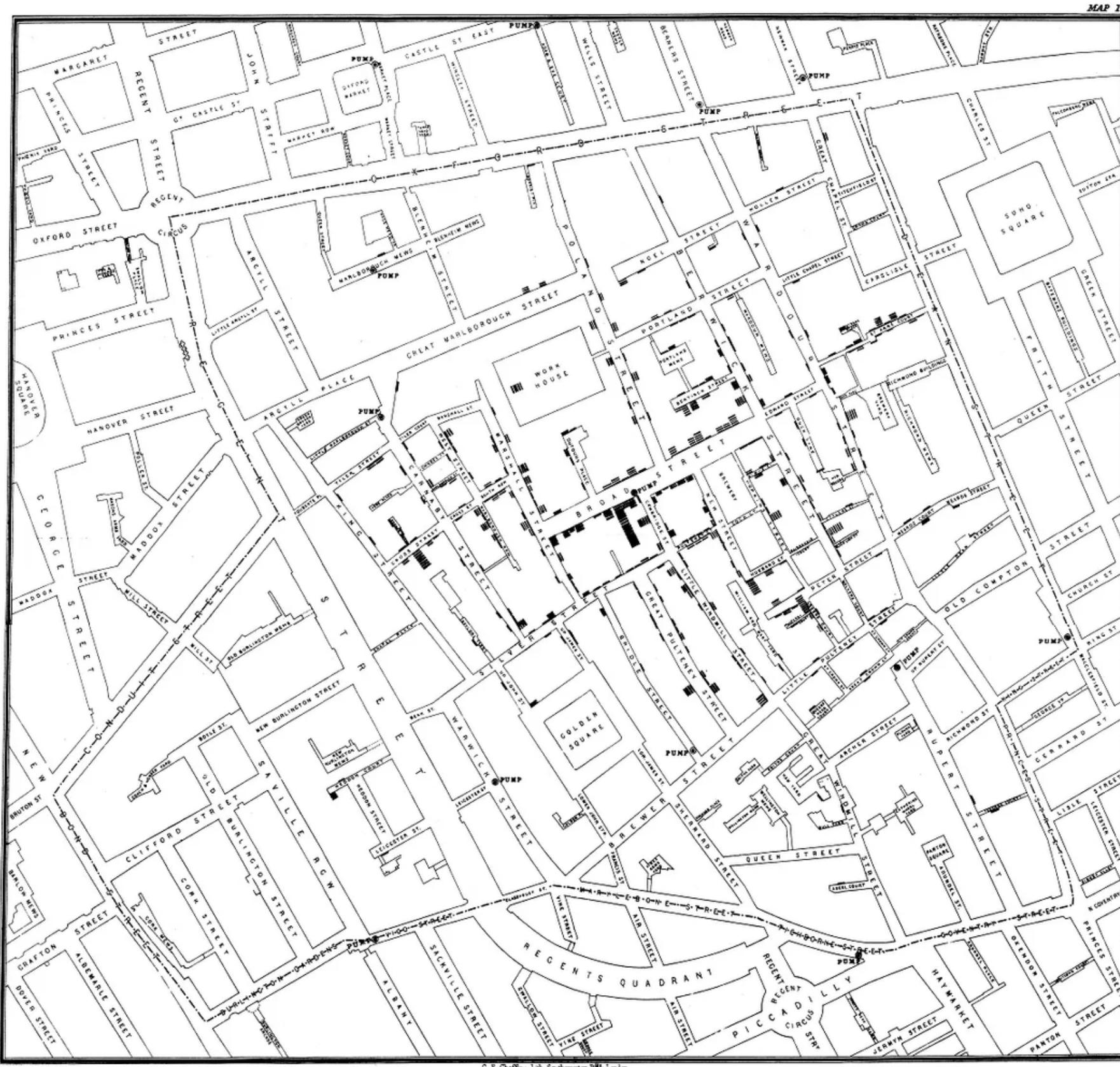
Power of Graphs

Persuaded civic authorities to remove the handle from the Broad Street pump, the epidemic disappeared within a few days

Seaman's Map of Yellow Fever (1795)

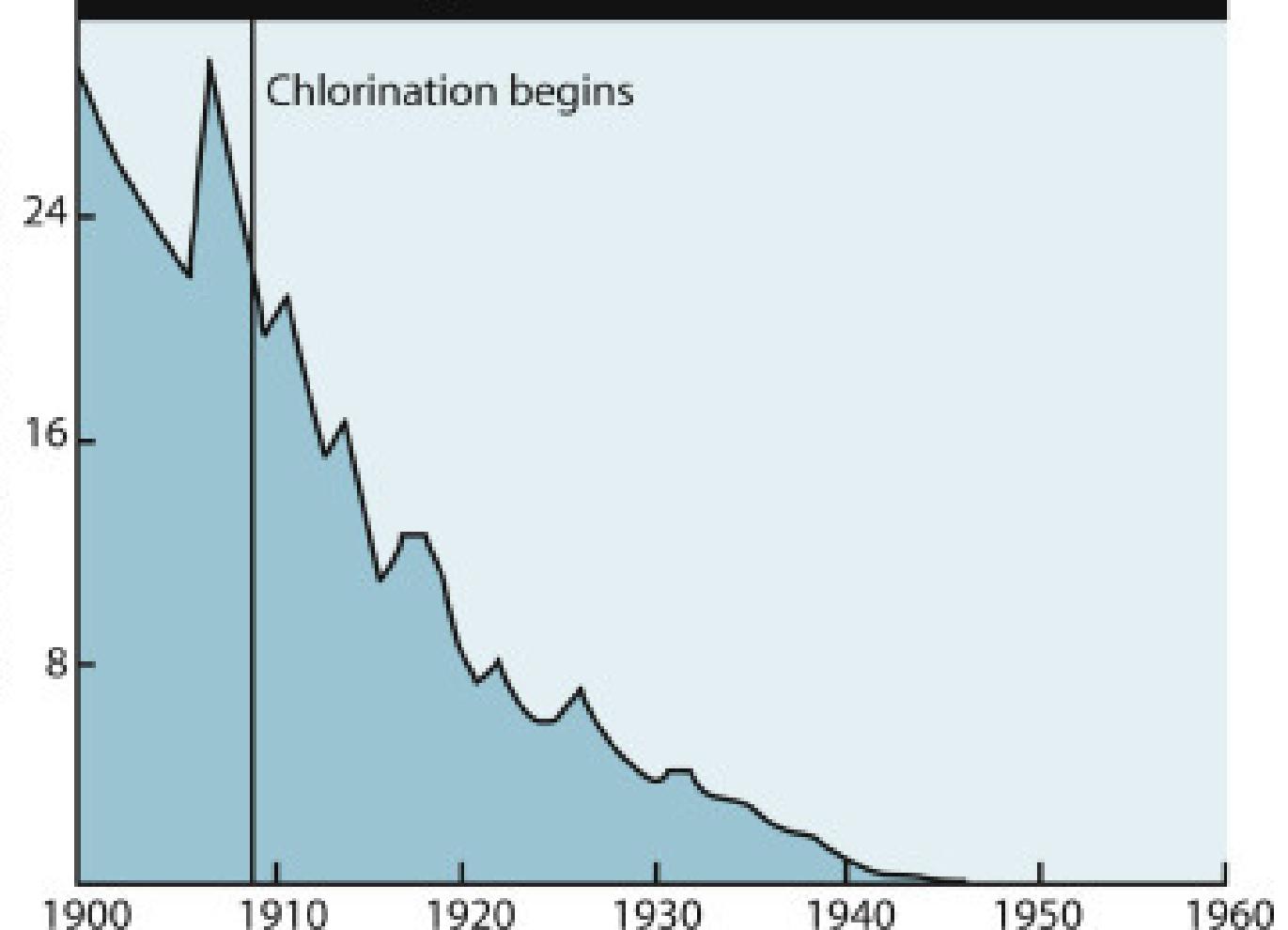


Dr. John Snow's Dot Map (1855)



Outcomes

Death rates for typhoid fever in the USA



1

Cholera disappeared once the pump usage stopped

2

Decline in water based illnesses throughout the 19th century

3

Established the basic methodology of modern public health for infectious disease investigation!

4

Aided in establishing the validity of the Germ Theory

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References

- Aurenhammer, F., & Klein, R. (2000). Voronoi Diagrams. *Handbook of computational geometry*, 5(10), 201-290
- Arnebeck, B. (2005, June). Yellow Fever in New York City, 1791-1799. In 26th Conference on New York State History. New York State Archives Partnership Trust Cultural Education Center, Suite 9C49. Albany (pp. 9-11)
- Brody, H., Rip, M. R., Vinten-Johansen, P., Paneth, N., & Rachman, S. (2000). Map-making and myth-making in Broad Street: the London cholera epidemic, 1854. *The Lancet*, 356(9223), 64-68. [https://doi.org/10.1016/s0140-6736\(00\)02442-9](https://doi.org/10.1016/s0140-6736(00)02442-9)
- Tulchinsky, T. H. (2018). John Snow, Cholera, the Broad Street Pump; Waterborne Diseases Then and Now. *Case Studies in Public Health*, 77-99(PMC7150208), 77–99. <https://doi.org/10.1016/B978-0-12-804571-8.00017-2>