

Thomas A. Hut, M.S., R.S.  
Office of Environmental Health



# Dr. John Snow

Father of Epidemiology  
The study of who gets sick and why



A Disease Detective



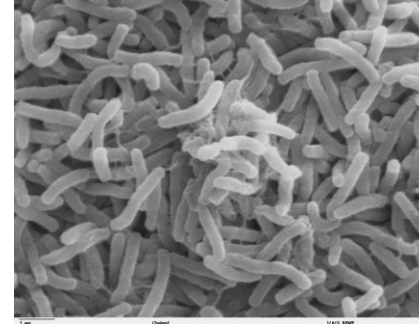
**Public Health**  
Prevent. Promote. Protect.  
Dayton & Montgomery County

# LONDON CHOLERA EPIDEMIC

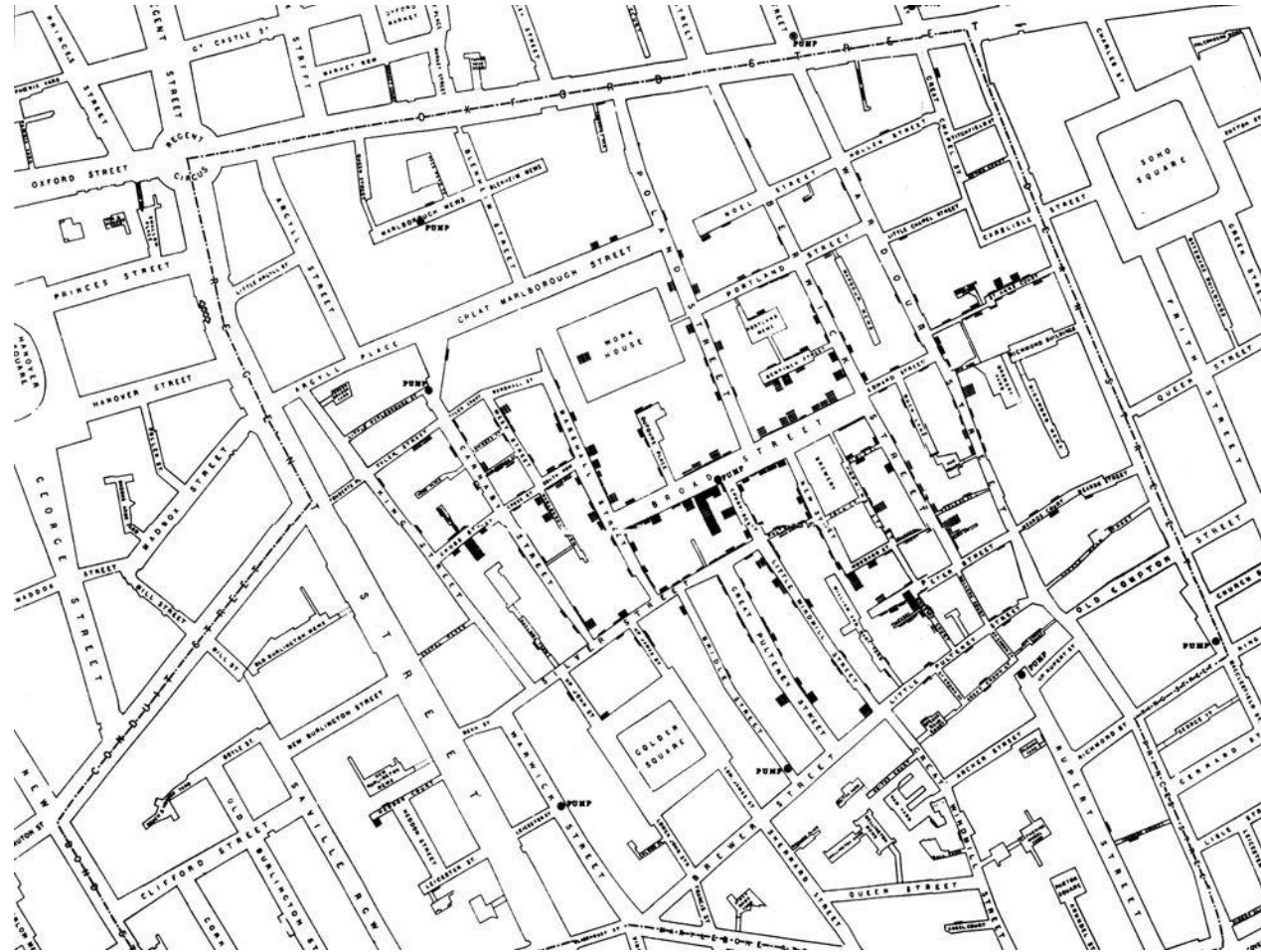
- 1854
- Hundreds of People Died
- Dr. John Snow stopped epidemic

# CHOLERA

- Germ - bacteria
- Causes vomiting, diarrhea, and sweating
- Ranges from mild sickness to death in hours
- Killed millions of people throughout history

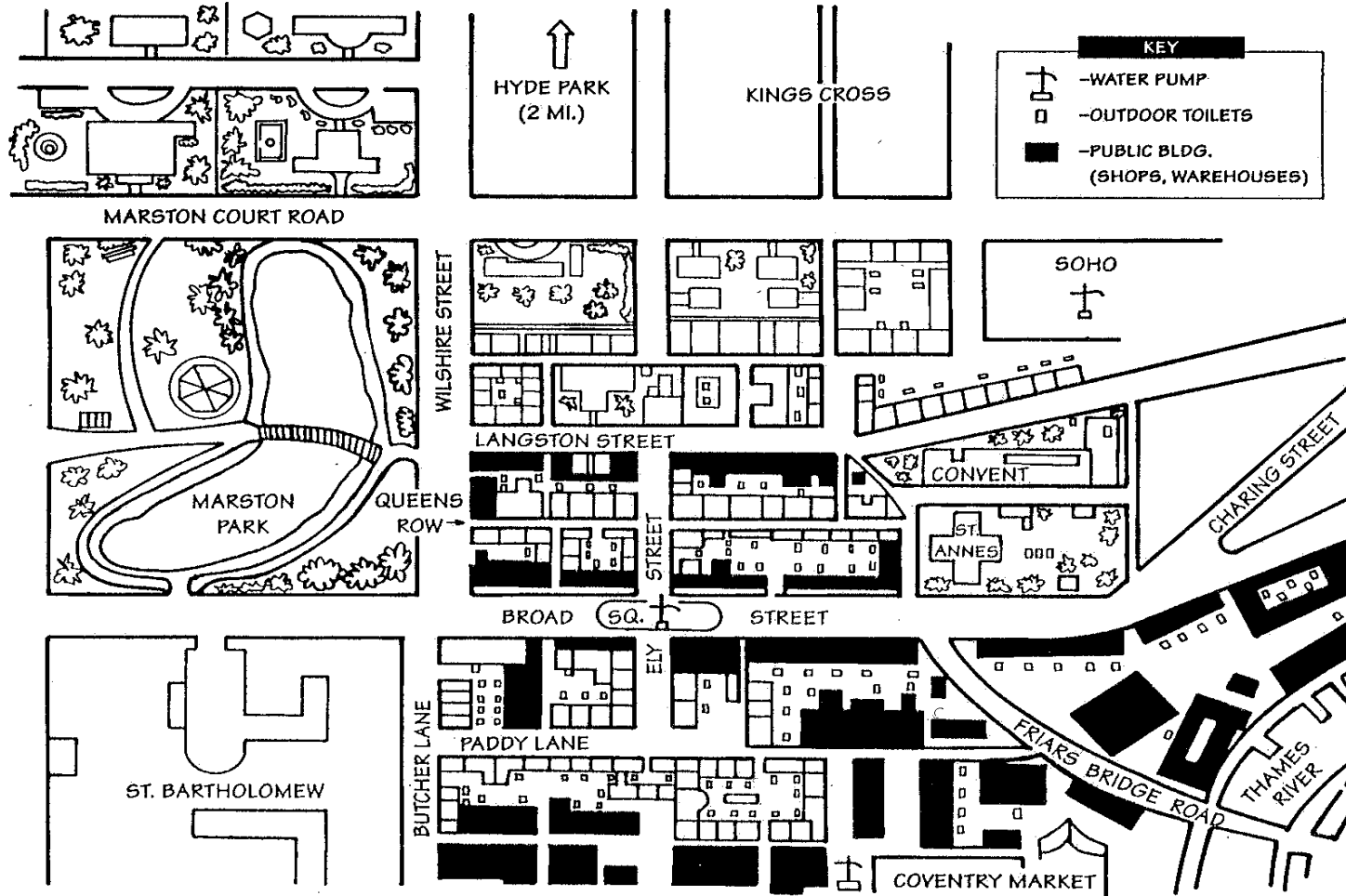


# Dr. Snow's Map





# Broad Street Area Map



# VICTIMS

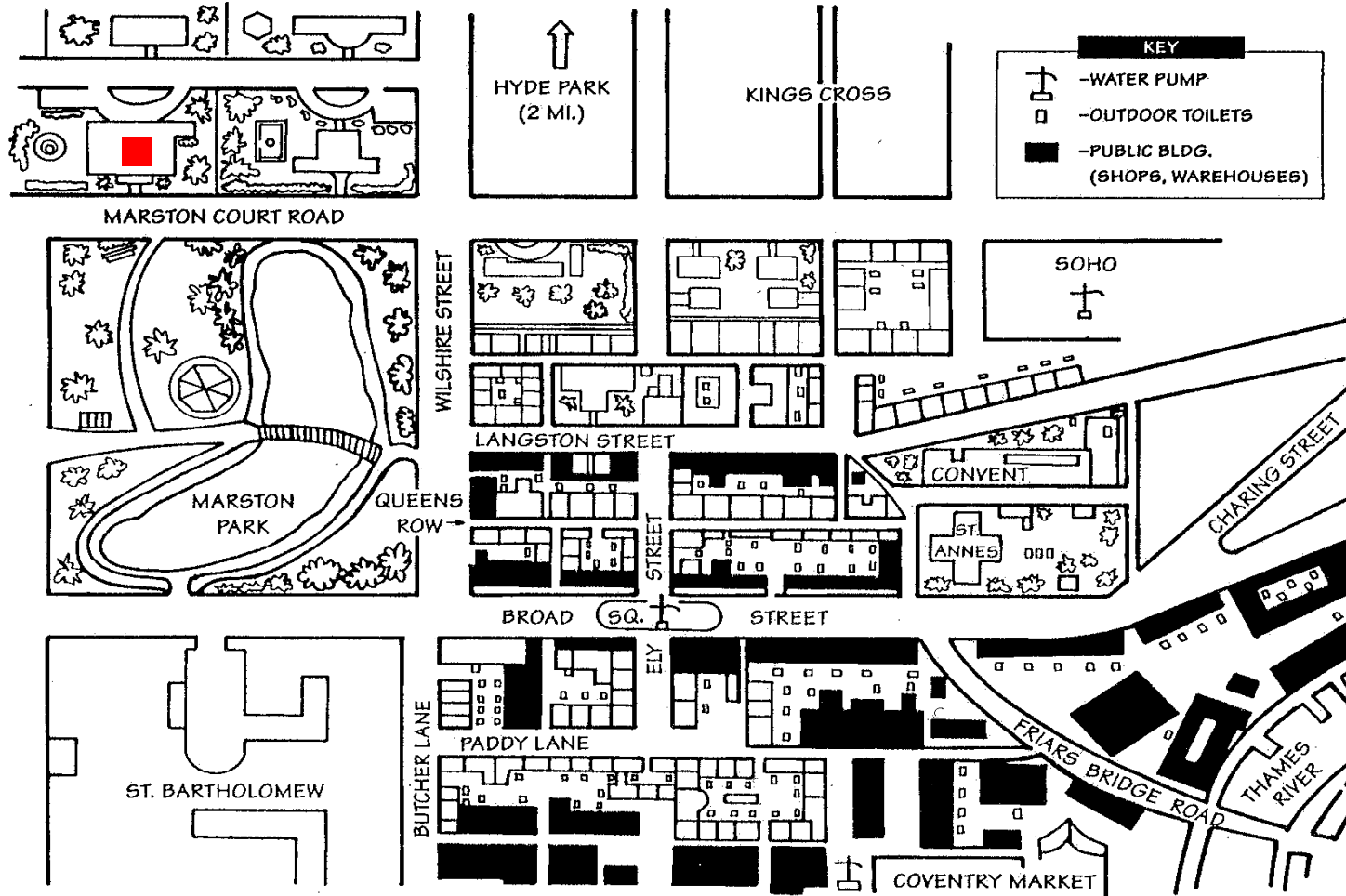


# MATILDA WRIGHT

- Wealthy 90 year old.
- Lived alone in the family mansion in Marston Court.
- Aunt of Thomas Sutterfield.
- Only member of household to get sick.
- Died in a matter of hours.



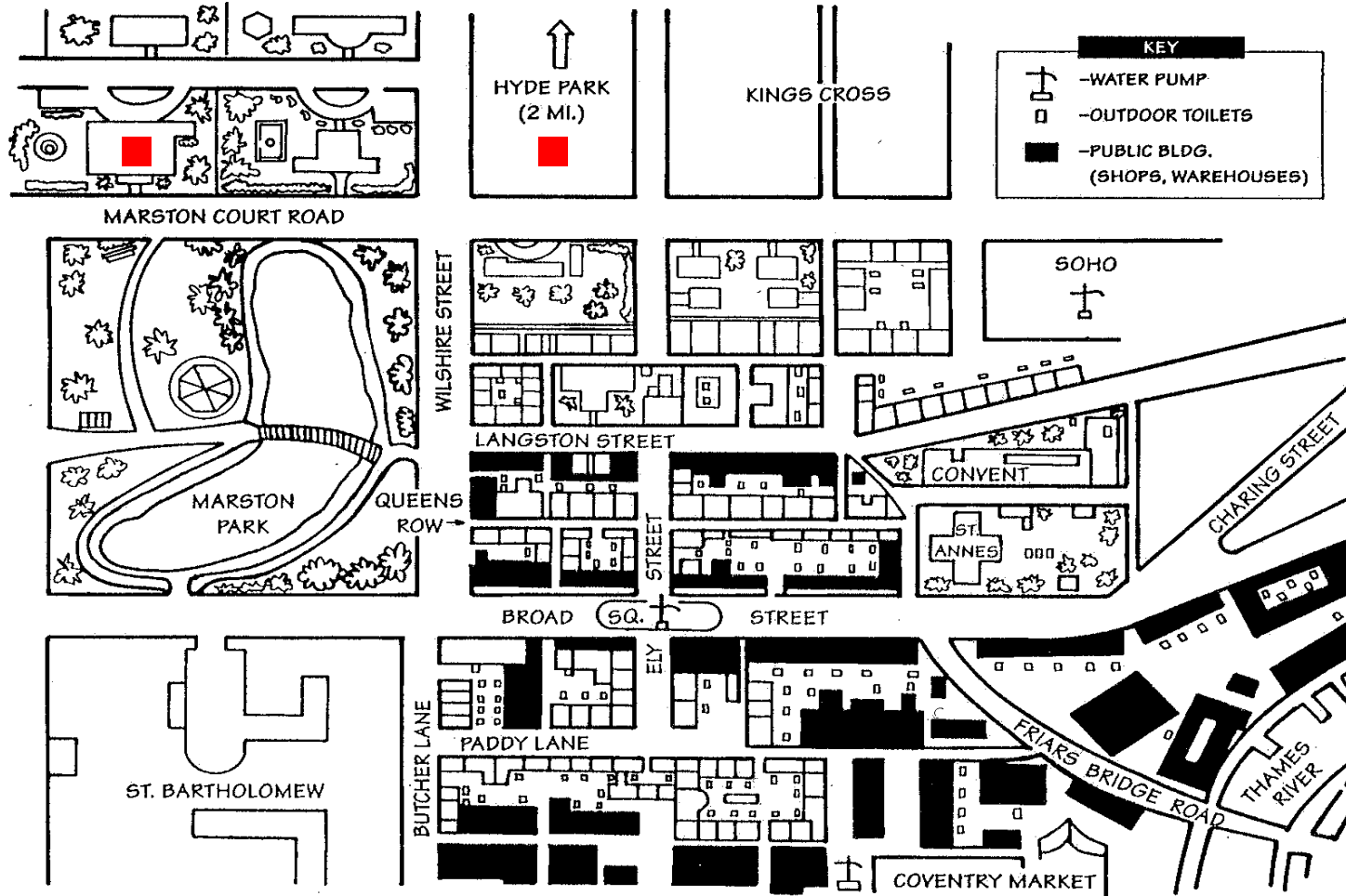
# Broad Street Area Map



# THOMAS SUTTERFIELD

- Lawyer who lives in Hyde Park with wife and two children.
- Only member of family to get sick.
- Won court case defending a Broad Street butcher accused of selling spoiled meat.
- Getting better.

# Broad Street Area Map

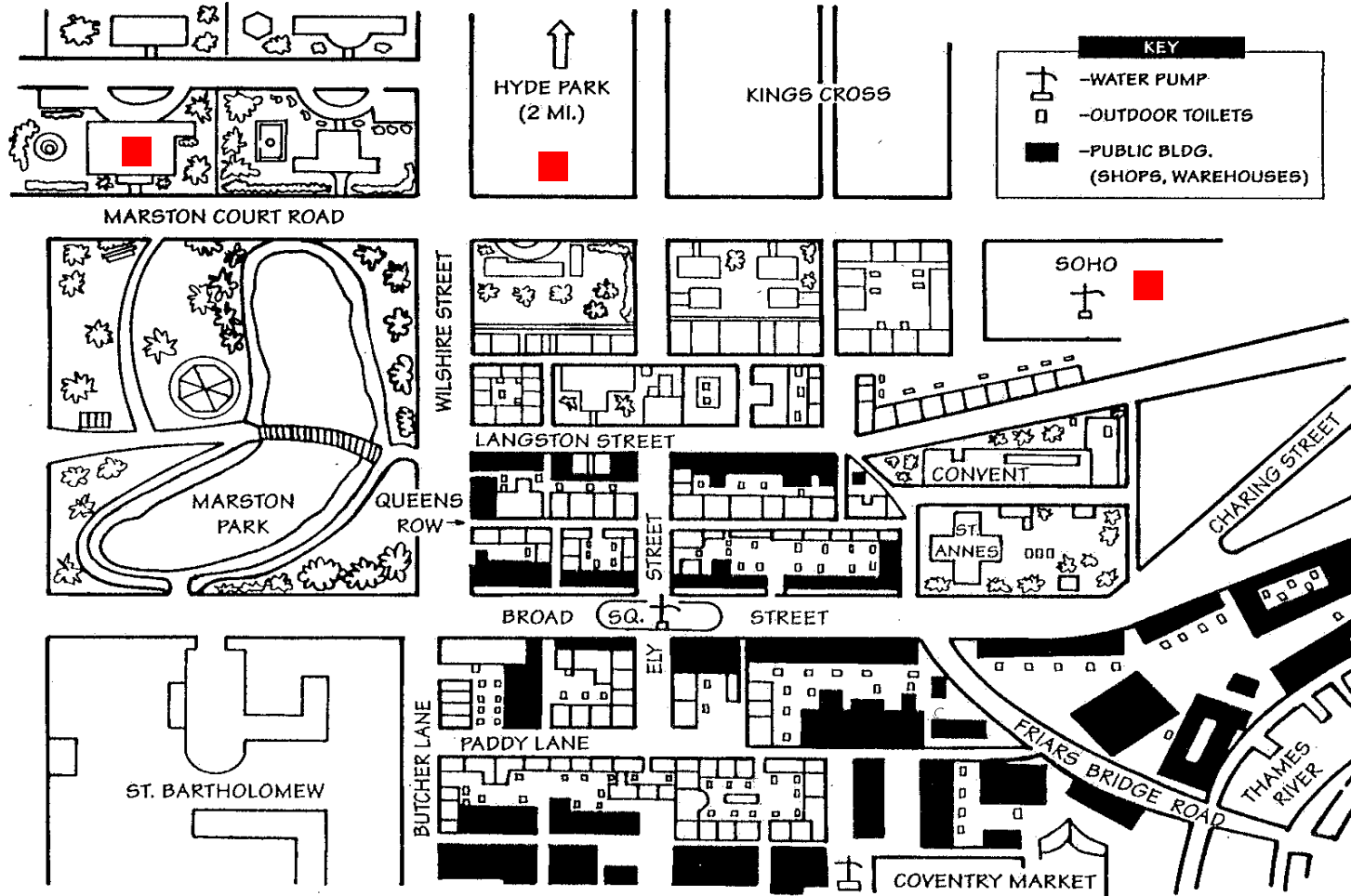


# JOHN AND MARY CANTY

- Lived in Soho.
- Pulled their cart through neighborhoods mending pots and pans.
- Often stopped to visit family who lived on Butcher Lane.
- Both died.



# Broad Street Area Map

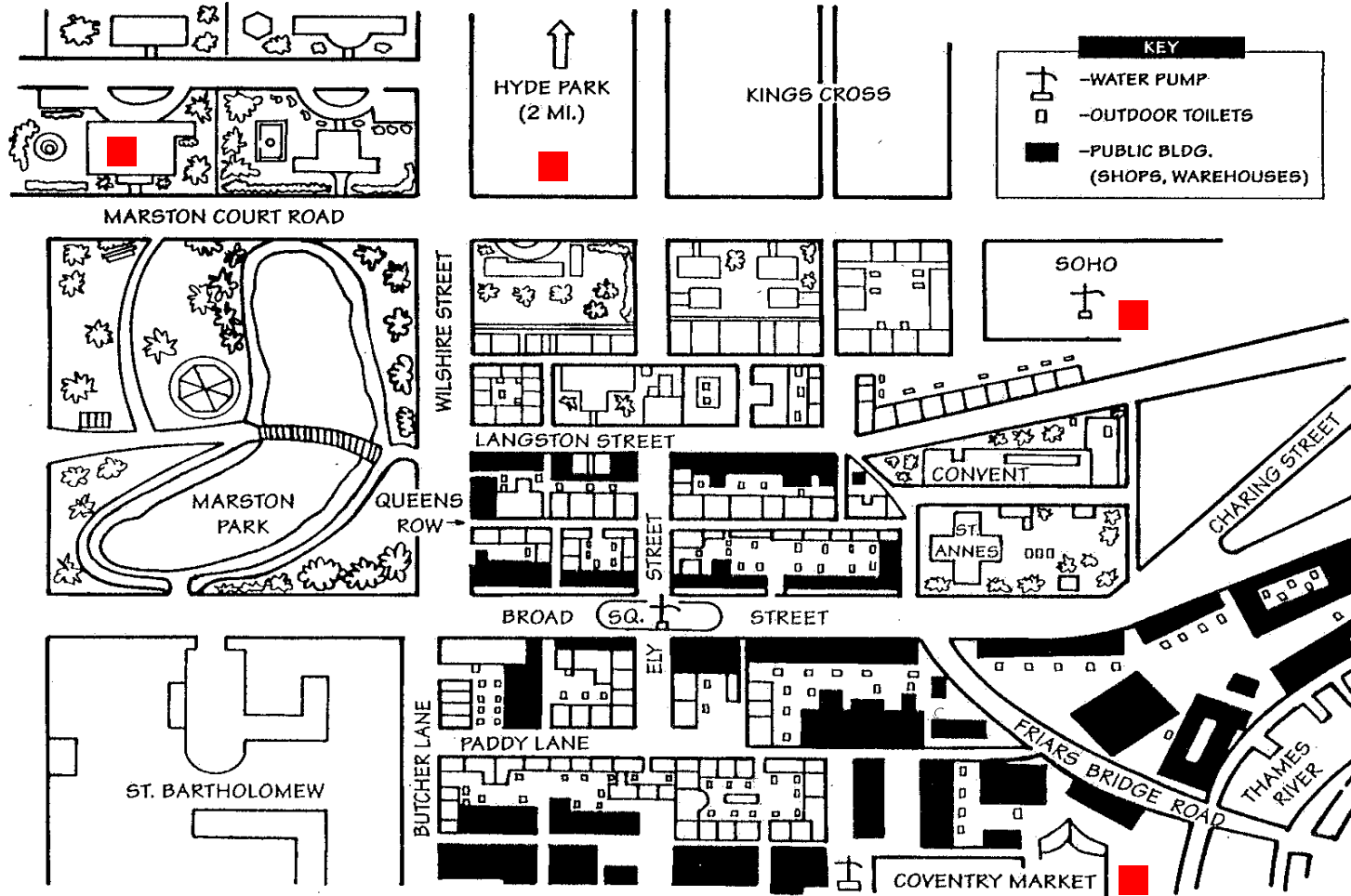


# MUCKY JOHNSON

- 18 year old delivery boy from Coventry Circle.
- Delivered food from Coventry Market to wealthy homes in Marston Court.
- Often stopped to eat lunch on Broad Street Square; said “the water from the Broad Street pump was the best in the city”.
- Died.



# Broad Street Area Map



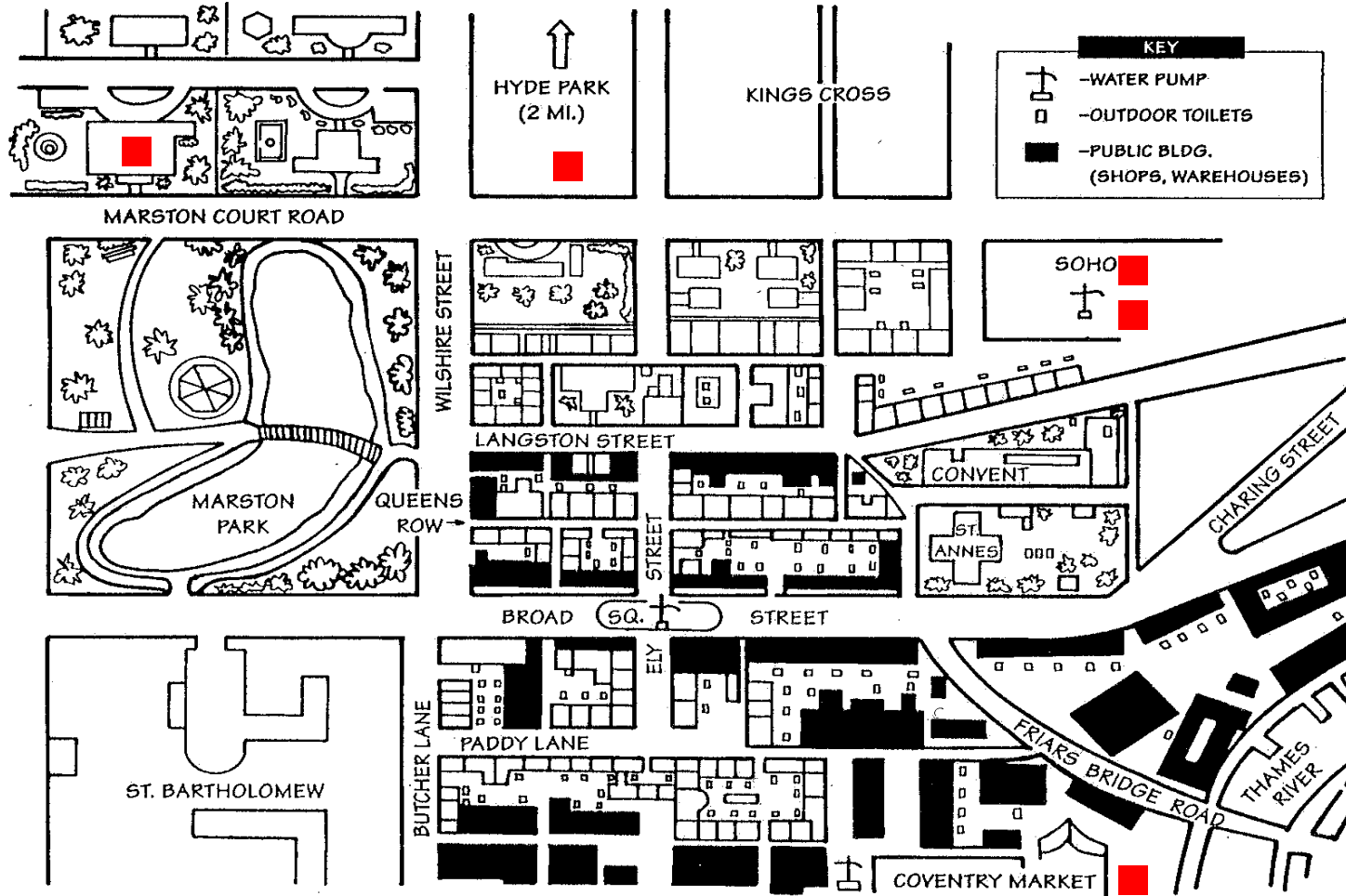
# TOLLY MARTIN

- 10 year old homeless boy who slept in doorways around Soho Square.
- Roamed quite far from Soho to beg for money.
- Died two days after a fight with another boy at Broad Street Square.





# Broad Street Area Map

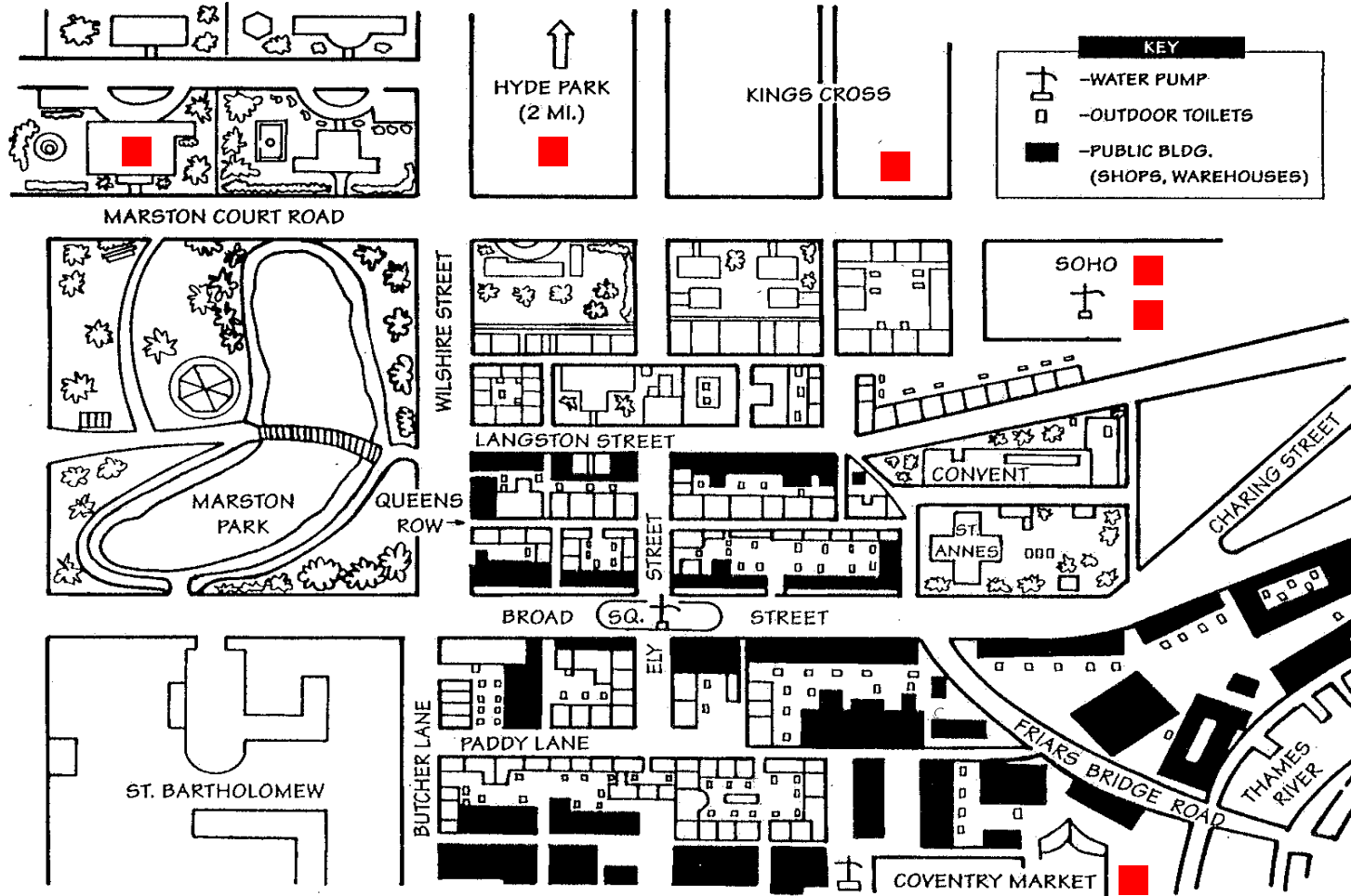


# SLYE CHILDREN

- Three of eight children of Mr. and Mrs. Slye, ages 7, 8, and 10 years old.
- Mr. Slye is a Broad Street butcher accused of selling spoiled meat.
- Slye family lives in Kings Cross.
- When not in school, three of the Slye children went with their father to work and played on Broad Street Square.
- These three are the only family members to get sick.
- Two died; one getting better.



# Broad Street Area Map

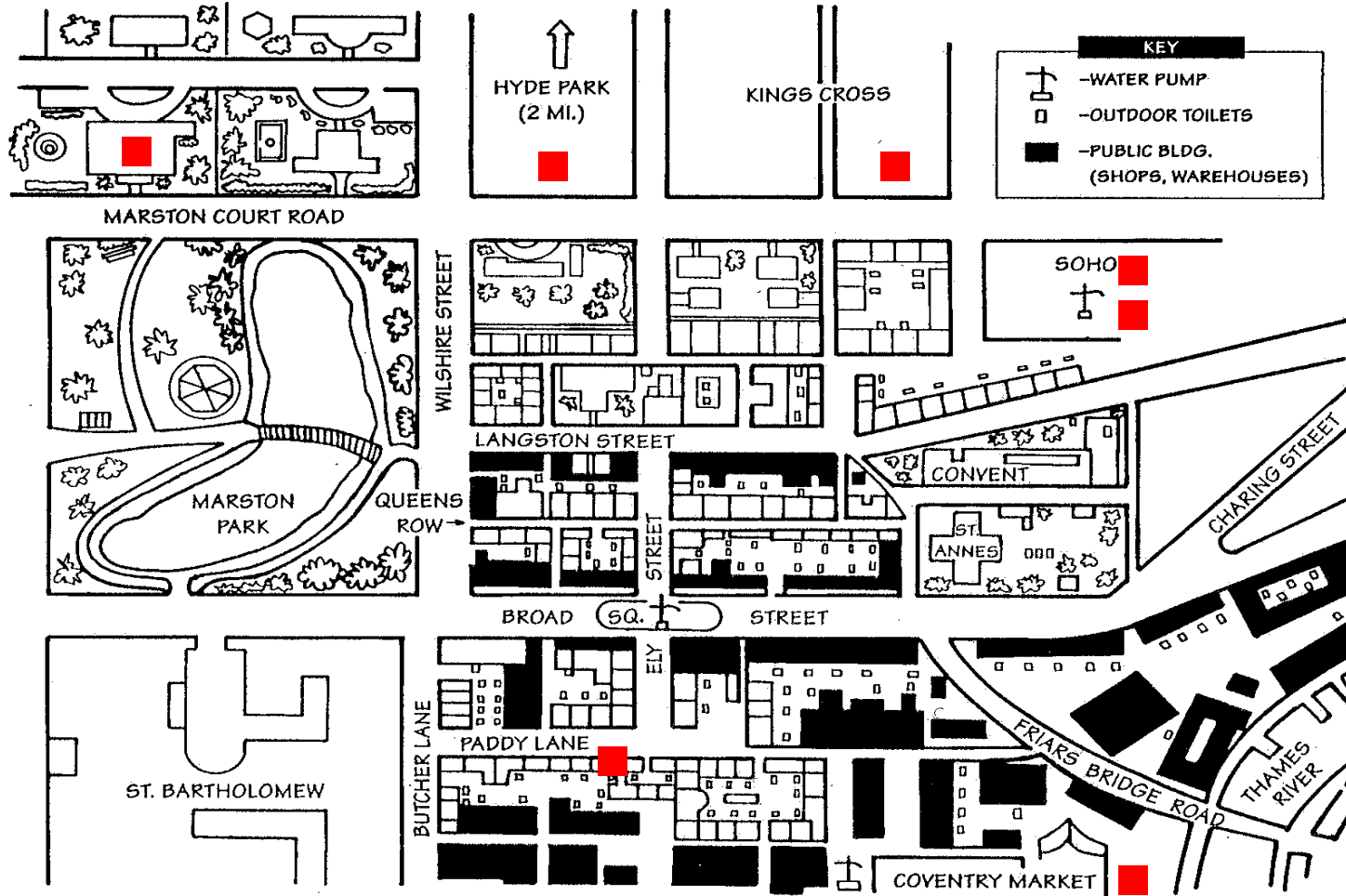


# OWEN TURNER

- Lived on Paddy Lane with wife and three children.
- Cleaned up the day's mess at the butcher shop.
- Entire family died.



# Broad Street Area Map

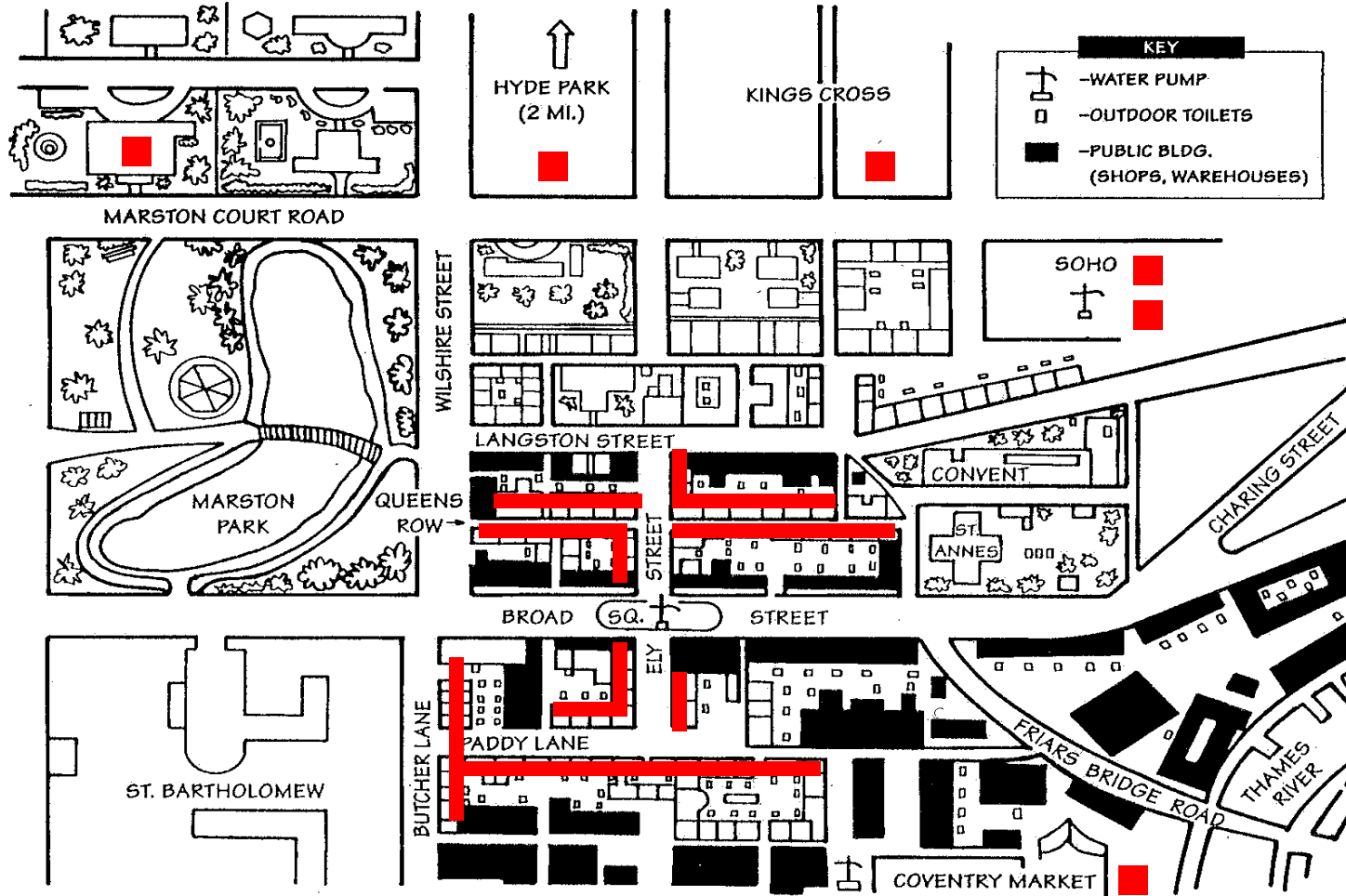


# OTHER VICTIMS

- NINE FAMILIES ON BUTCHER LANE
  - 37 people dead; 8 getting better
- TWELVE FAMILIES ON ELY STREET
  - 60 people dead; 10 getting better
- TWENTY-FIVE FAMILIES ON QUEENS ROW
  - 89 people dead; 31 getting better
- EIGHTEEN FAMILIES ON PADDY LANE
  - 83 people dead; 7 getting better



# Broad Street Area Map



CHOLERA VICTIMS = ■



# CLUES





# CLUE #1

- The people living around Broad Street are poor. Large families are crowded into one and two room apartments. None has indoor plumbing; residents use outdoor toilets and get their water from the nearest public pump.



# CLUE #2

- Thomas Sutterfield got sick two hours after visiting his aunt Matilda. He had tea, biscuits, and sausages with his aunt. It was a hot day and he took a drink of cool water before leaving.



# CLUE #3

- Following his fight with another boy, Tolly Martin washed blood off his mouth at the Broad Street pump and ran off with a sausage stolen from the butcher shop.



# CLUE #4

- Matilda Wright refused to drink water from the faucets in her home. She would only drink the sweet-tasting water that her servant hauled from the Broad Street pump.

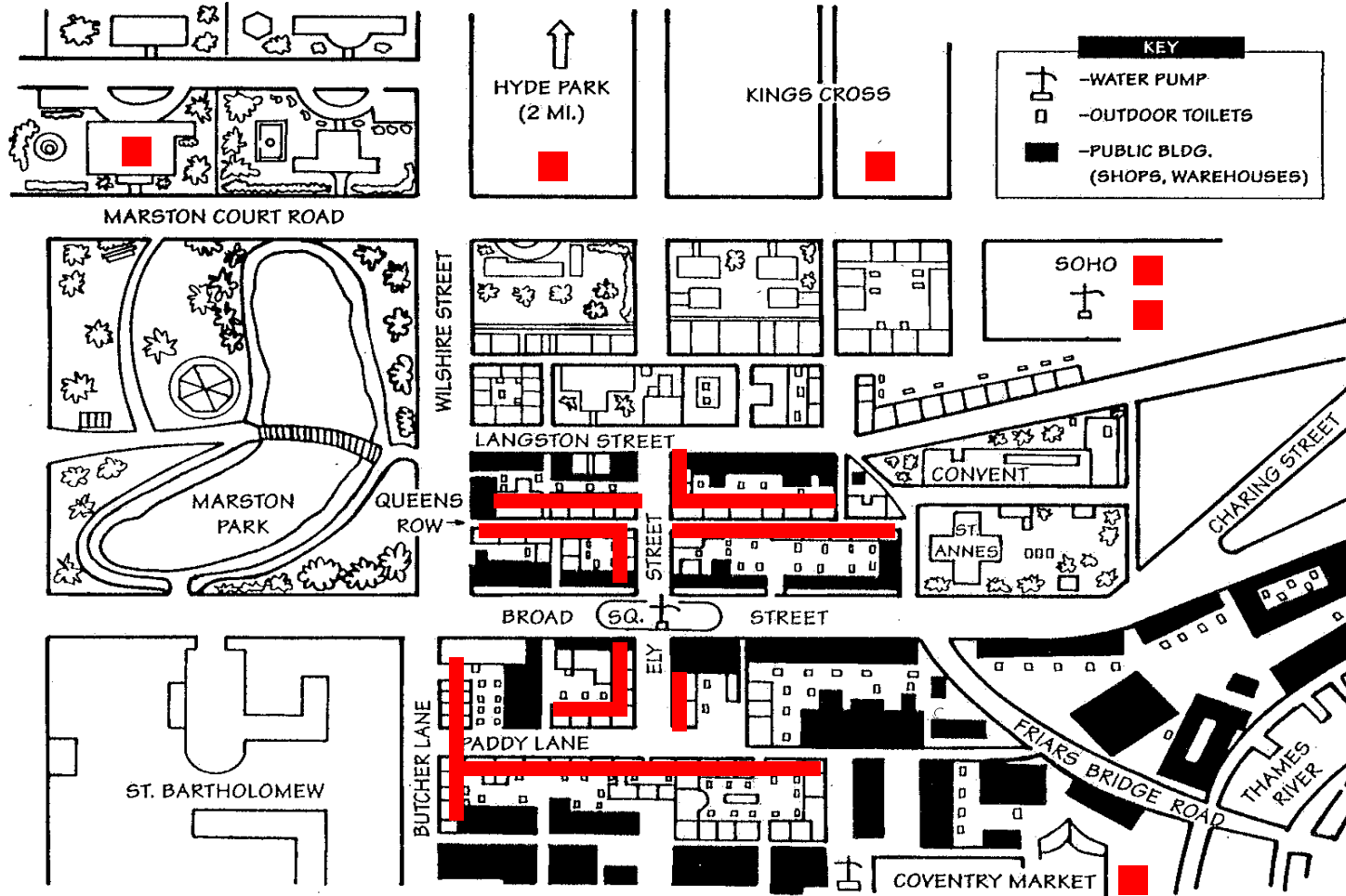


# CLUE #5

- Mr. and Mrs. Brown and their two children are the only people on Ely Street who have not gotten sick. Mrs. Brown's family lives in Soho. The Browns get their water from the Soho pump when they visit their relatives.



# Broad Street Area Map



CHOLERA VICTIMS = ■

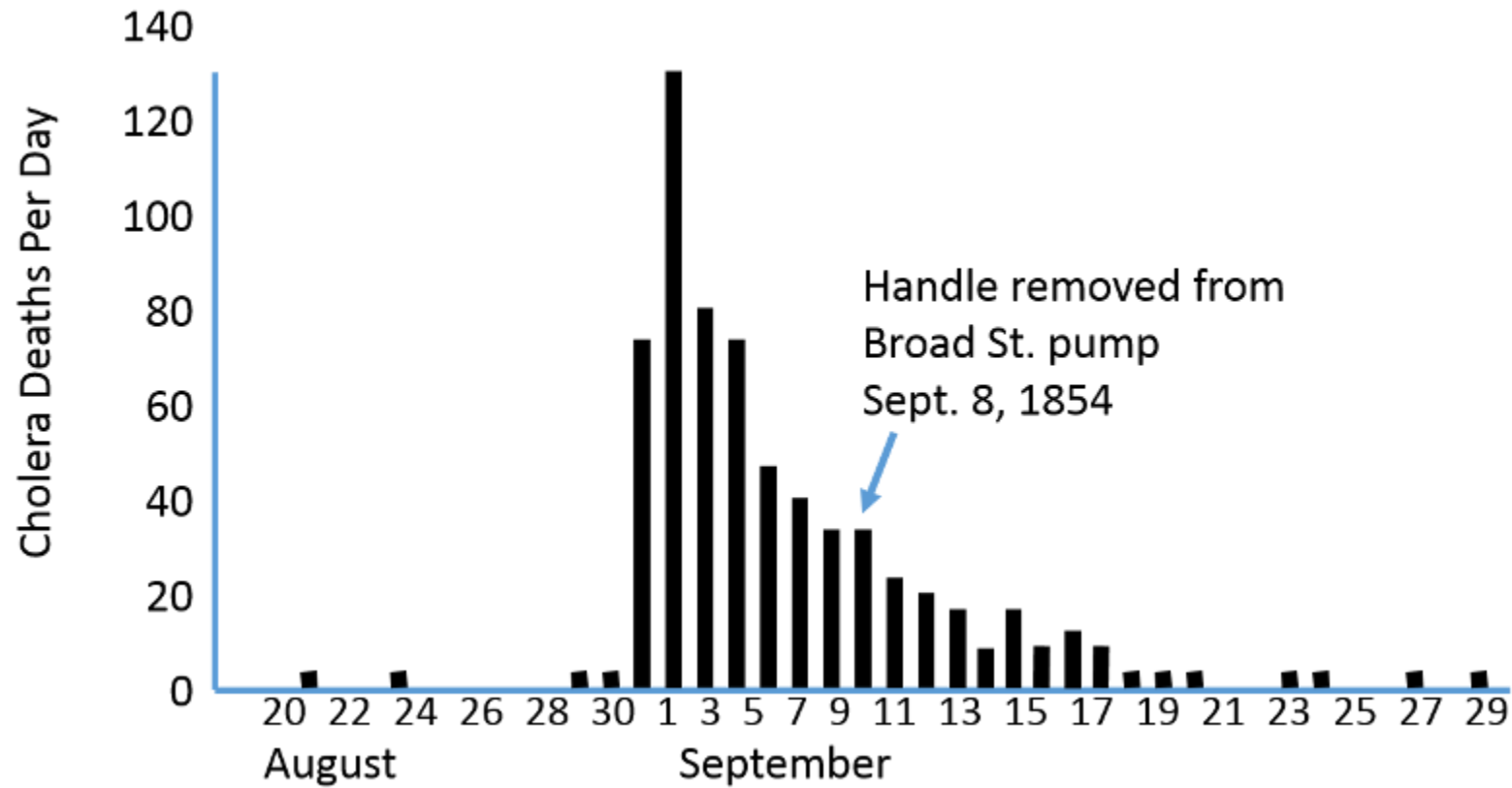


# Dr. Snow's Hypothesis

A HYPOTHESIS  
IS A POSSIBLE  
EXPLANATION.



# Epidemic Curve





# Broad Street Pump



# Could it happen today?

- 1982 Camp Lejeune NC – Dry Cleaning Chemicals from underground storage tanks
- 1993 Milwaukee WI – Cryptosporidium protozoa in Lake Michigan
- 2014 Flint MI – Lead from plumbing pipes

