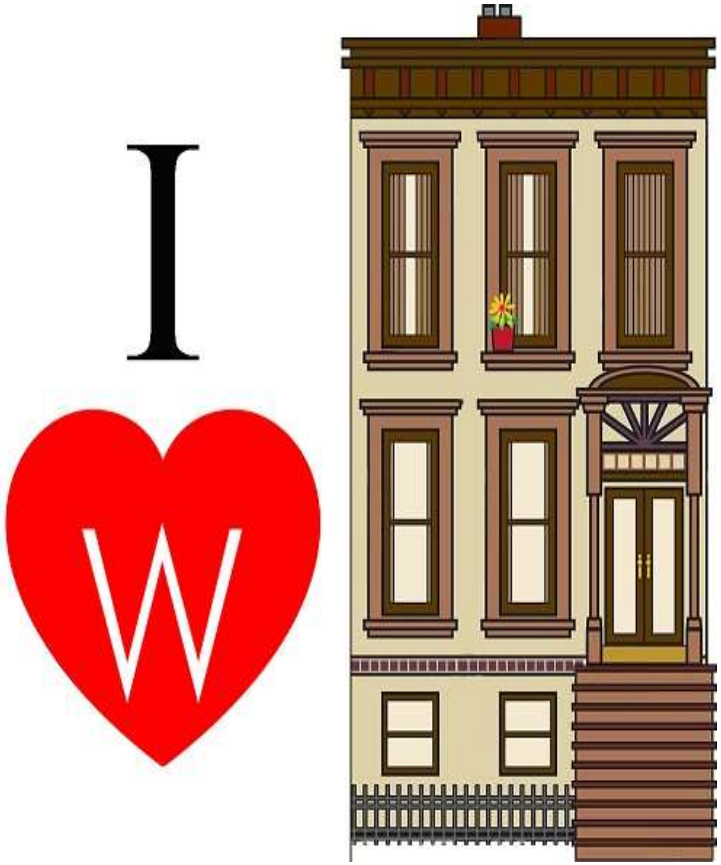
I <Heart>Brownstones:
Not Just a Pretty Façade

Friday, March 3, 2017



LANDMARK WEST!

THE COMMITTEE TO PRESERVE THE UPPER WEST SIDE

Generously hosted by ARUP

Michael Devonshire
Architectural Conservator

Partner and Director of Conservation

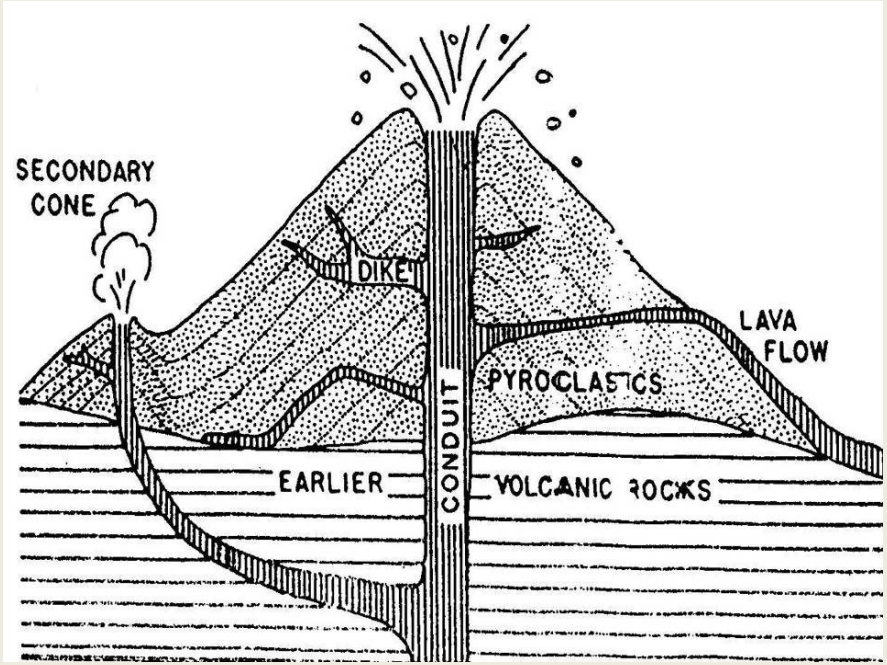
Jan Hird Pokorny Associates, Inc.

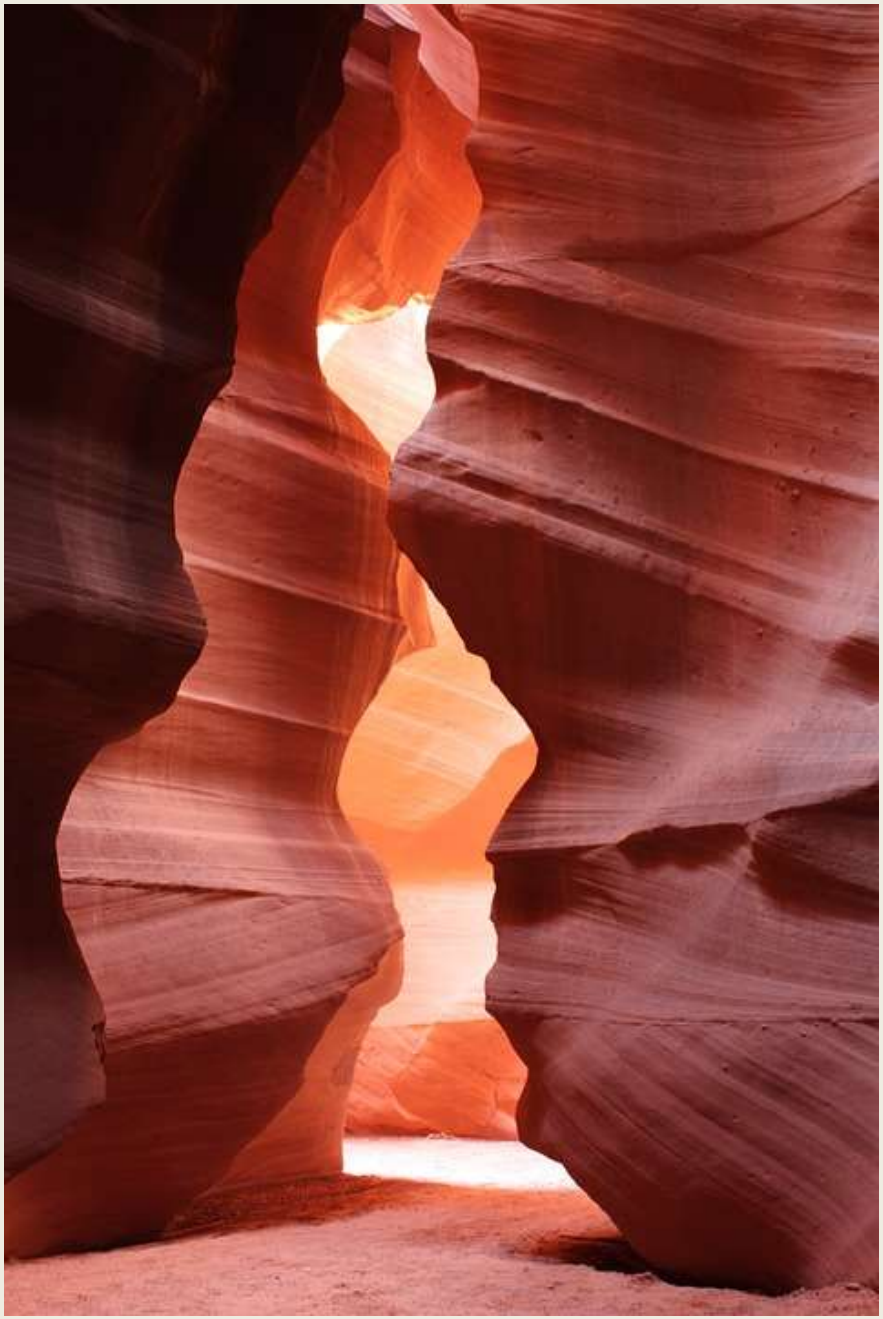
jhpokorny.com

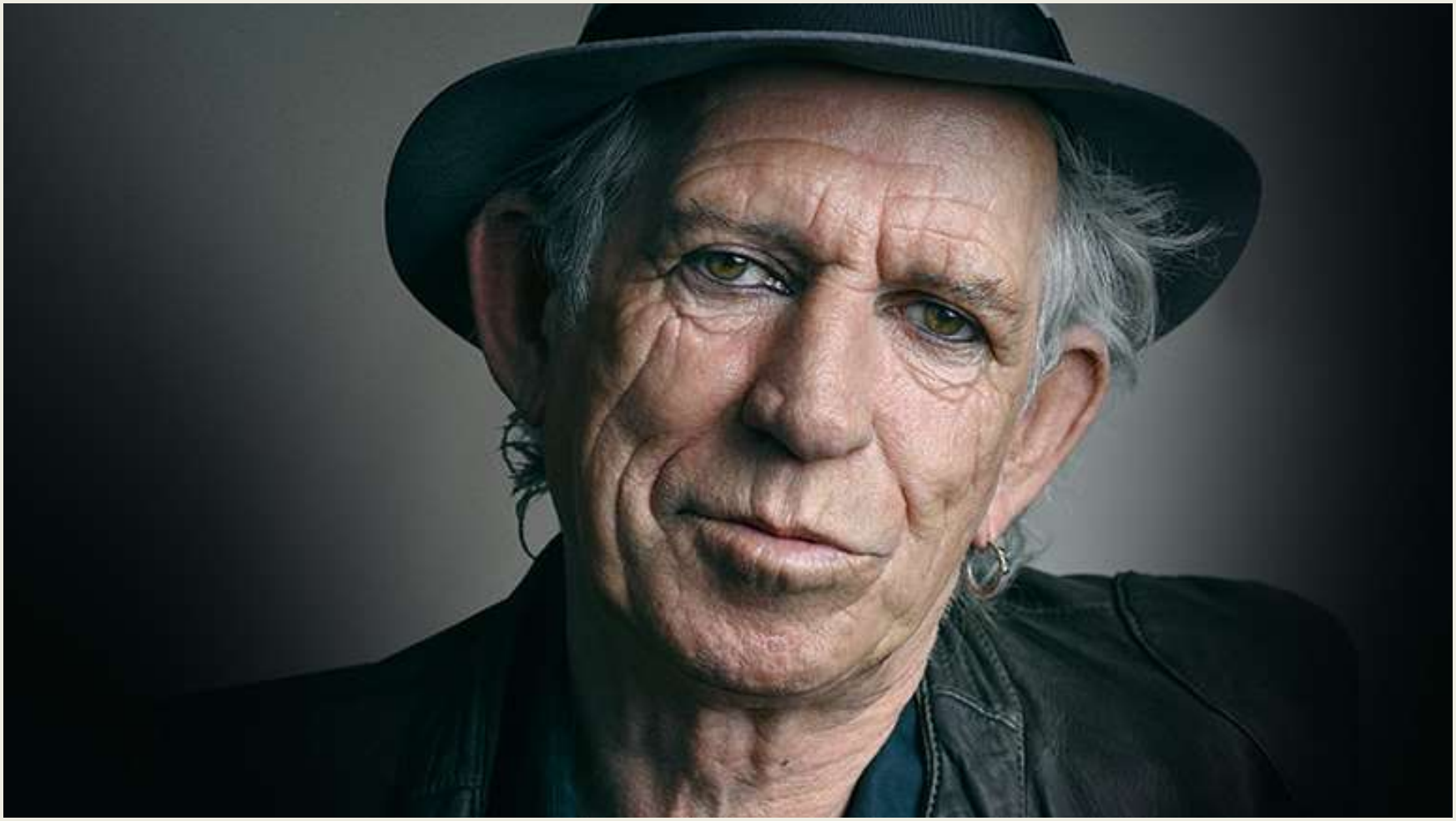
Brownstone


ONE WAY
BROADWAY
ST. PAULS CHAPEL

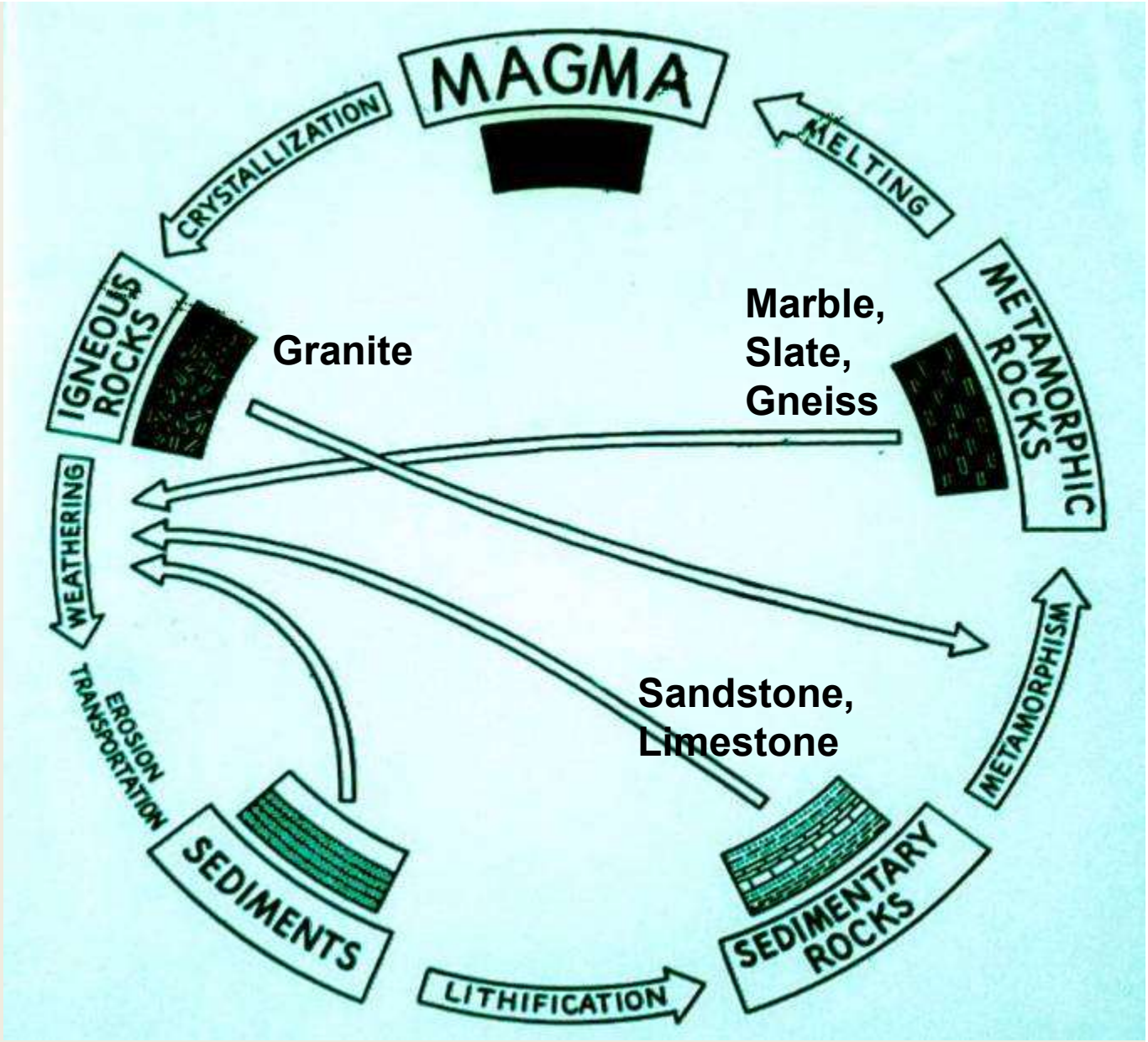

Cooper Square, New York City.

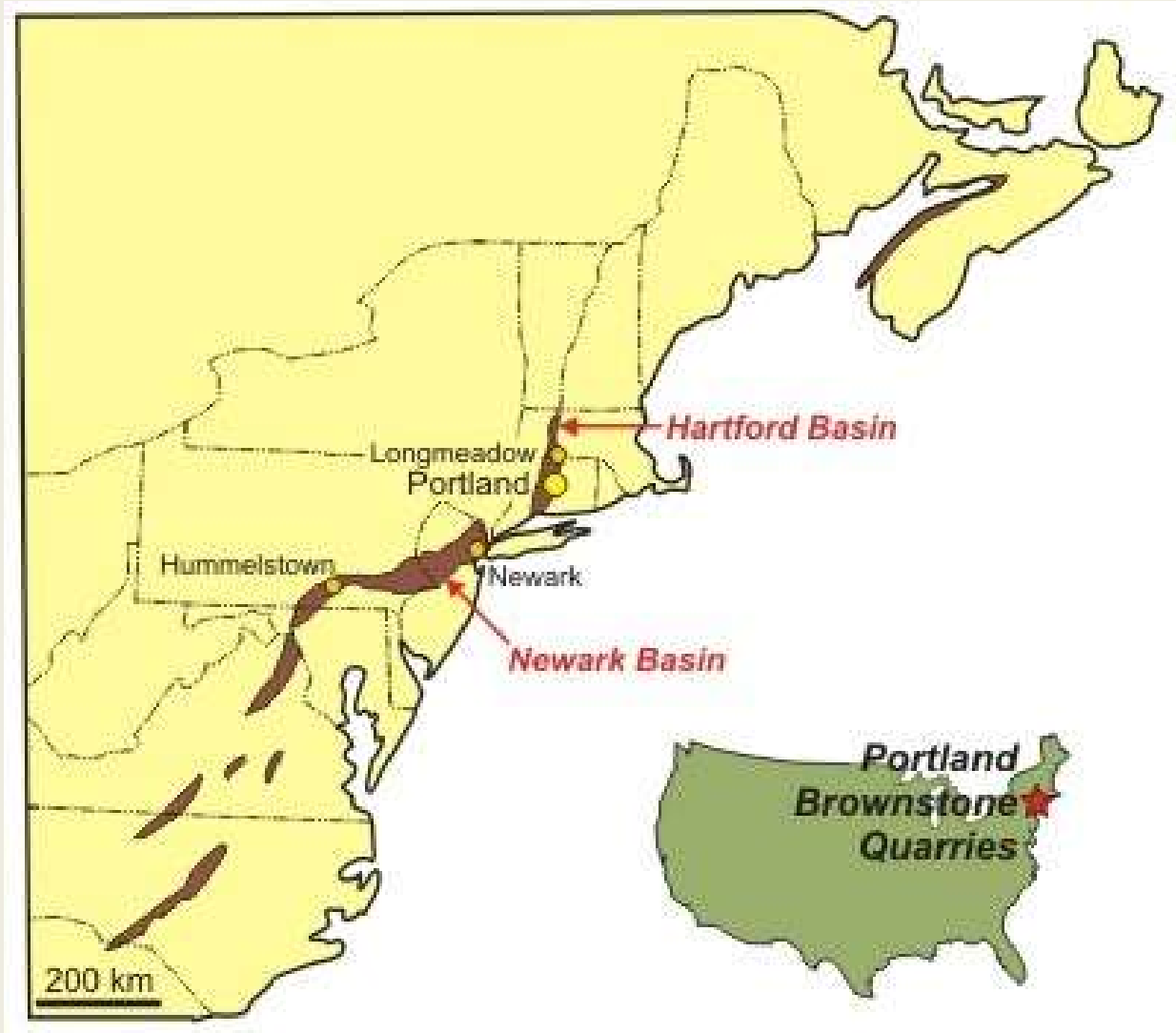

SECONDARY
CONE
DIKE
CONDUIT
LAVA
FLOW
PYROCLASTICS
EARLIER
VOLCANIC ROCKS

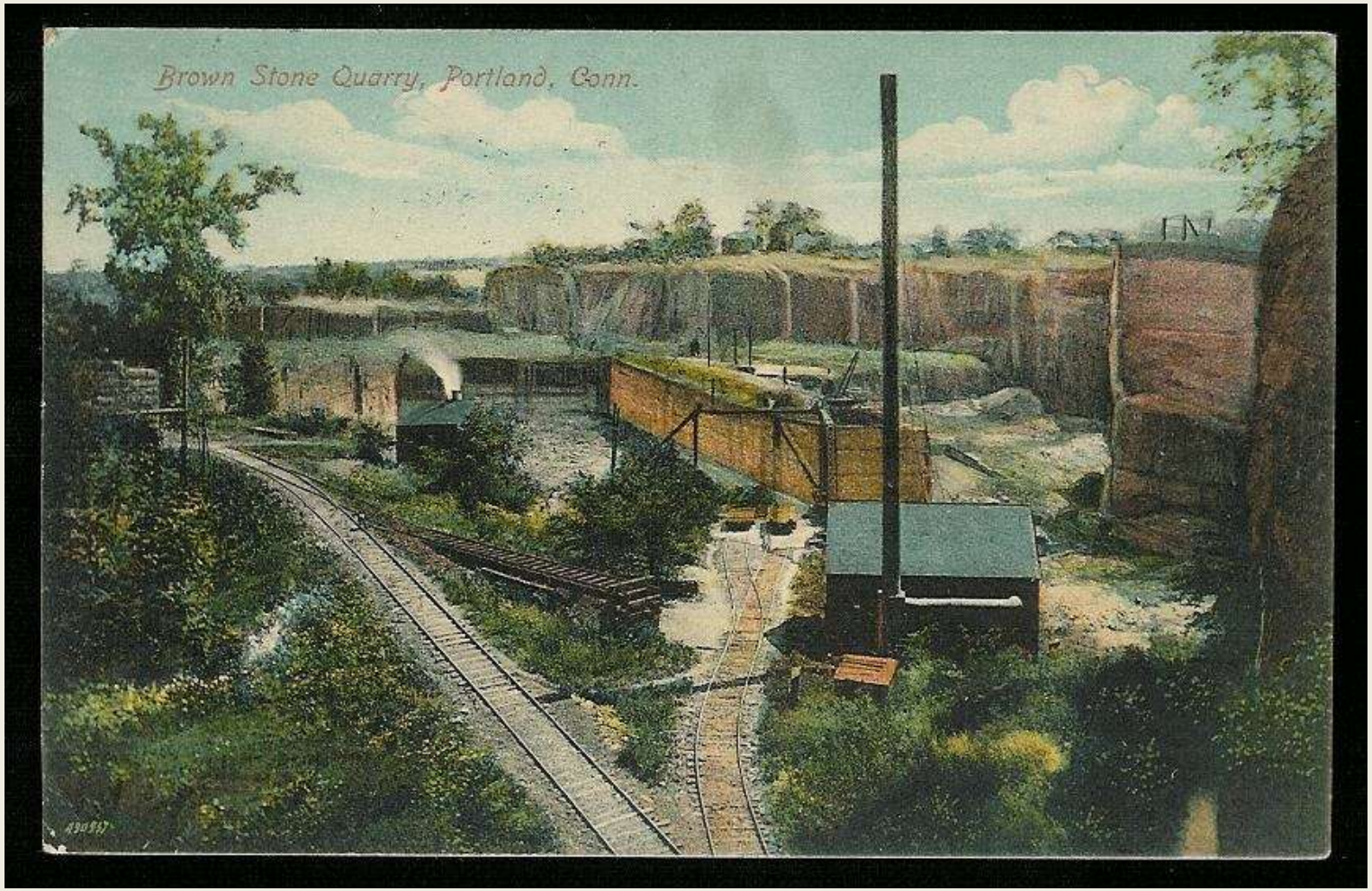




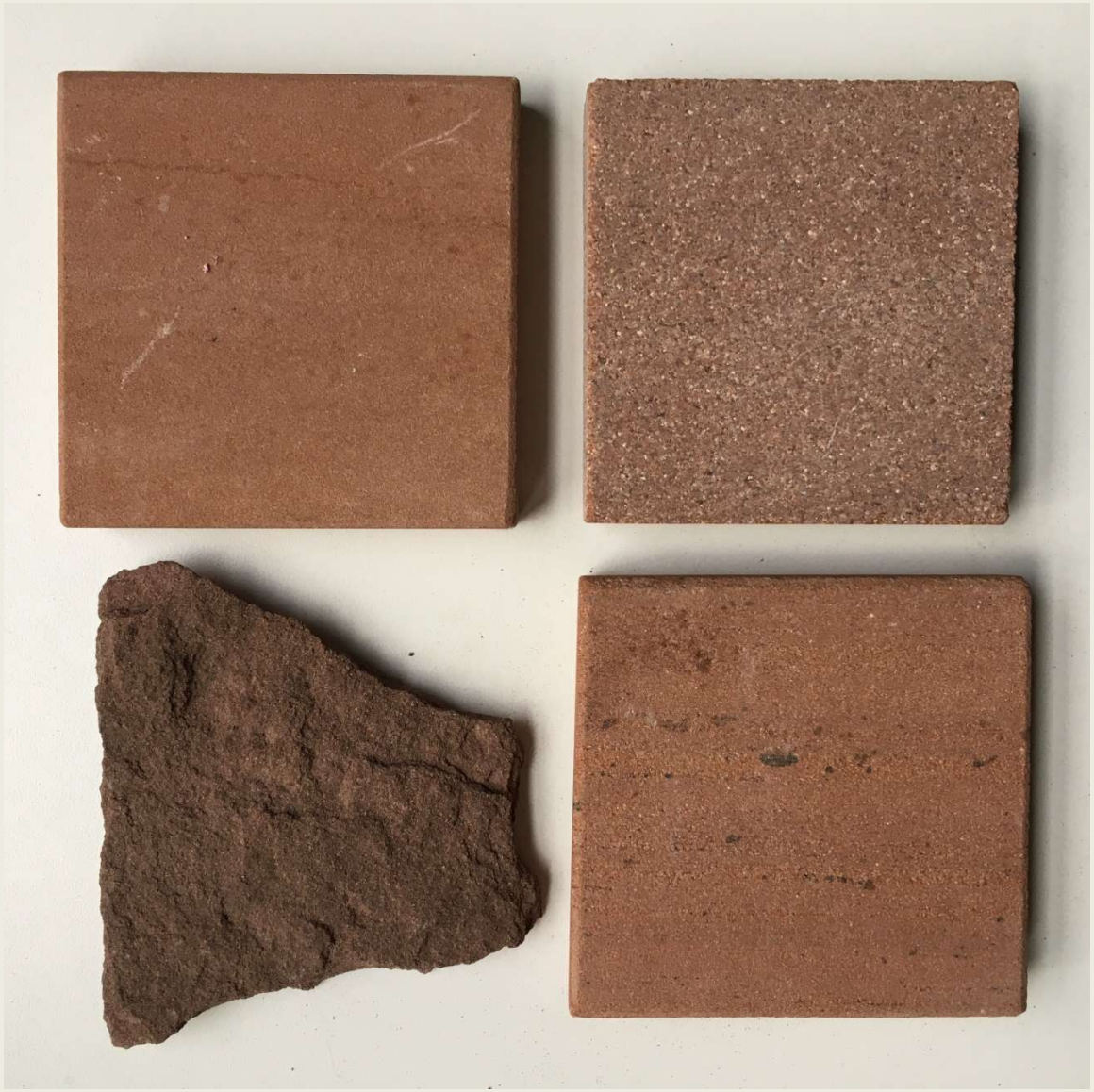
Formation Cycle

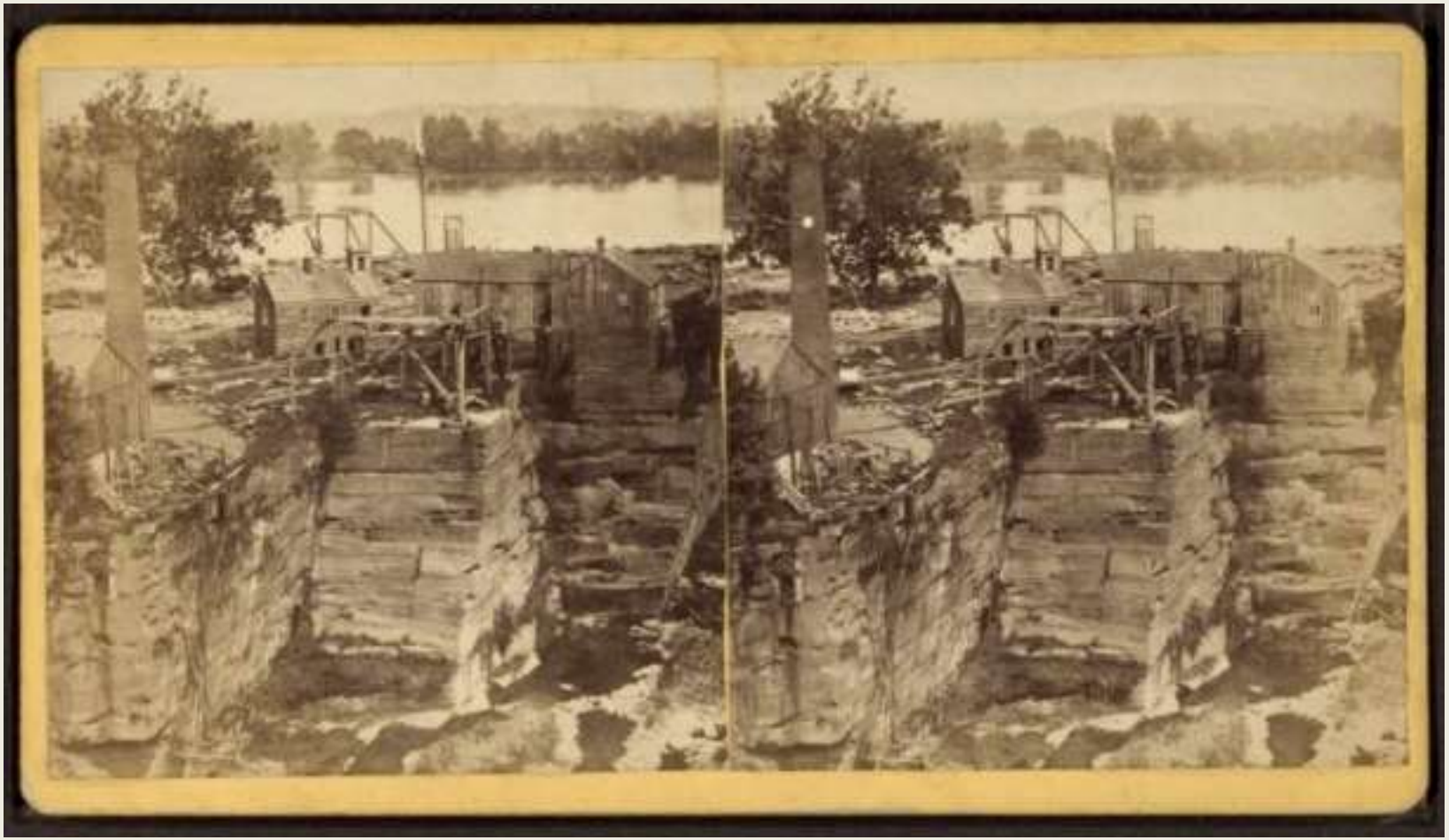



Hartford Basin
Longmeadow
Portland
Hummelstown
Newark
Newark Basin
Portland
Brownstone
Quarries
200 km

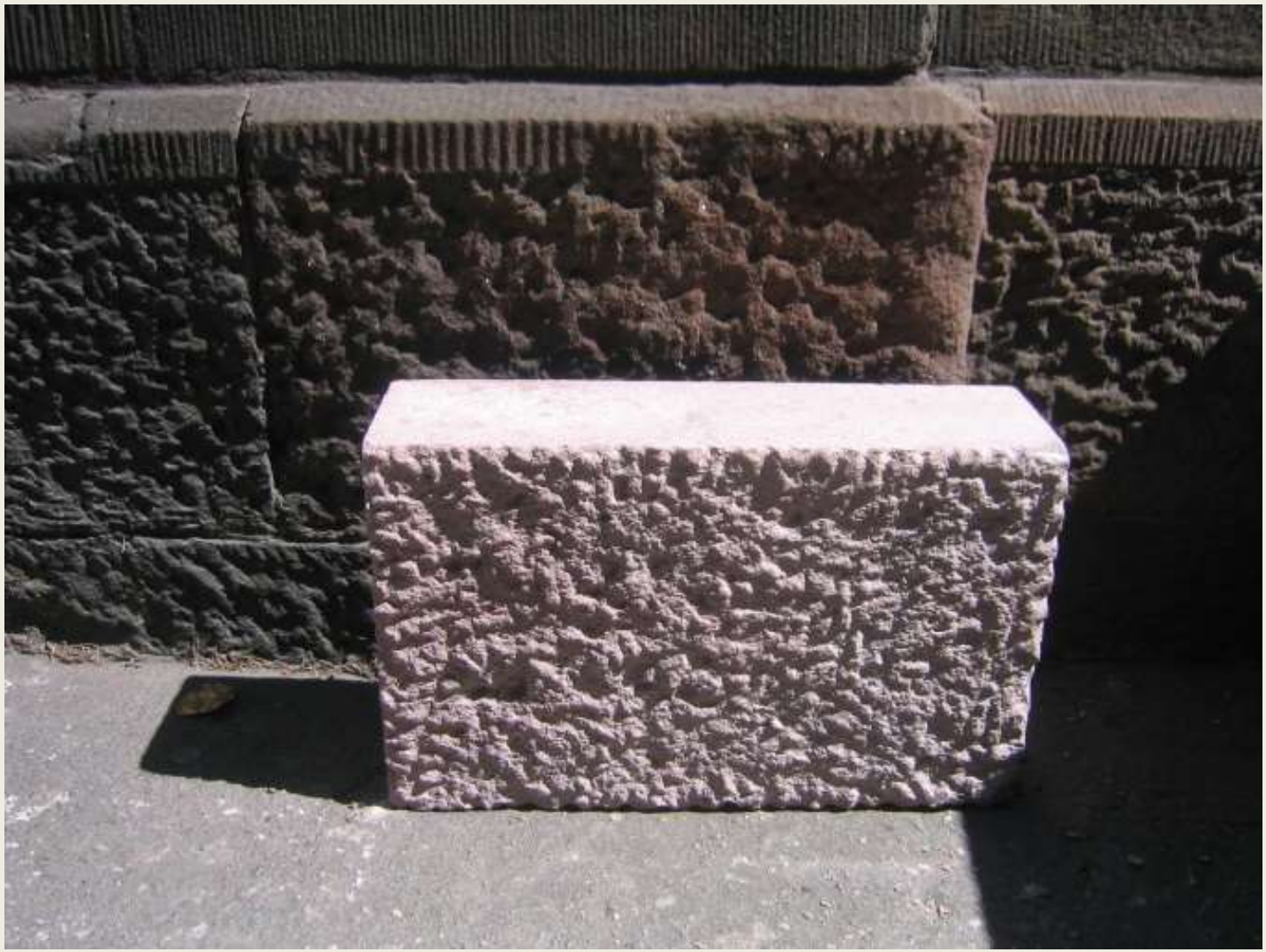

Brown Stone Quarry, Portland, Conn.

Why it’s “brown”

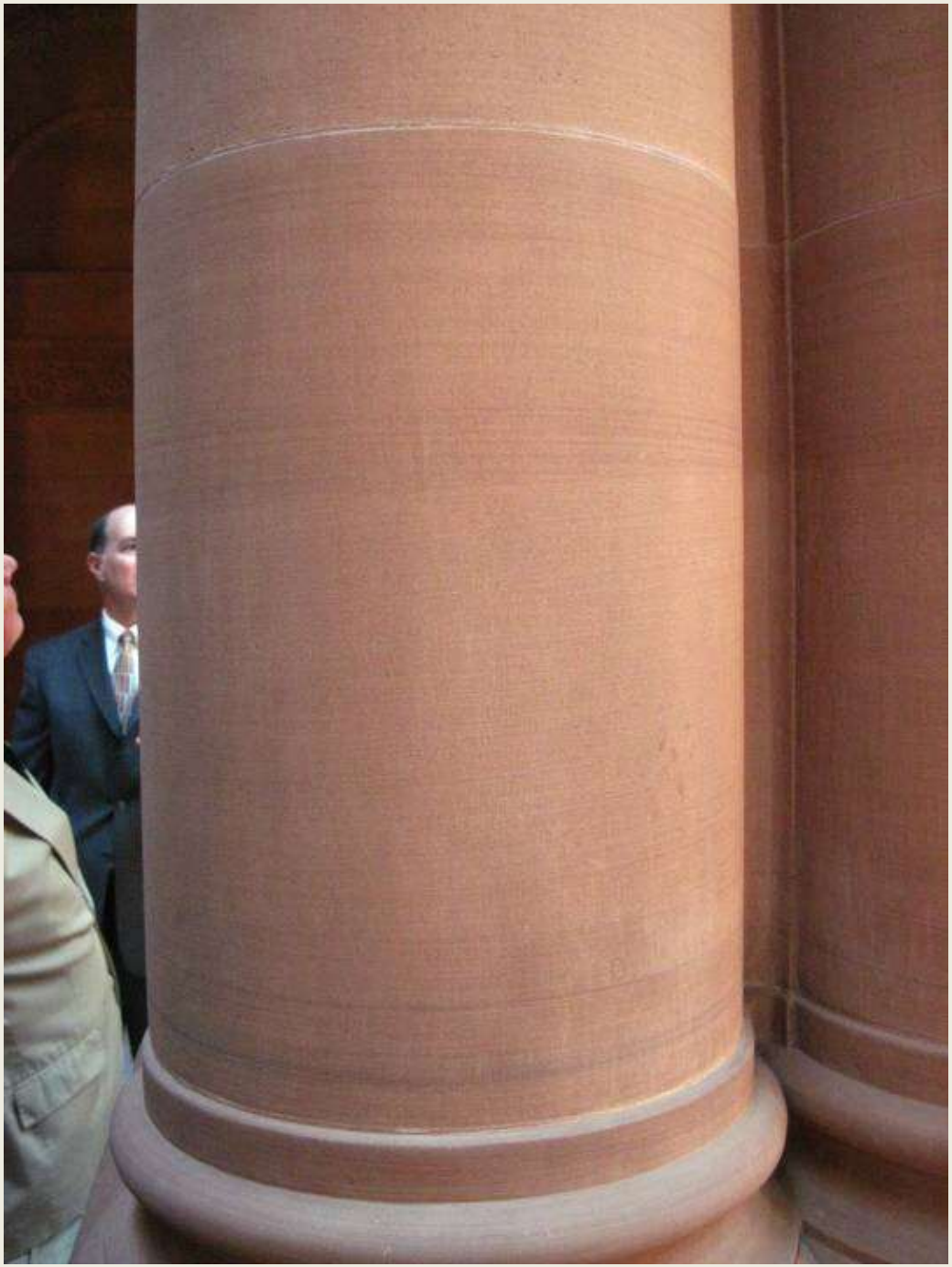


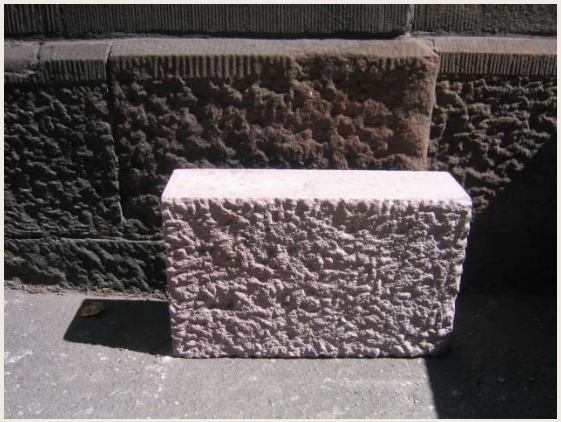



UNDERTAKERS
EVANS & SADLER
THE DOMAN SHOE HOUSE
315 HOUSTON ST.




3
5
5





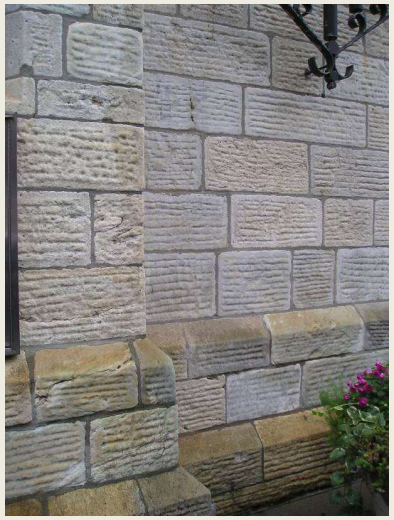
Scabbled

Margined

Rock faced

Combed

Chiseled



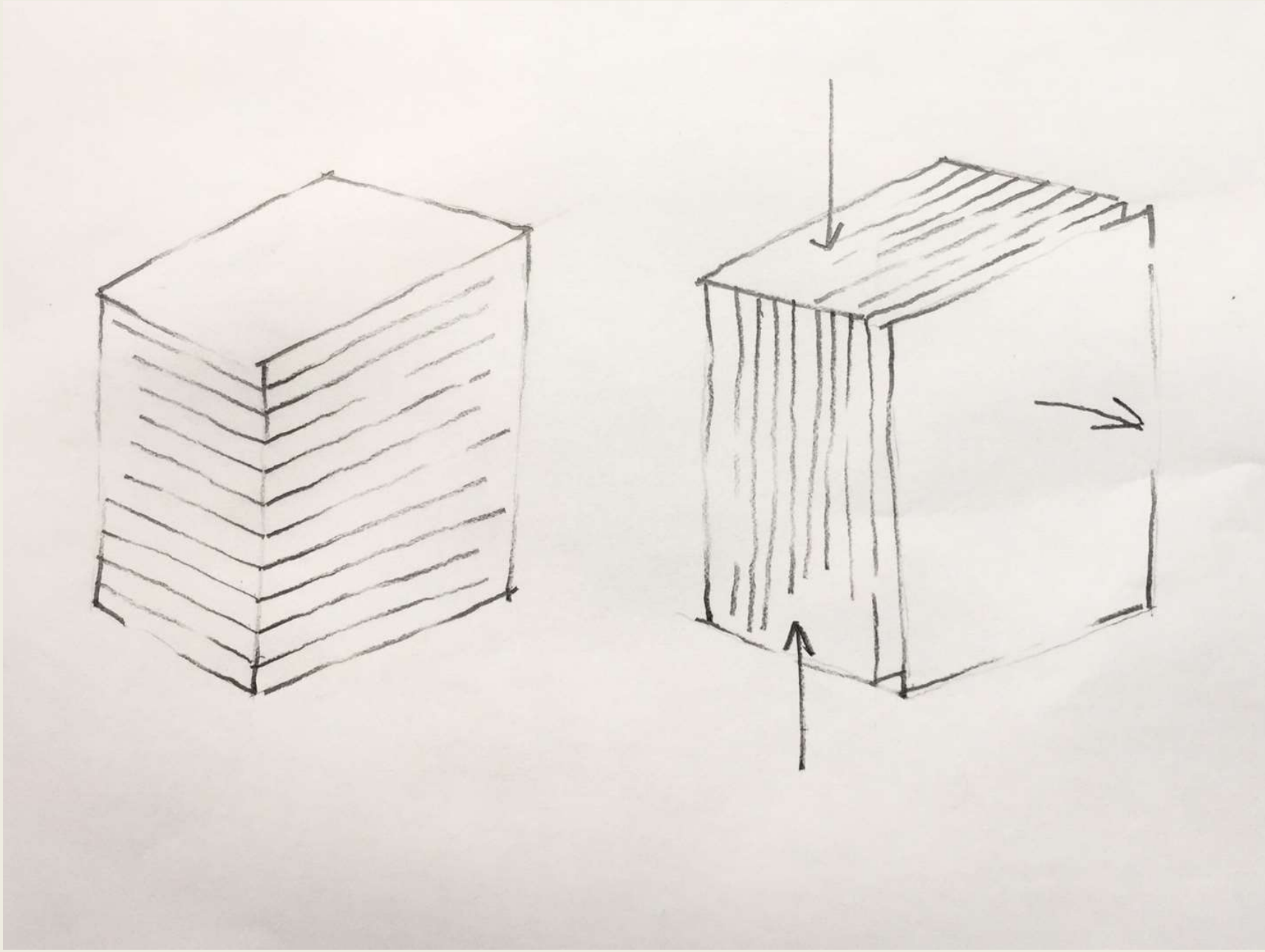
Hammered

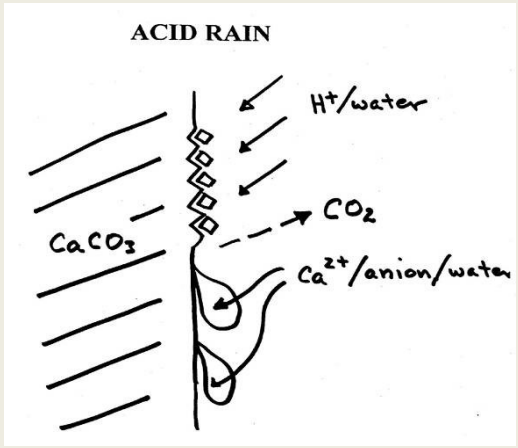
Punched

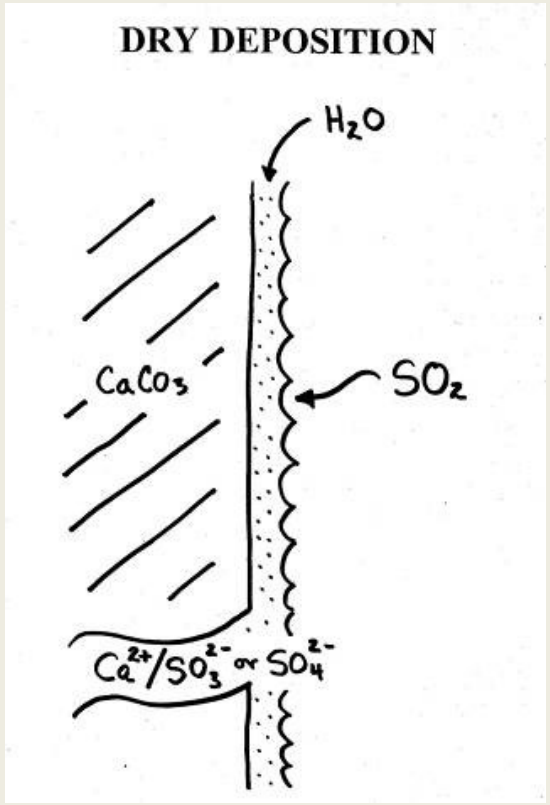
Inadequate choice of stone
Harmful extraction
Careless shipment
Inappropriate storage (cure)
Bad workmanship
Poor placement

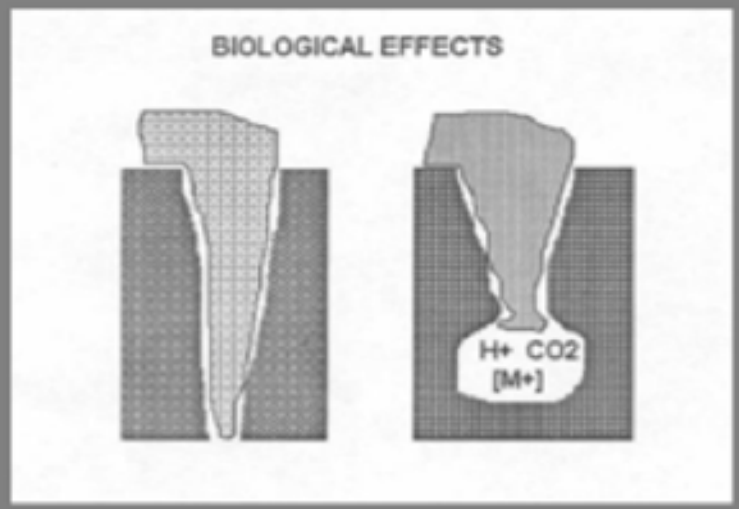
Acid rain
Dry deposition
Salt crystalization
Freezing water
Hygric swelling
Biological attack
Thermal effects
Mechanical damage

Inappropriate treatments

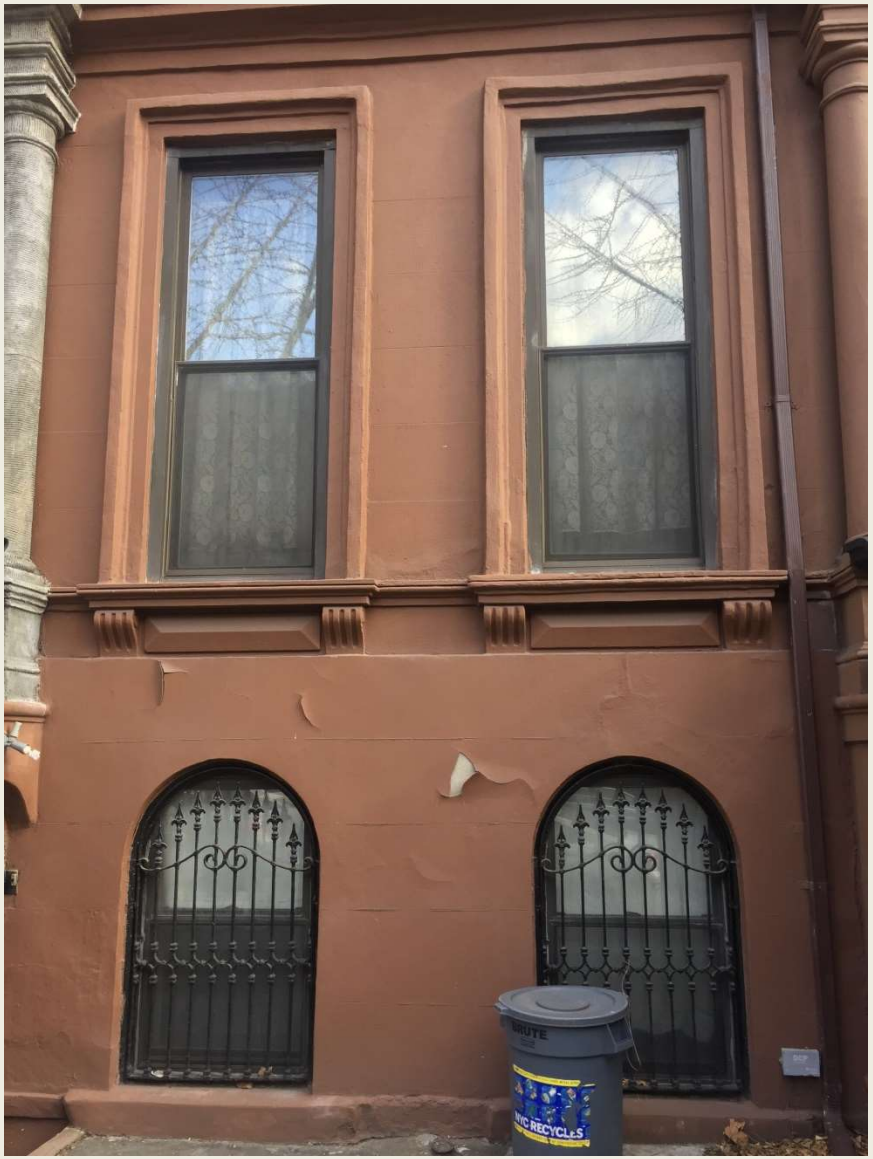


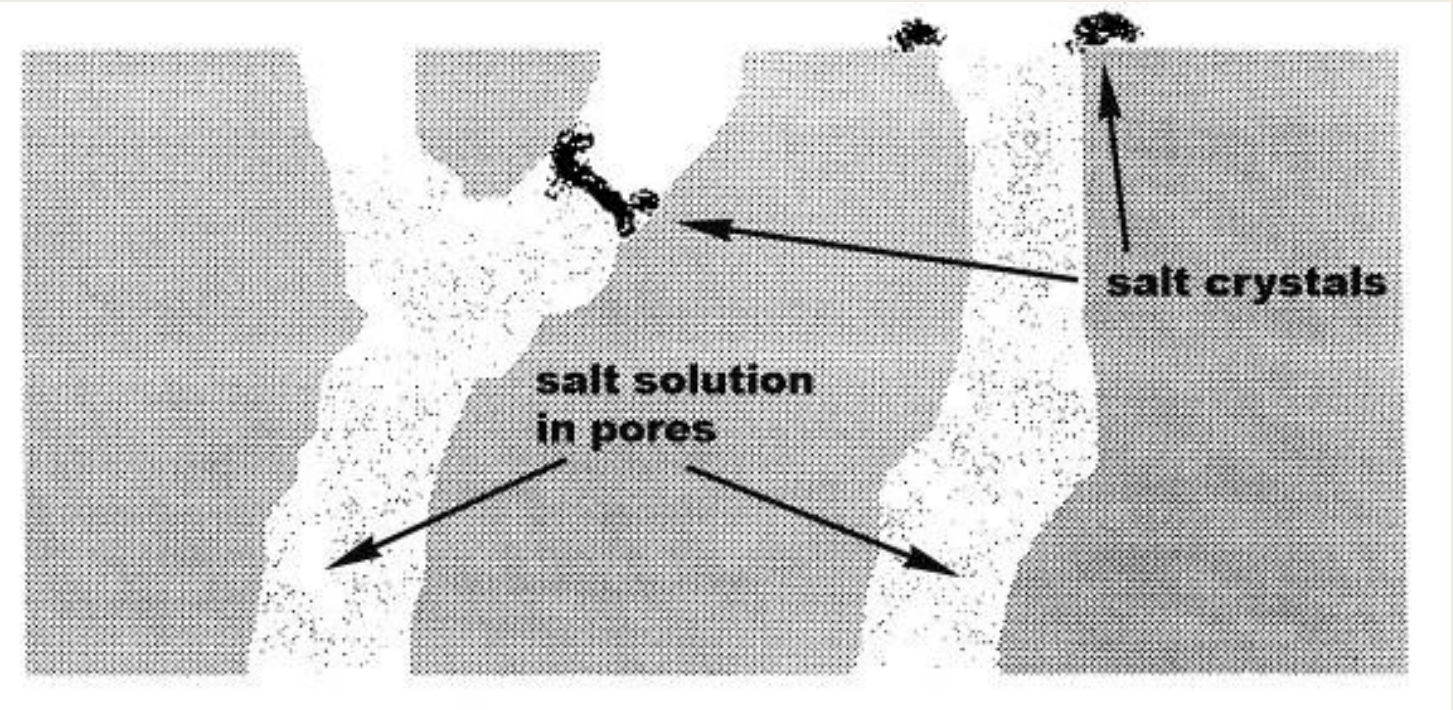

ACID RAIN
H+/water
CO2
CaCO3
Ca2+/anion/water

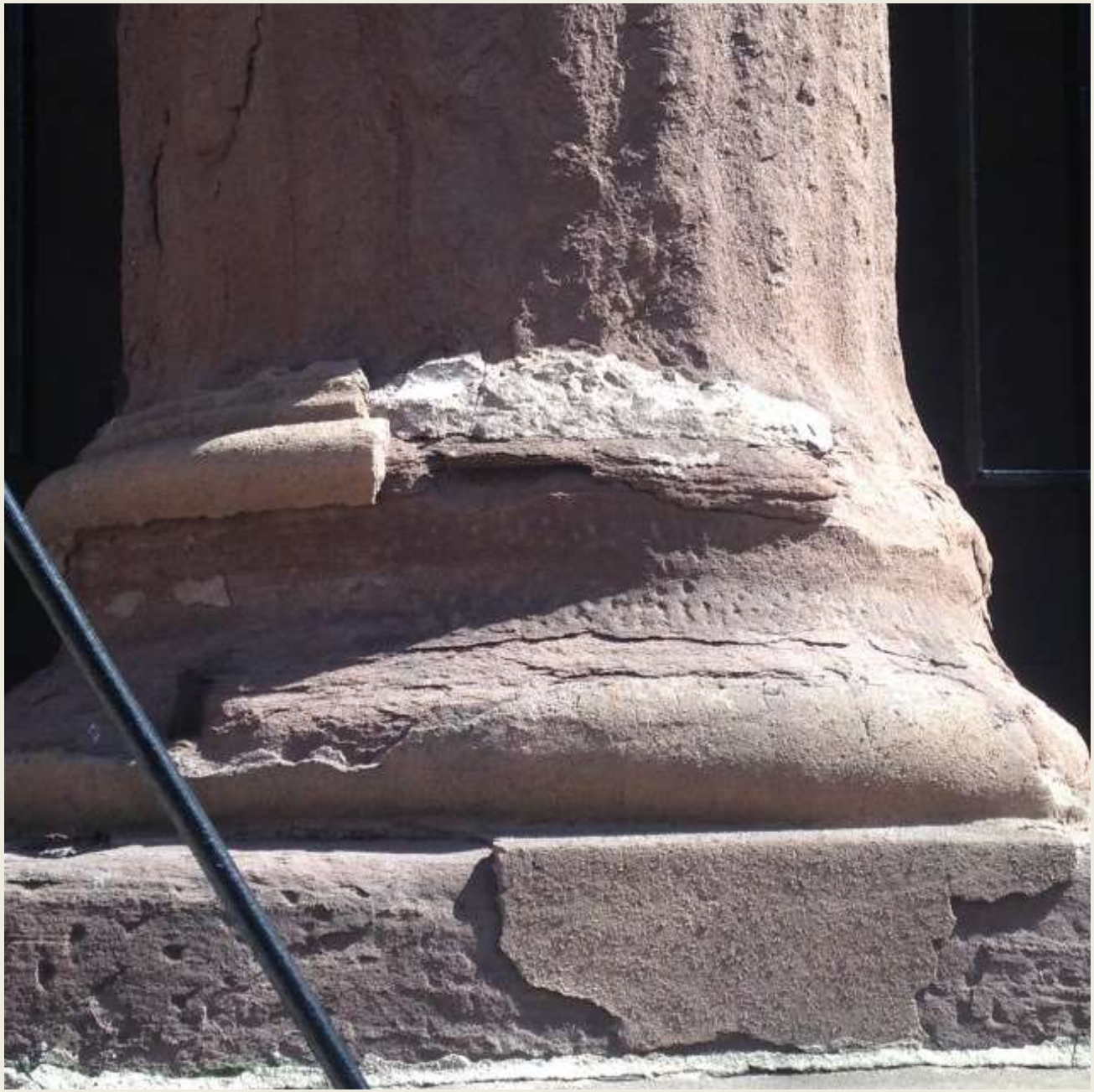

DRY DEPOSITION
H_2O
$CaCO_3$
SO_2
Ca^{2+}/SO_3^{2-} or SO_4^{2-}

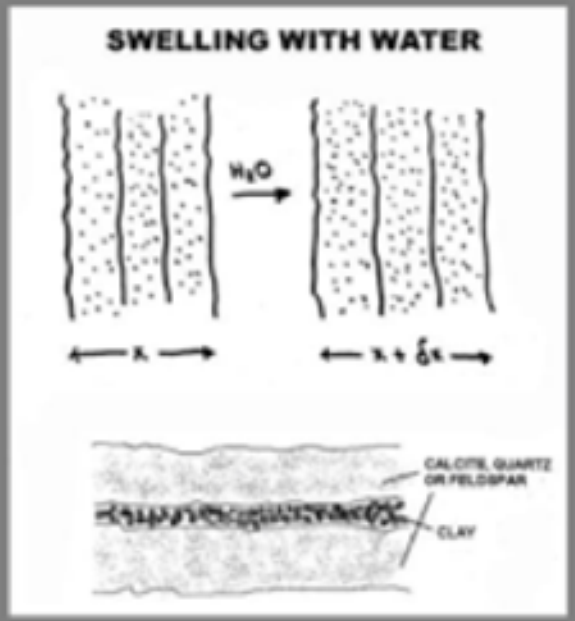

BIOLOGICAL EFFECTS
H+ CO2
[M+]

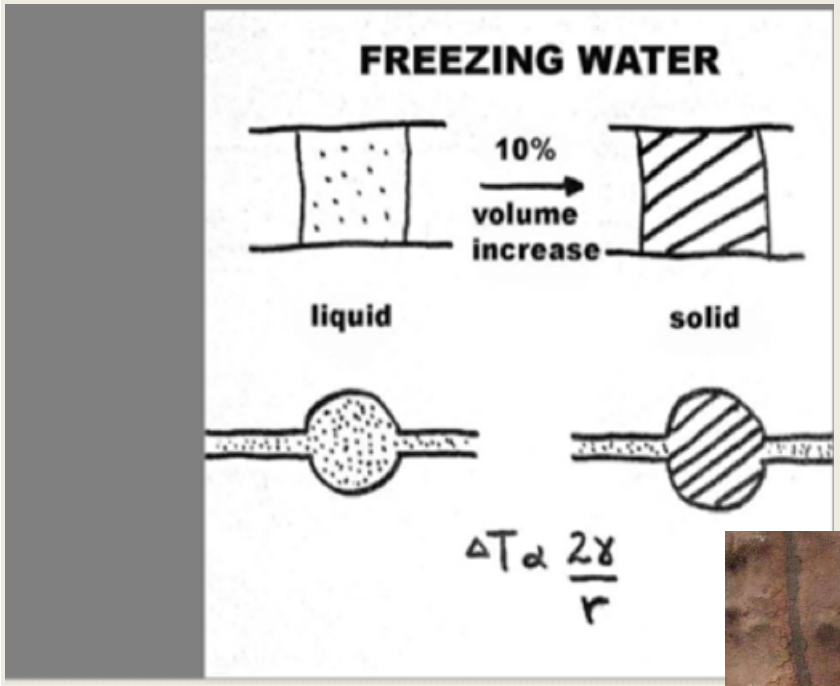
- Bacteria
- Algae
- Fungi
- Lichens
- Mosses
- Higher Plants
- Animals

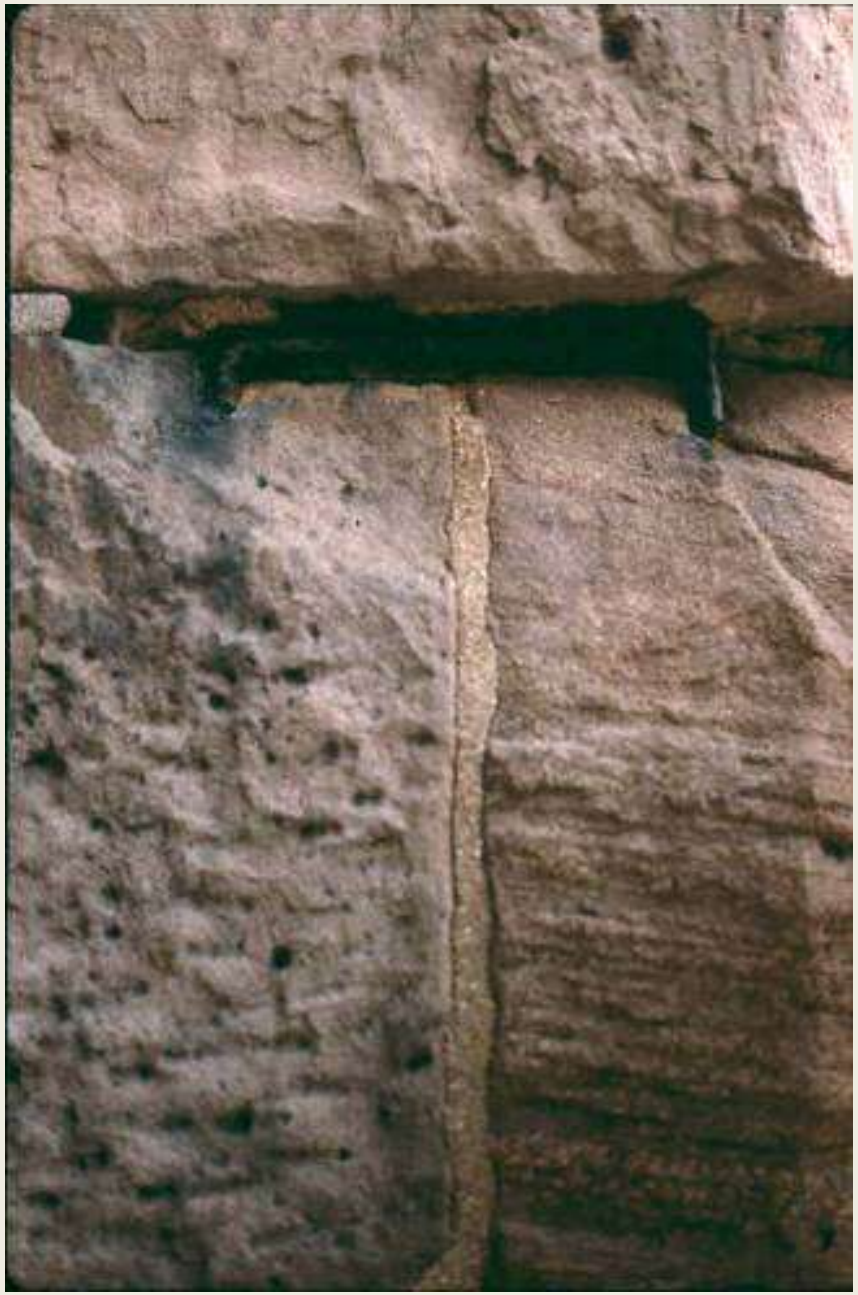

BRUTE


salt crystals
salt solution
in pores




SWELLING WITH WATER
H_2O
x
x + δx
CALCITE, QUARTZ OR FELDSPAR
CLAY


FREEZING WATER
10%
volume
increase
liquid
solid
ΔT α 2γ/r



- Test for salts
- Determine composition of material (chem/micro)
- Test soil for water level, drainage capacity
- Assess moisture level, porosity of material
- Monitor cracks, efflorescence
- Determine construction details
- Perform material analysis

  (ex: infrared thermograph)

~END~

Thank you!