



THE WATERS OF ROME

KATHERINE RINNE

SPUR, 15 FEBRUARY 2011



ANCIENT AQUEDUCT OR BAROQUE FOUNTAIN





The Waters of Rome
Aqueducts, Fountains, and the
Birth of the Baroque City

KATHERINE WENTWORTH RINNE



Musical Fountain, Bellagio Hotel, Las Vegas
WET Design



St. Peter's Fountain, Vatican City
Carlo Fontana and Gian Lorenzo Bernini



JUSTIN HERMAN PLAZA,



FONTANA IN PIAZZA DEGLI EROI, 1966



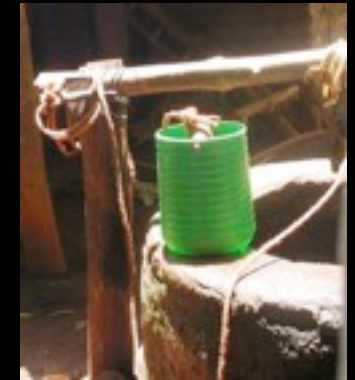
ARA PACIS, 2006

WHAT POSSIBLE RELEVANCE CAN ROME'S WATER
INFRASTRUCTURE SYSTEM HAVE FOR US TODAY?



A CITY WHERE EXCESS IS FLAUNTED....

Tuesday, February 15, 2011



WHILE WATER SCARCITY IS UBIQUITOUS
IN MANY PARTS OF THE WORLD,



AS DESERTS ENCROACH ON CITIES,



AND WATERS RISE

ROME HAS ITALY'S LARGEST WATER UTILITY SYSTEM

IT PROVIDES

901,110 CUBIC METERS OF WATER PER DAY

TO 3.5 MILLION INHABITANTS IN THE GREATER METROPOLITAN AREA

.2575 CUBIC METERS PER PERSON PER DAY

SOURCE: ACEA, SPA, ROMA

WE HAVE CALIFORNIA'S THIRD LARGEST WATER UTILITY SYSTEM

IT PROVIDES

984,100 CUBIC METERS OF WATER PER DAY

TO 2.4 MILLION INHABITANTS IN SAN FRANCISCO, SANTA CLARA,
ALAMEDA AND SAN MATEO COUNTIES

.4100 CUBIC METERS PER PERSON PER DAY

SOURCE: SFPUC

San Francisco Bay Area Water Concerns 2011

Climate Change

Rising Tides

Scarcity

Sanitation

Quality

Aging Infrastructure

Privatization

Rome Water Concerns 2011

Climate Change

Rising Tides

Scarcity

Sanitation

Quality

Aging Infrastructure

Privatization

Rome Water Concerns 1560

Climate Change

Rising Tides

Scarcity

Sanitation

Quality

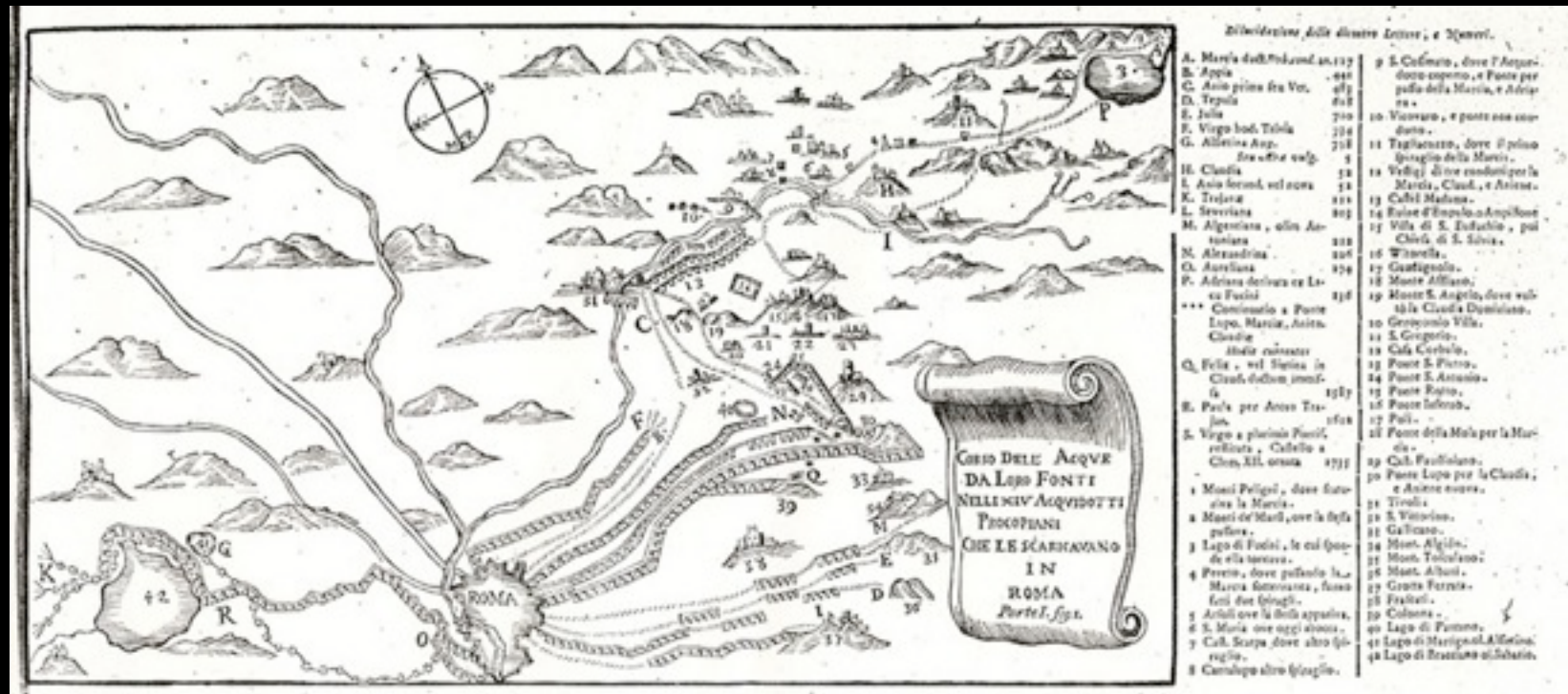
Aging Infrastructure

Privatization



Sources: ESRI, TeleAtlas, USGS

TODD TRUMBULL / The Chronicle





ACQUA FELICE DISTRIBUTION ROUTE FROM SPRINGS TO CITY



HETCH HETCHY AQUEDUCT

AQUA CLAUDIA, ROME





GREGORIANA FALLS, TIVOLI



O'SHAUGHNESSY DAM

HETCH HETCHY PIPELINE, 4 FEBRUARY 2011

Assignment 7 

Hetch Hetchy project gives inspectors peek at pipes

Friday, February 04, 2011



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CLOACA MAXIMA, 20 MAY 2010



AGING INFRASTRUCTURE

THE PROBLEMS ARE THE SAME EVERYWHERE

HETCH HETCHY PIPELINE
BUILT IN 1960S

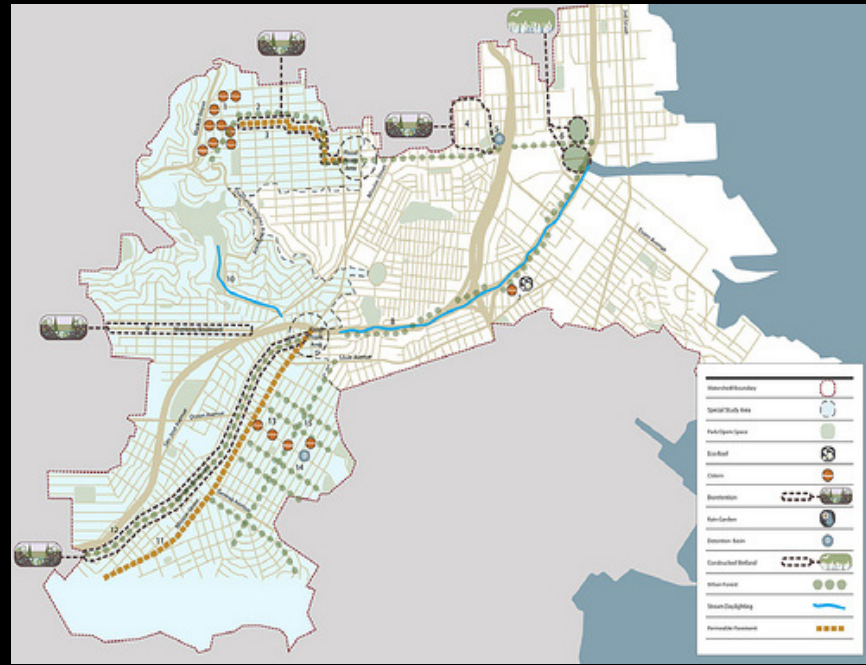
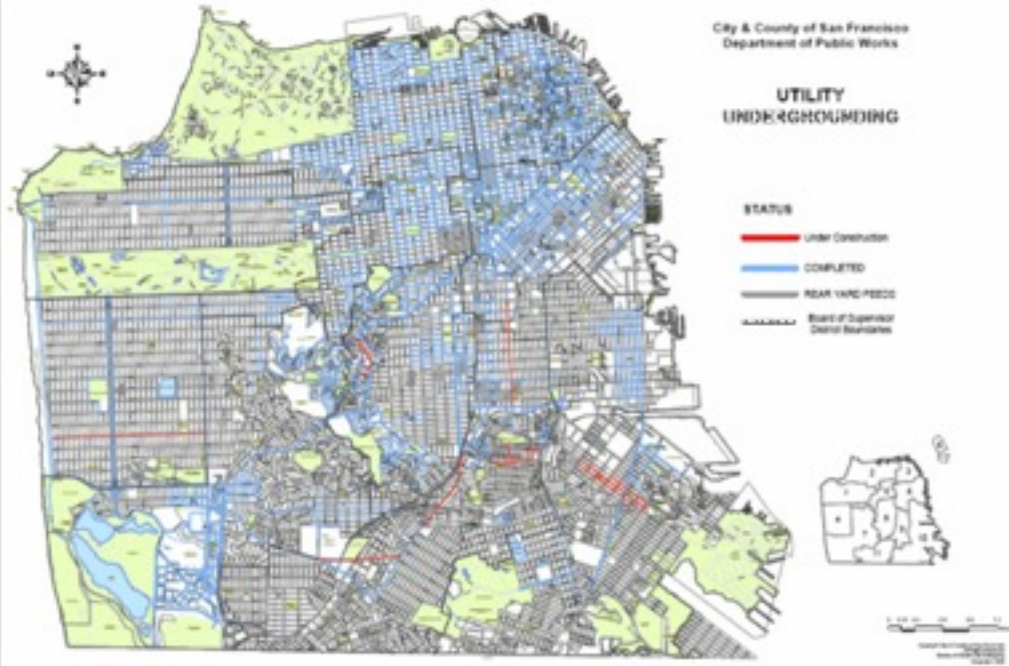


AQUA TRAIANA AQUEDUCT
BUILT IN 1st CENTURY AD



DELAYED MAINTENANCE IS NOT A NEW PROBLEM

A MAZE OF UNDERGROUND STREAMS, UTILITIES, AND SEWERS



CLIMATE CHANGE AND RISING WATERS



KUTH RANIERI ARCHITECTS

FOLDING WATER: A VENTILATED LEVEE FOR A LIVING ESTUARY



TIBER RIVER EMBANKMENTS, ROME, 1871-1889

CLIMATE CHANGE AND RISING WATERS ARE NOT NEW TO ROME



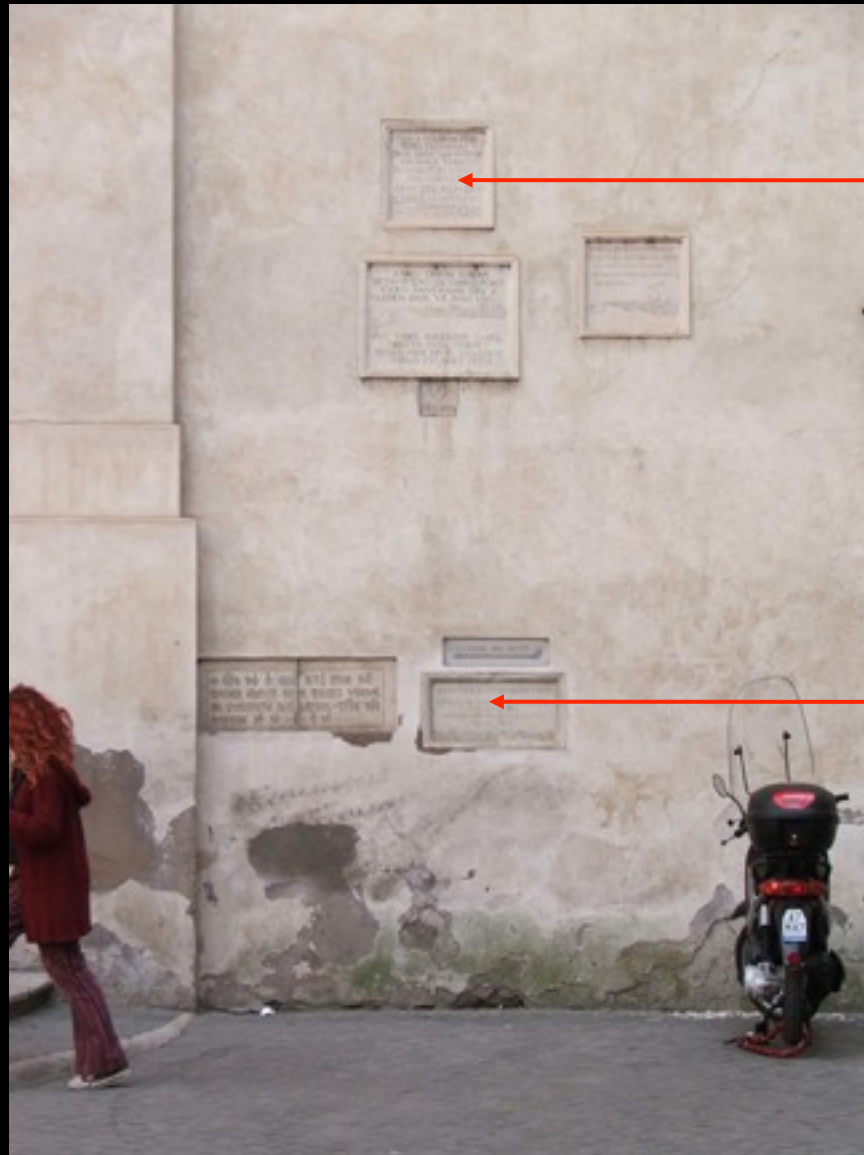
6 METERS ABOVE
NORMAL, 2008

ROME HAS RECORDED FLOODS FOR MORE THAN 2000 YEARS

CLIMATE CHANGE HAS BEEN AN ISSUE SINCE THE SIXTEENTH CENTURY



THE WATERMARKS PROJECT, CHRIS BODLE



19.56 METERS
ABOVE SEA LEVEL

17.22 METERS
ABOVE SEA LEVEL

1598 FLOOD -- 19.56 meters above sea level



ABOUT 15 METERS

ABOUT 13 METERS

POLITICS, MONEY, AND WATER



“You may think you know what you’re dealing with,
But believe me, you don’t.”

"Forget it, Jake. It's Chinatown."



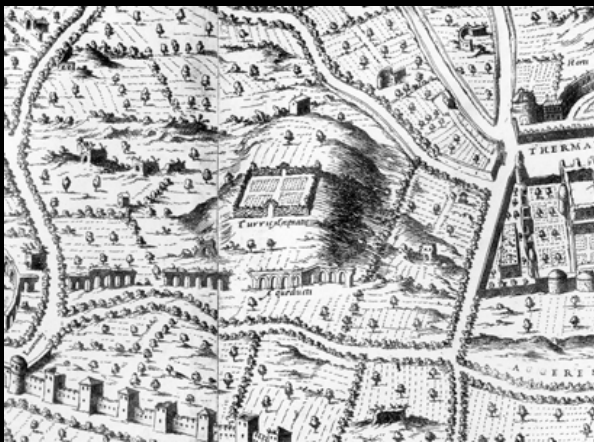
NOAH CROSS, CHINATOWN



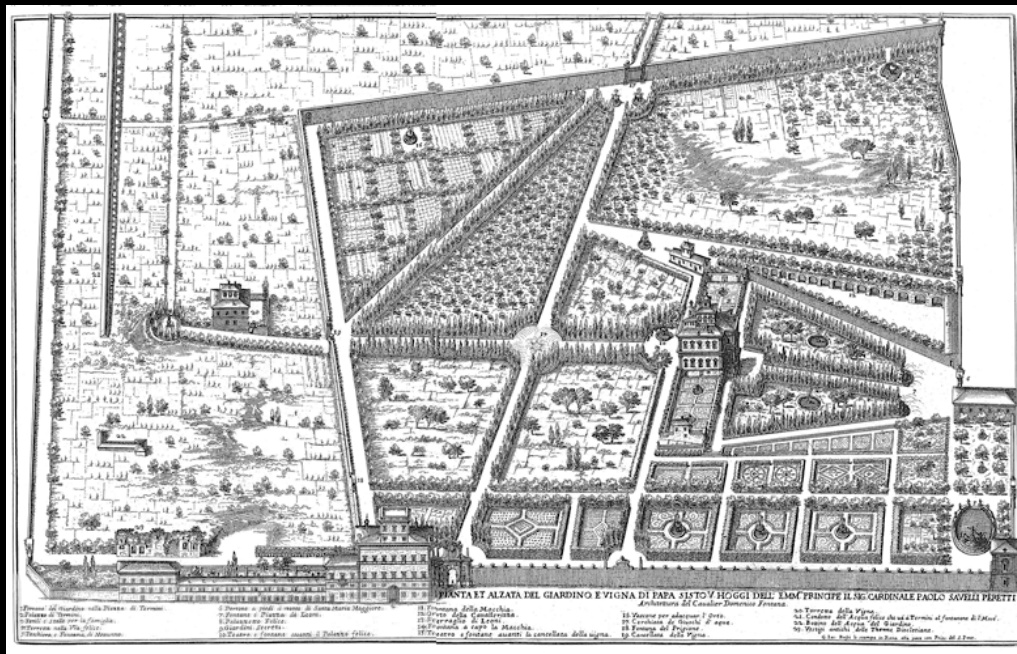
POPE SIXTUS V, ROME



SAN FERNANDO VALLEY



QUIRINAL HILL, ROME, VILLA MONTALTO





HOW CAN WE KNOW THE ELEVATION OF EACH PIAZZA IN RELATION TO THE WATER SOURCE?

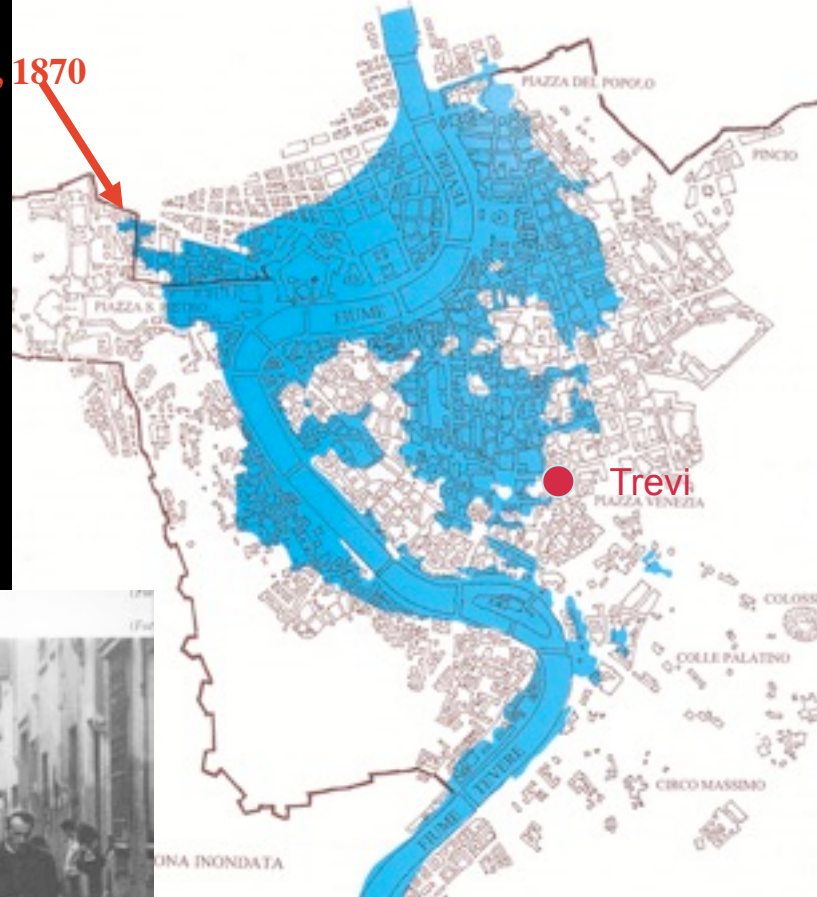
HOW CAN WE SURVEY A CITY OF SPAGHETTI STREETS?



Fig. 29 - La Via Portuense allagata durante la piena del dicembre 1937. Archivio fotografico del Servizio Idrografico di Roma.

Rome, 1937

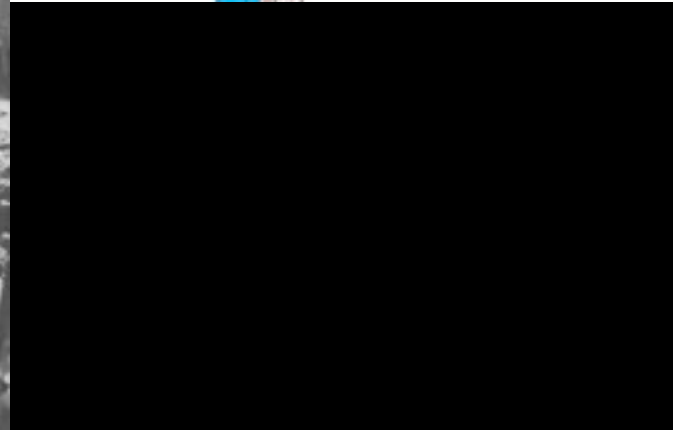
Rome, 1870



Florence, 1966
High Water Mark



destroyed over ten thousand cars in Florence alone. Below, salvage operators under way in a street on the southern bank of the Arno, though in most cases little could be saved.



1495 Flood Level
Piazza San Eustachio



1495 Flood Level
Piazza Madama



1495 Flood Level
S Maria sopra Minerva

Here the images have been adjusted to demonstrate the topographic conditions in three flooded piazzas, all within a few hundred meters of each other.

19.56 meters

1495 Flood Level
Piazza Madama



1495 Flood Level
Piazza San Eustachio



1495 Flood Level
S Maria sopra Minerva



THE ELEVATION OF THE PIAZZA IN
RELATION TO THE WATER SOURCE
DETERMINES THE FOUNTAIN HEIGHT



Barcaccia Fountain, Rome
Gian Lorenzo Bernini



St. Peter's Fountain, Vatican City
Carlo Fontana and Gian Lorenzo
Bernini

PRIVATIZATION -- AMONG THE MOST CRITICAL
ISSUES IN THE TWENTY-FIRST CENTURY

* A GLOBAL CONCERN *





THERE IS TROUBLE IN PARADISE



Tuesday, February 15, 2011



Water is not merchandise!

No to privatization.

National Demonstration 20 April 2010

WATER CONSERVATION



Tuesday, February 15, 2011



Tuesday, February 15, 2011