

Natural disasters

Sources of earthquakes, floods, famine and preventive measures.

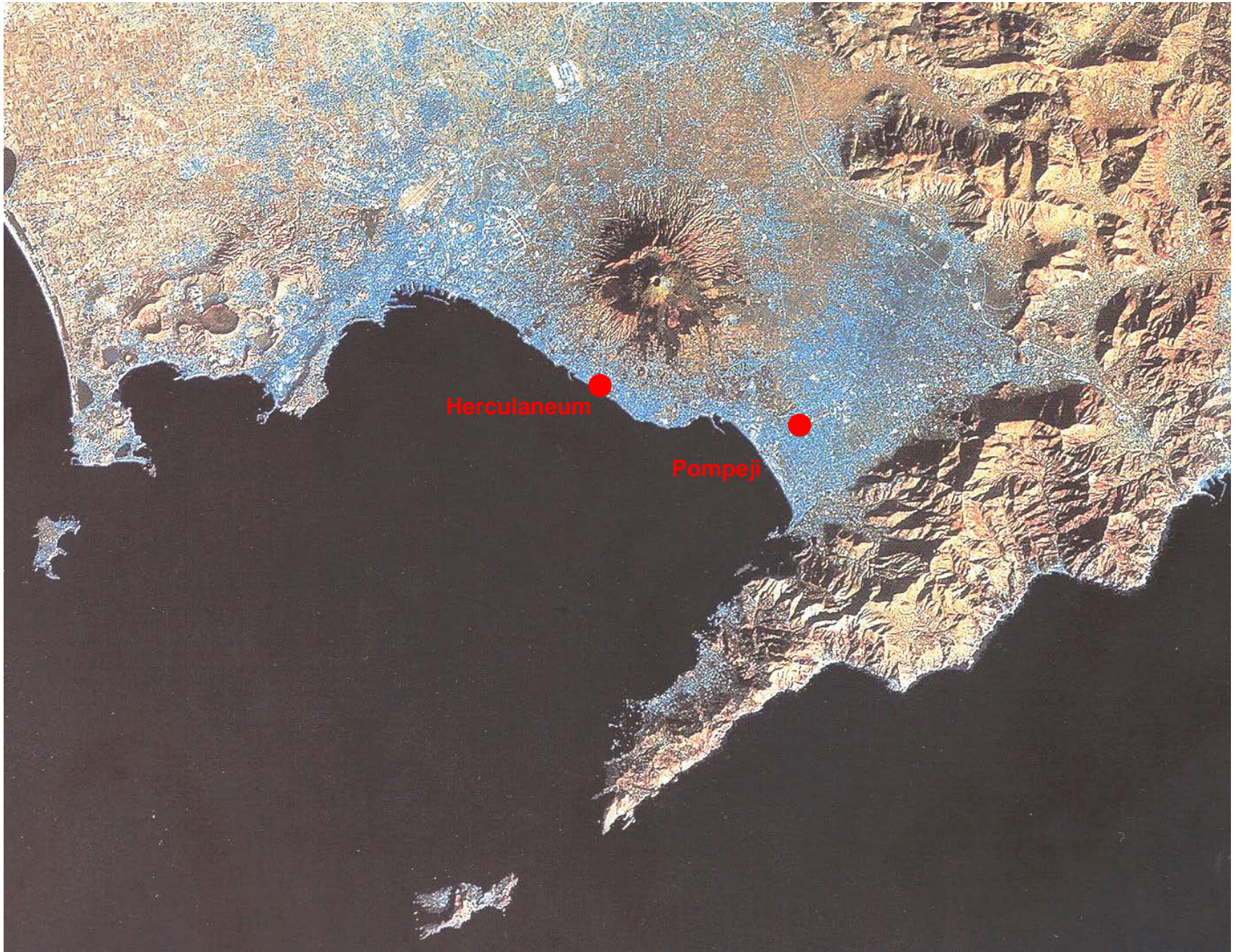
PD Dr. Ulrike Ehmig
SFB 933 – TP A03-UP2

Ústav klasických studií
Masarykova univerzita
Brünn, 12.10.2017

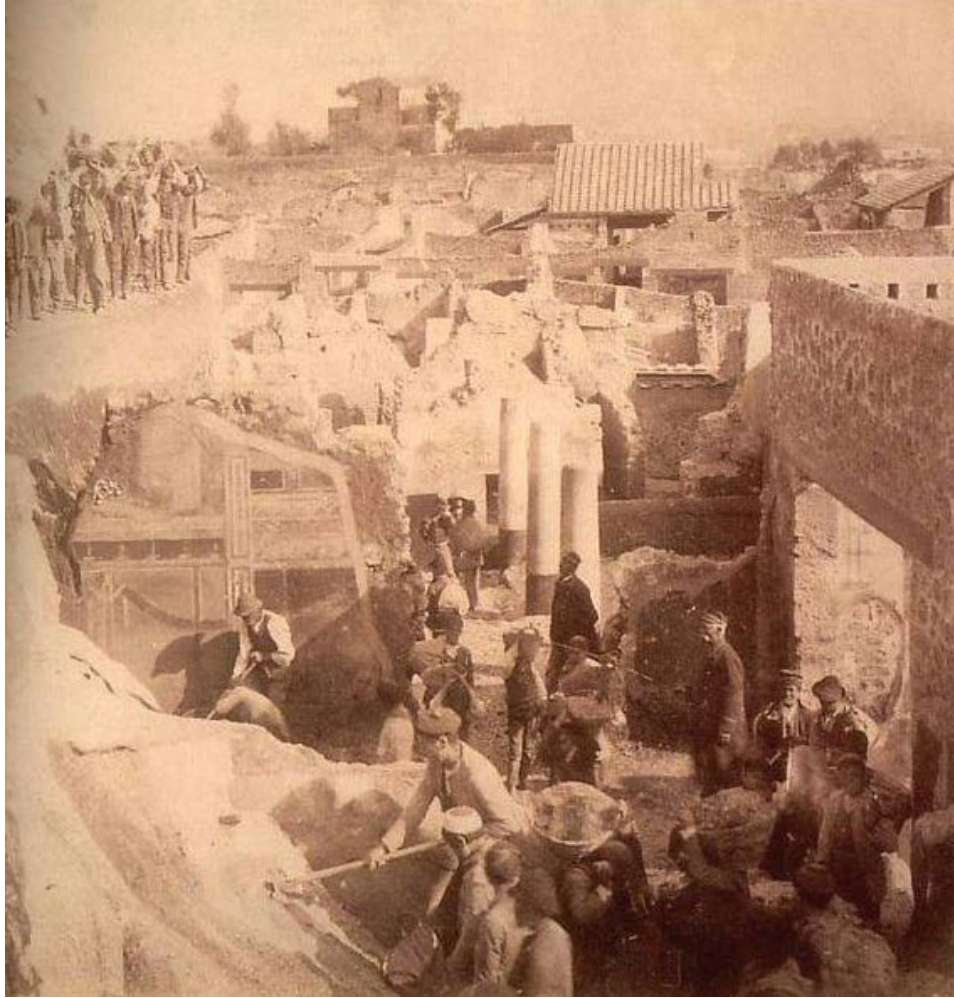


UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

Ancient cities at Mount Vesuvius



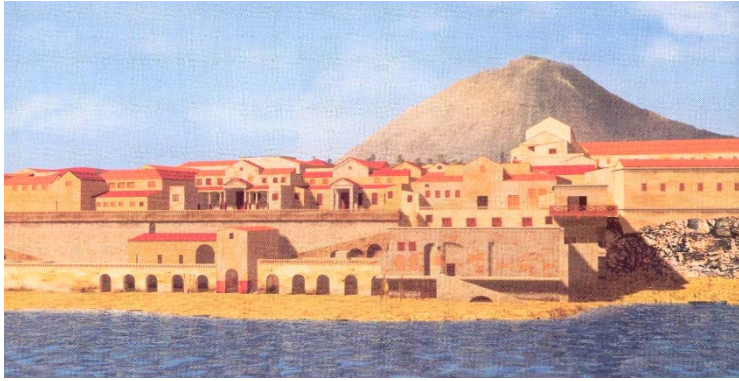
Perfect condition in the disaster



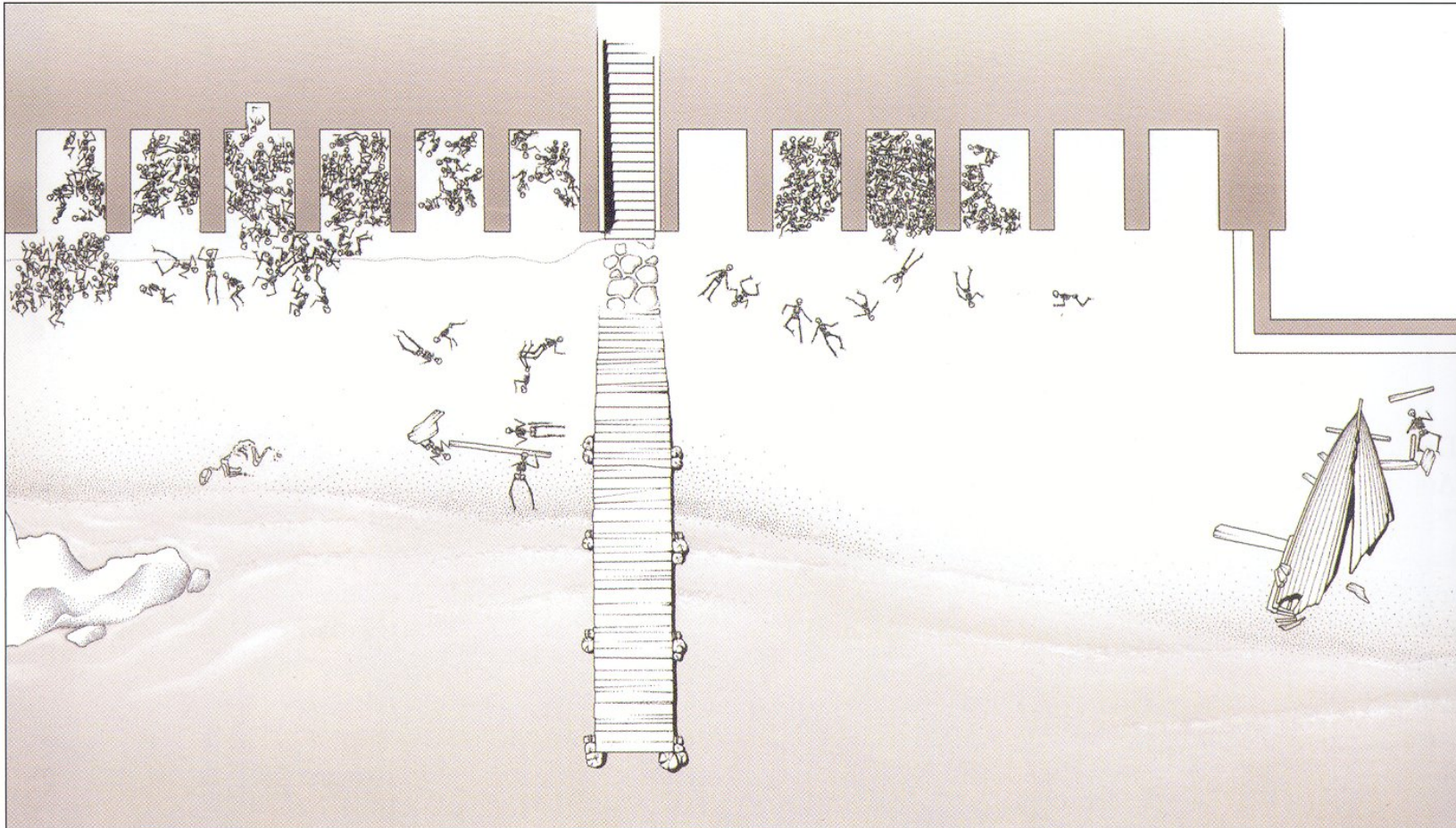
Excavations in Pompeii, late 19th century



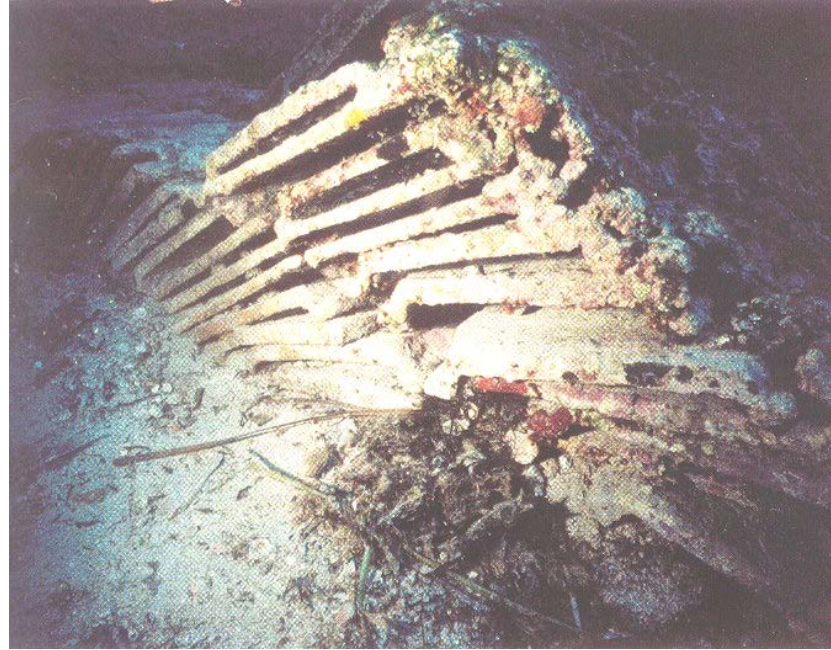
Late evacuation in Herculaneum



Reconstruction and map of the boathouses



**Again: Perfect condition in the disaster.
Shipwrecks with well-preserved and hardly shifted cargo**

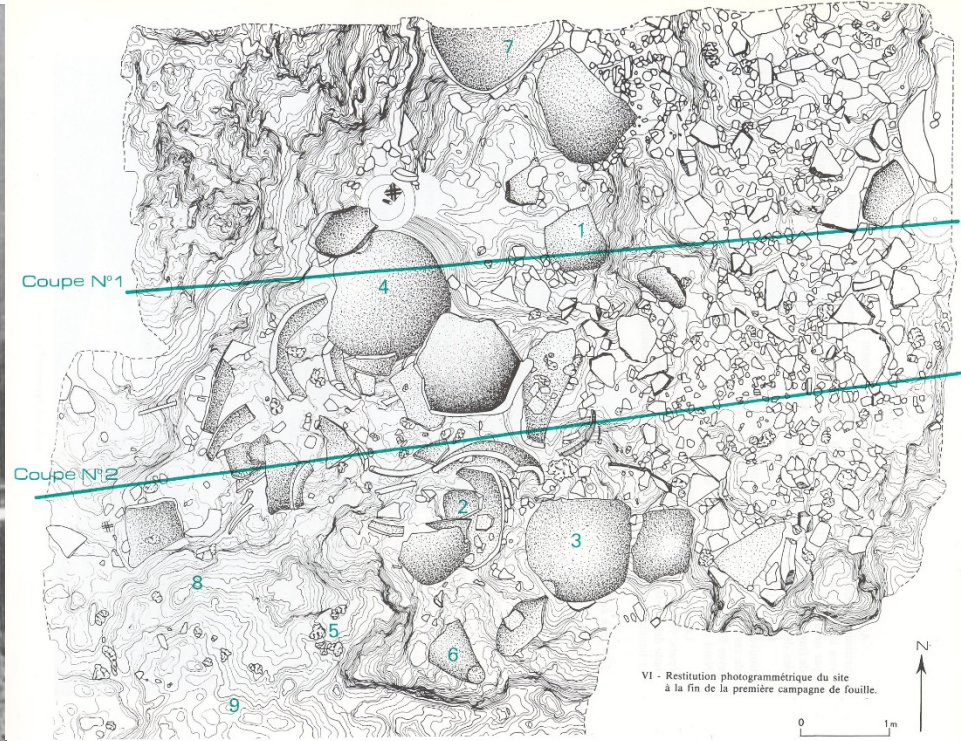


Lardier 4



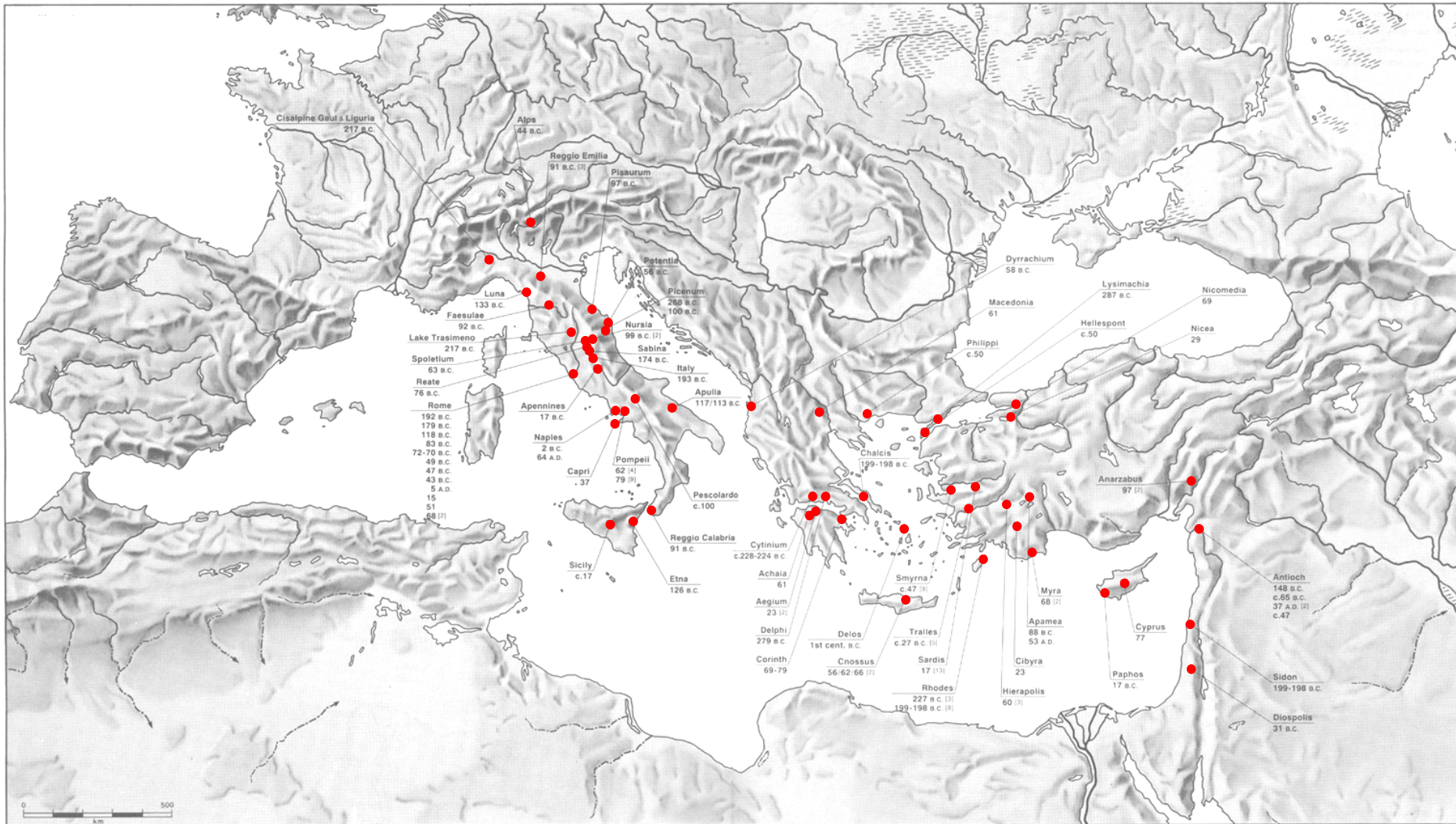
Madrague
de Giens

Dolia ships: large containers - big disaster (Grand Ribaud D)



reconstruction of a dolia ship

Earthquakes mentioned in literary sources (BC 287 – 100 AD)



Archaeological sources of earthquakes



Olympia, earthquakes in 522 and 551 AD



Nysa-Skythopolis, earthquake in 749 AD



House of Caecilius Iucundus, Lararium: Representation of the Forum after the earthquake in 62 AD

Epigraphic sources of earthquakes:

Titus cares about the restoration of the sundial in Sorrento



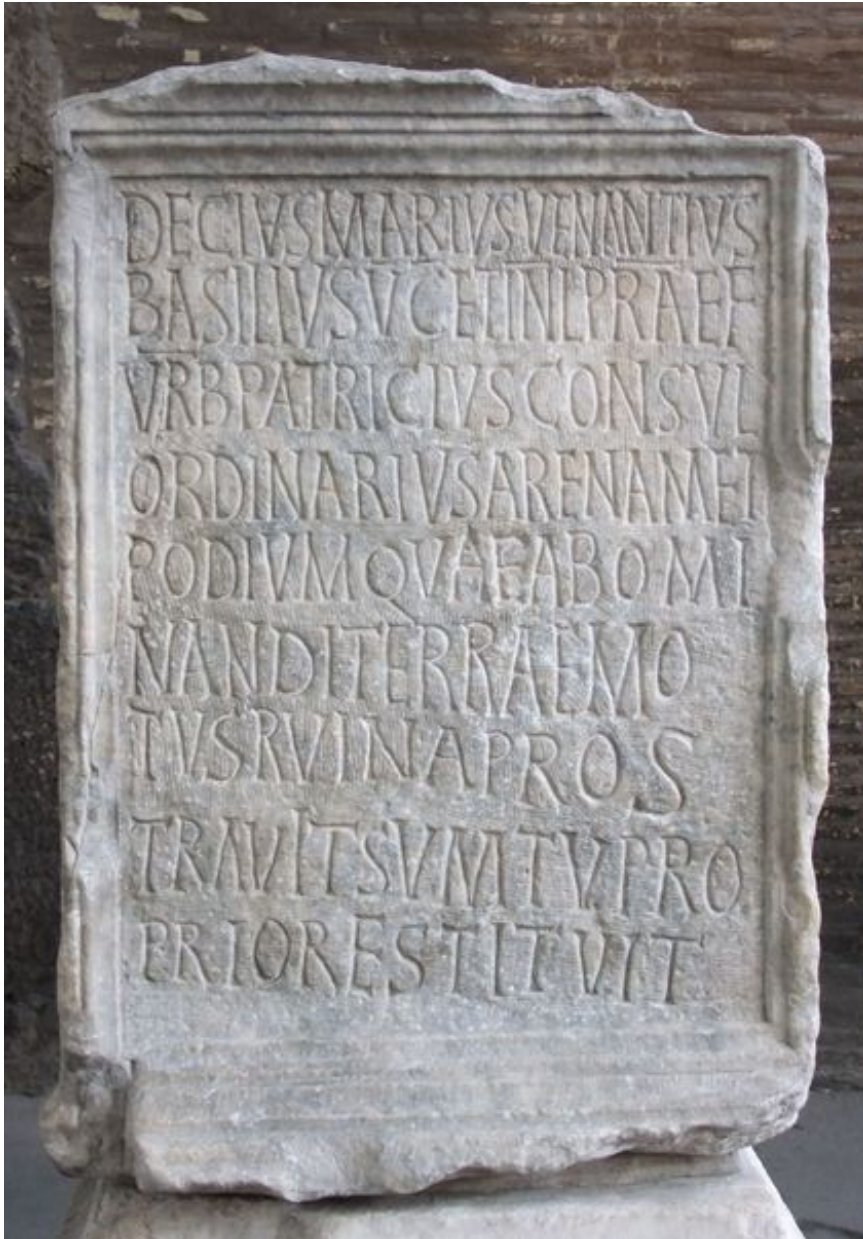
AE 1902, 40 (Surrentum)

Imp(erator) Titus Caesar [divi] /
Vespasiani f(ilius) Vespasia[nus] /
Aug(ustus) pont(ifex) max(imus)
tr(ibunicia) pot(estate) I[X imp(e-
rator) XV] / co(n)s(ul) IIX censor
p(ater) p(atriciae) **horologi[um cum
suis] / ornamentis terrae
motib(us) [conlaps(um) restituit]**

Titus has restored
the sundial, which
was destroyed
during the earth-
quake, together
with its ornamen-
tation.



Epigraphic sources of earthquakes: Restoration of the Colosseum in Rome in the late 5th century AD



CIL VI 1716b (p. 3173, 3813, 4742) = 32094b
(Roma) 484 AD

Decius Marius Venantius / Basilius v(ir)
c(larissimus) et inl(ustris) praef(ectus) / urb(i)
patricius consul / ordinarius **arenam et /
podium qu(ae) abomi/nandi terrae mo/tus
ruina pros/travit sum(p)tu pro/prio restituit**

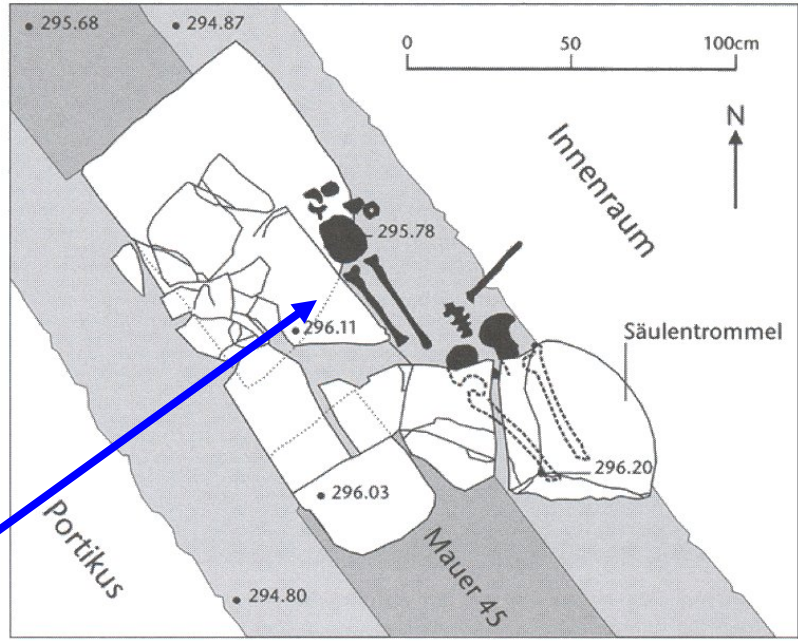
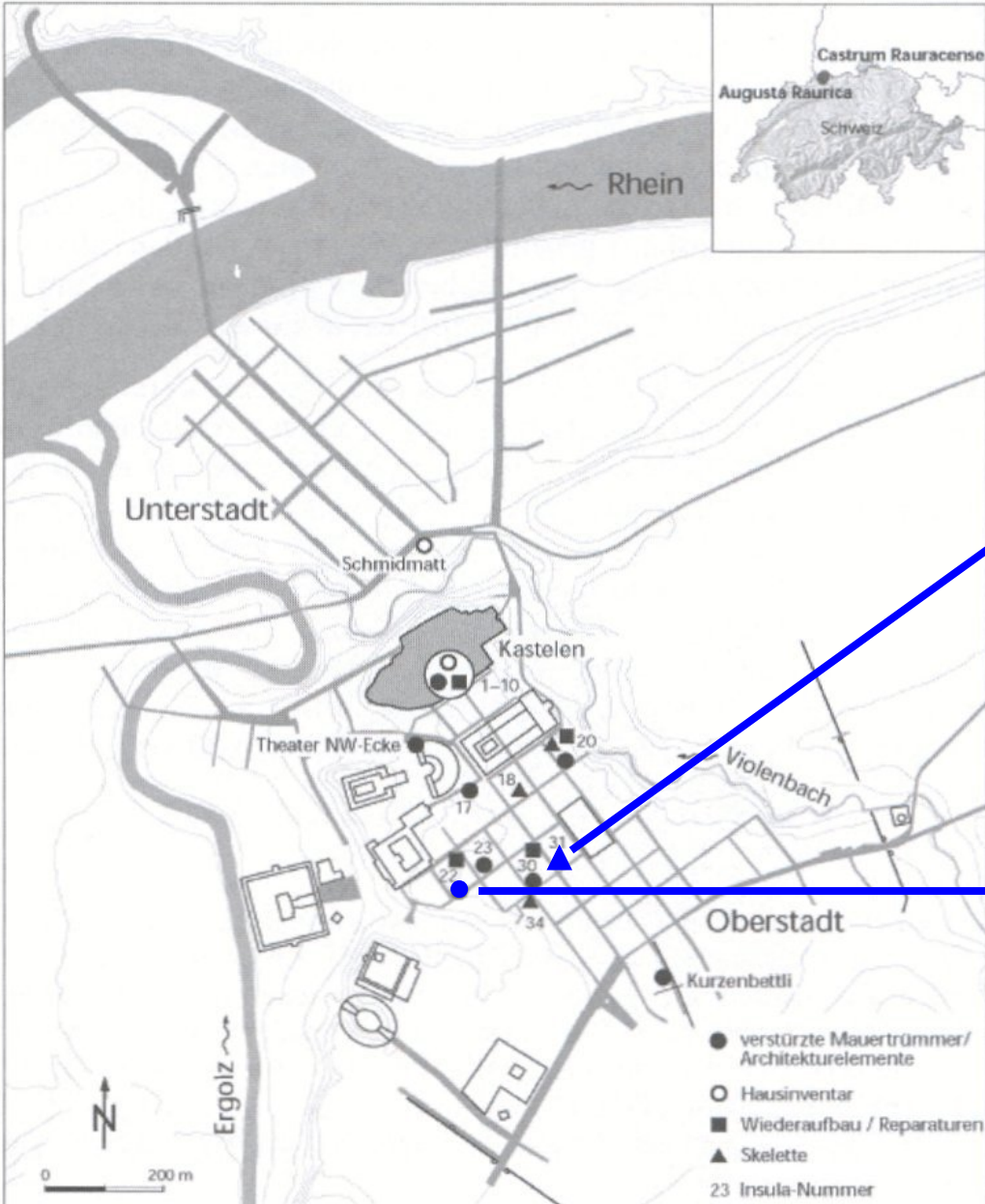
Decius Marius Venantius Basilius, vir
clarissimus and inlustris, praefectus urbi,
patricius, consul ordinarius restored the
arena and the podium, destroyed by a
terrible earthquake, at his own expenses.

**One of the rare epitaphs in the context of an earthquake:
tomb of Thrason for his children and their educator, Nikomedia 120 or 128 AD**



Thrason, son of Diogenes, made the tomb for his two sons, Dexiphanes, 5 years old, and Thrason, 4 years old, and for Hermes, 25 years old, who had educated them. In the ruins of the earthquake he held them in his arms.

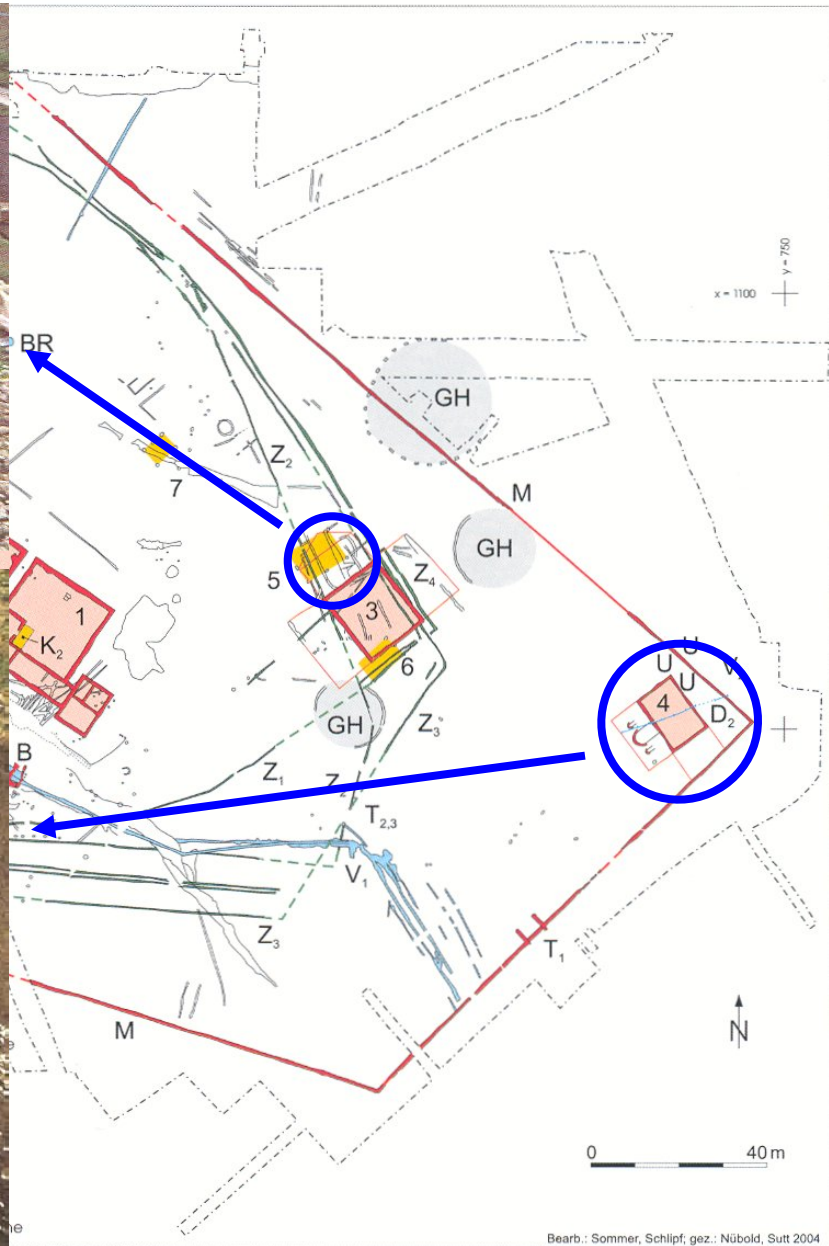
Difficulties in the archaeological identification of earthquakes: example Augst (CH)



Remains of skeletons under architectural parts / large parts of the wall fallen over



Oberndorf-Bochingen: fallen walls



List of Known Ancient Floods

Date	Source
414 BC	Livy 4.49.2–3
363 BC	Livy 7.3.2
241 BC	Augustine, <i>De Civitate Dei</i> 3.18; Orosius 4.11.6
215 BC	Livy 24.9.6
203 BC	Livy 30.26.5
202 BC	Livy 30.38.10–12
193 BC	Livy 35.9.2–3
192 BC	Livy 35.21.5–6
189 BC	Livy 38.28.4
181 BC	Plutarch, <i>Numa</i> 22.4
156 BC	Iulius Obsequens 16
60 BC	Cassius Dio 37.58.3–4
54 BC	Cassius Dio 39.61.1–2; Cicero, <i>Ad Quintum fratrem</i> 3.7.1
44 BC	Horace, <i>Carmina</i> 1.2.1–20
32 BC	Cassius Dio 50.8.3
27 BC	Cassius Dio 53.20.1
23 BC	Cassius Dio 53.33.5
22 BC	Cassius Dio 54.1
13 BC	Cassius Dio 54.25.2
AD 5	Cassiodorus, <i>Chronicon</i> 604; Cassius Dio 55.22.3
AD 12	Cassius Dio 56.27.4
AD 15	Tacitus, <i>Annales</i> 1.76; Cassius Dio 57.14.7–8
AD 36	Cassius Dio 58.26.5; Zonaras 11.3
AD 69	Plutarch, <i>Otho</i> 4.5; Suetonius, <i>Otho</i> 8.3; Tacitus, <i>Historiae</i> 1.86
Reign of Nerva	Sextus Aurelius Victor, <i>Epitome</i> 13
Reign of Trajan	Pliny, <i>Epistulae</i> 8.17; Sextus Aurelius Victor, <i>Epitome</i> 13
Reign of Hadrian	SHA, <i>Hadrian</i> 21.6
AD 147	SHA, <i>Antoninus Pius</i> 9.3; <i>Fasti Ostiensis</i>
AD 162	SHA, <i>Marcus Aurelius</i> 8
AD 217	Cassius Dio 79.25.5
AD 253	Sextus Aurelius Victor, <i>De Caesaribus</i> 32
AD 371	Ammianus Marcellinus 29.6.17–18
AD 398	Claudian, <i>De Bello Gildonico</i> 41–43

Literary sources concerning floods in ancient Rome

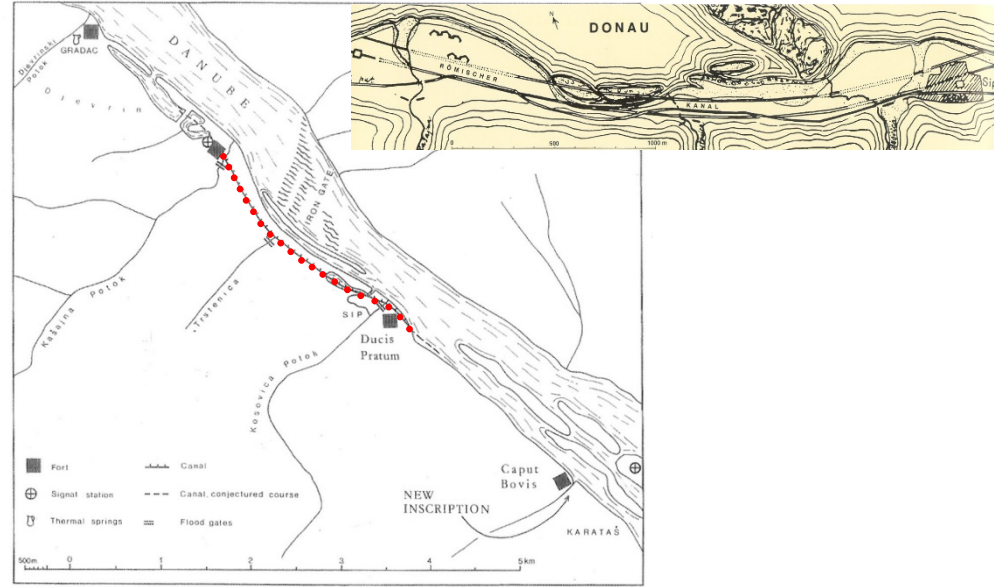
Ostia: construction of canals under the Emperor Claudius to reduce the risk of flooding in Rome



TICLAVDIVSDRVSIFCAESAR
AVGGERMANICVSPONTIFMAX
TRIBPOTESTVICOSDESIGNIIIIMPXIIIP
FOSSIDVCTISATIBERIOPERISPORTV
CAVSSAEMISSISQVEINMAREVRBEM
INVNDATIONISPERICYLOLIBERAVIT

... Claudius ... freed Rome from the danger of flooding by the construction of canals, which were built because of the port ... and drained into the sea

Construction of a canal under Emperor Trajan at the Iron Gate to bypass the rapids of the Danube River



Imp(erator) Caesar Divi Nervae f(ilius)

Nerva Traianus Aug(ustus) Germ(anicus)

pont(ifex) max(imus) trib(unicia)

pot(estate) V p(ater) p(atriciae) co(n)sul IIII

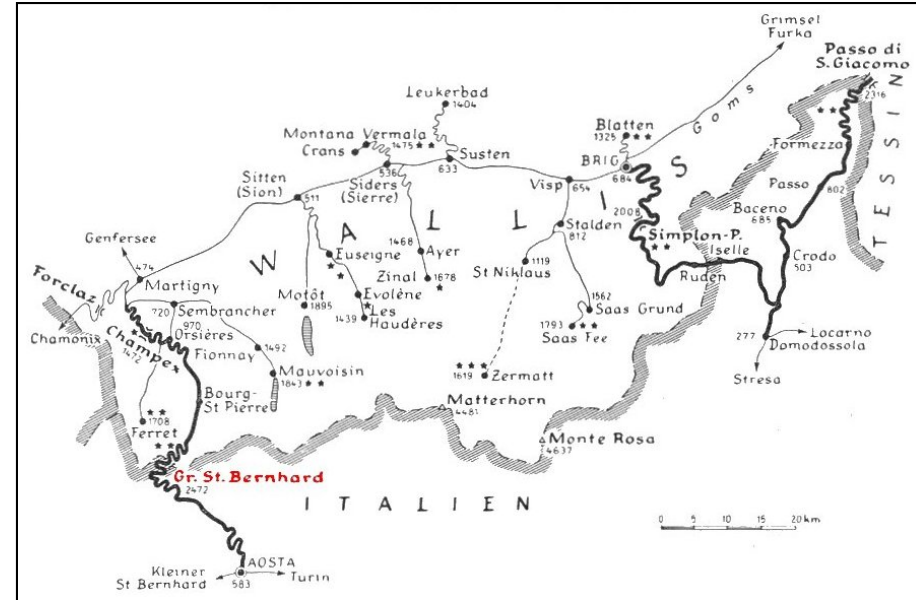
ob periculum cataractarum

derivato flumine tutam

Danuvi navigationem fecit

Dangerous roads: Great St. Bernard Pass

Votive offerings for Iupiter Optimus Maximus Poeninus for a good crossing

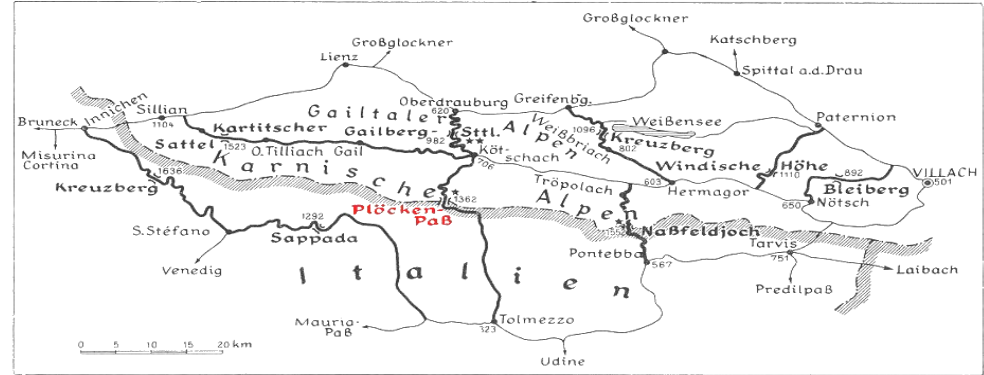
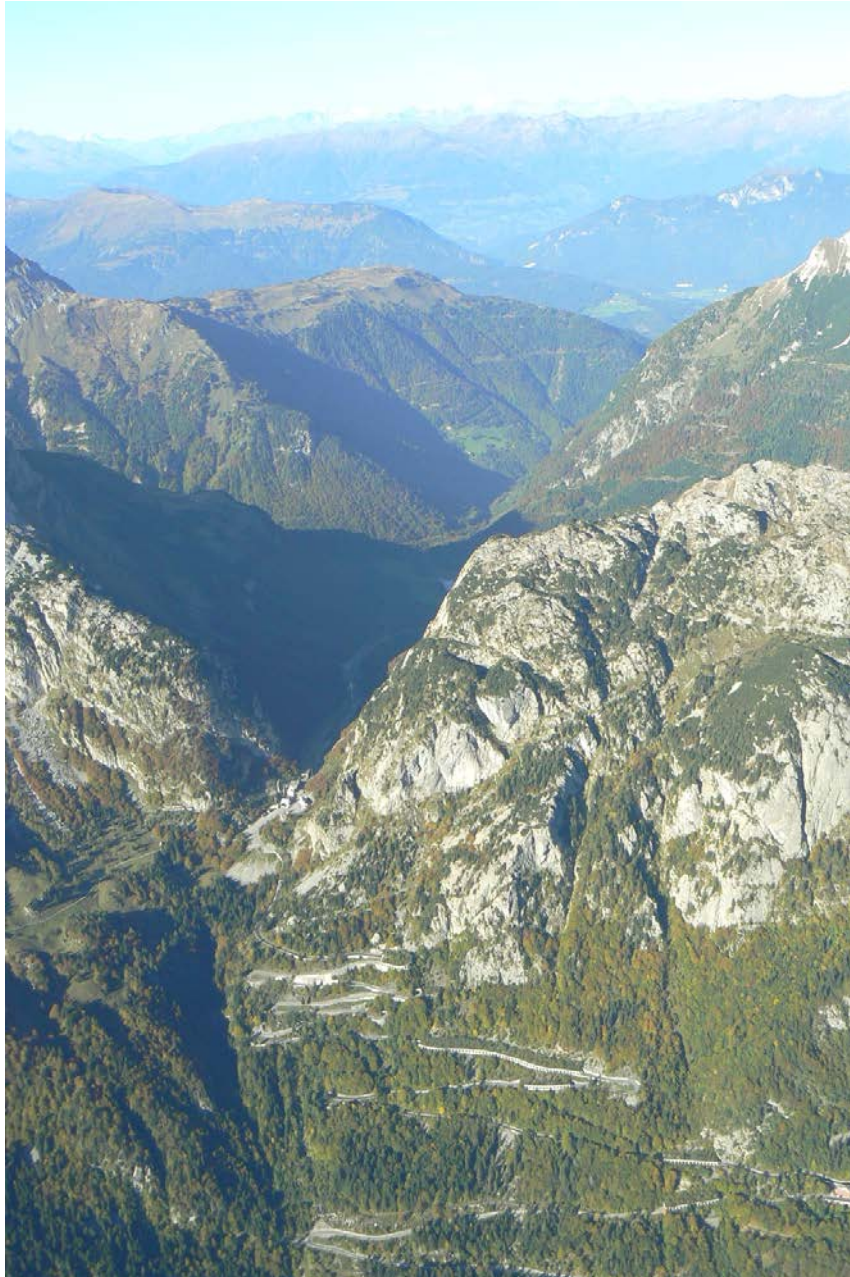


offering of a slaver (*mango*)

reason: *pro itu et reditu*



Dangerous roads: Plöcken Pass – inscriptions



Excerpt from the inscription of Respectus

*it[er in[vium ubi iugi]]/ter
conne[antes pe]r[iclitabant[ur / ad
ius]tam stabi[litatem redd(idit)] /*

hat der unwegsamen Trasse,
wo die Reisenden in ständiger Gefahr waren,
wieder den richtigen Halt gegeben

Excerpt from the inscription of Hermias:

*invium, commiantium periclitante
populo ad pontem transitum*

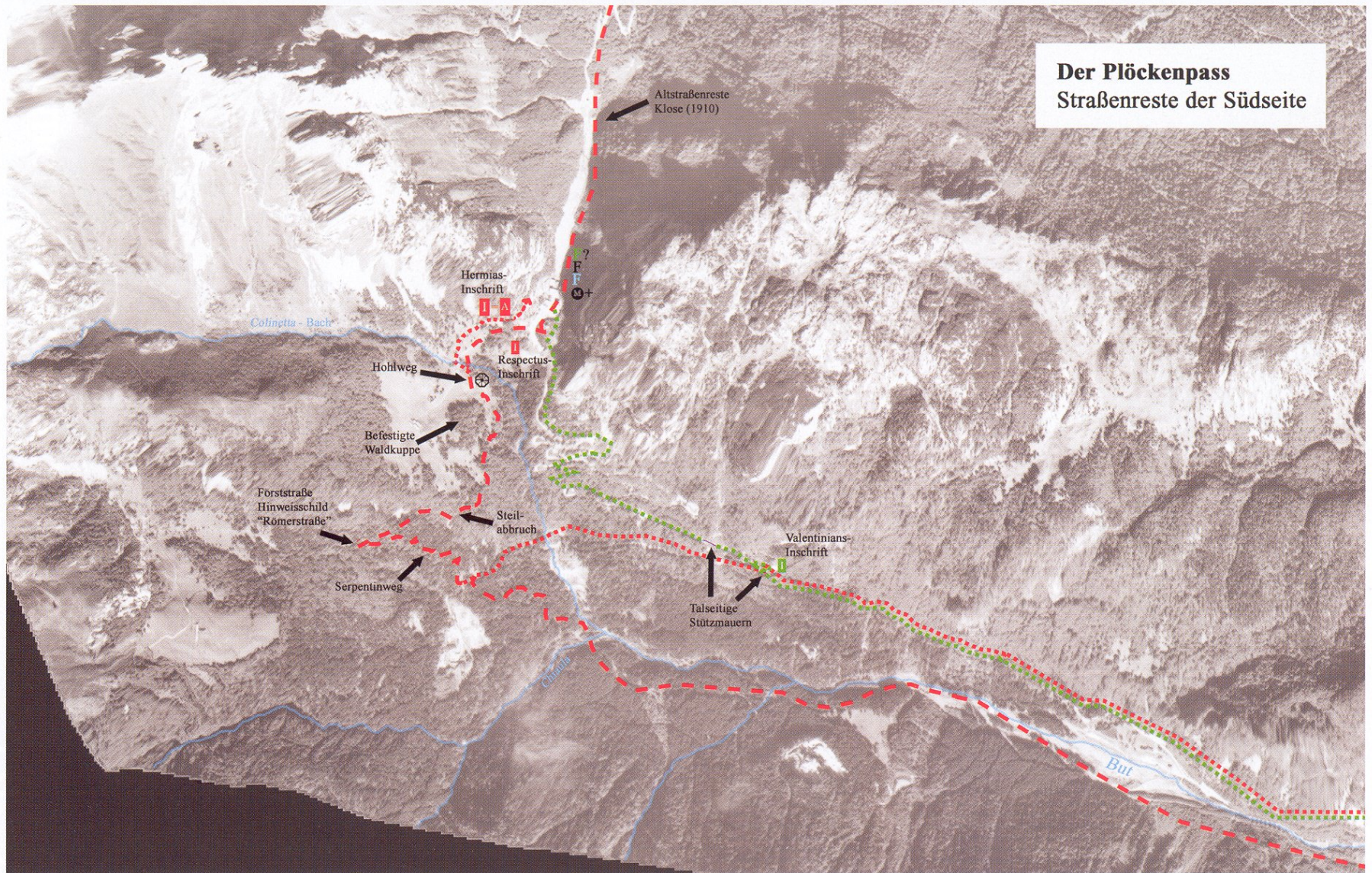
die häufig unwegsame Brücke,
wo die Reisenden in Gefahr gerieten

Excerpt from the inscription of Valentinian:

*hoc it(e)r ubi homines et
animalia cum periculo
commeabant apertum est*

wurde dieser Weg, wo Menschen und
Tiere unter Gefahr
dahinzogen, eröffnet

Dangerous roads: Plöcken Pass – archaeology



Der Plöckenpass
Straßenreste der Südseite

0 1 2 3 4 Kilometers N

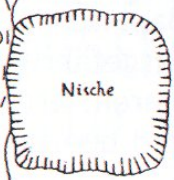
	"Hermias - Straße"		Altar		Latènezeitlich
	"Valentiniens - Straße"		Fibel		Kaiserzeitlich
	"Respectus - Straße"		Altstraßenrest		Spätantik
			Münze		Römerzeitlich
			Inchrift		

Maßstab: 1 : 20.000

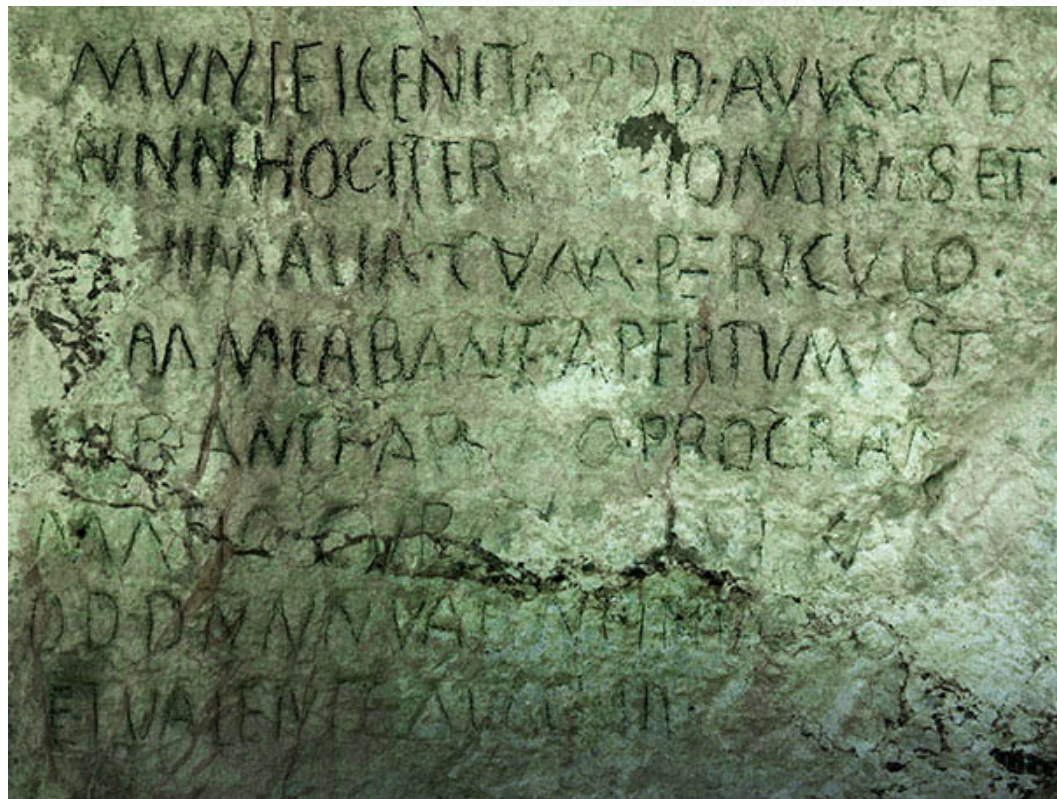


M

VII SCETERISQVE DIB
 MC / -SOLLEMNE VOTVM DI
 HERMIAS SVCCPTOR OPERIS AETERN
 TITVLVM IMMANEM MONTEM ALPINV
 INGENTEM LITTERIS INSCRIPSIT VOT SA IPE
 IN VIVVM COMMANTIVM PERICLITAN
 POPVLO AD PONTEM TRANSITVM NON
 PLACVIT CVRA ET ATTIO BR AETIANO
 Q EORVM VIRO ORNATO VIAM NOV
 DEMONSTRANTE HERMIA MVLTANI
 MIS FIDES OPERISQVE PARATVS VNA
 NIMESOMNE SHA NC VIA MEX PLICVIT

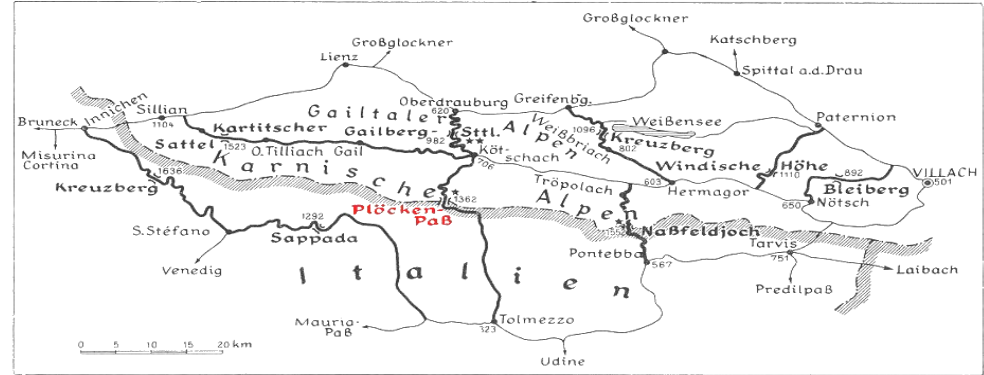
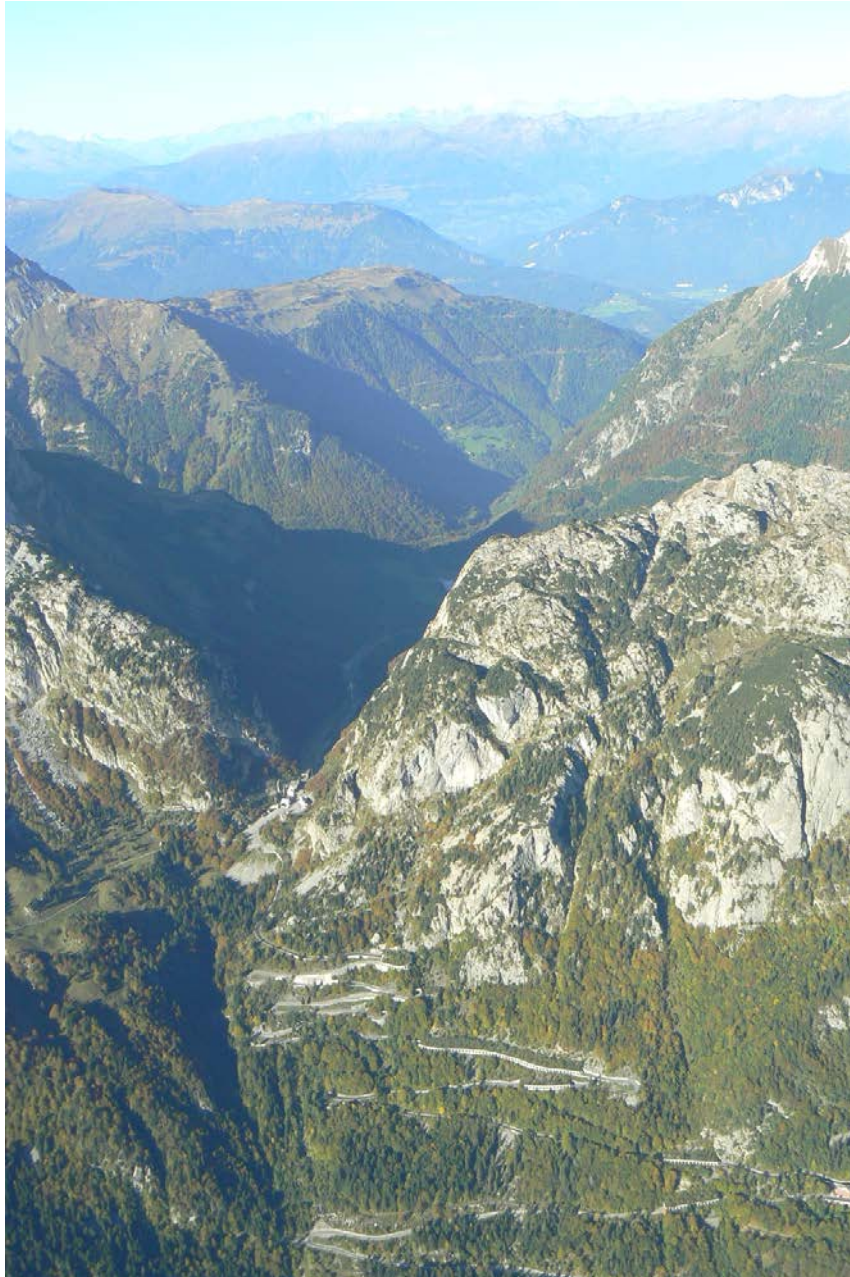


RESPECTVSTIVL
 PERS ICIPVECI
 CIL ILI R SER VII
 STAT IM EN
 LKIN
 TERCONAE
 RICLITABANT
 TAM STABI
 SEXEIO



**Dangerous roads:
Plöcken Pass – inscriptions**

Dangerous roads: Plöcken Pass – inscriptions



Excerpt from the inscription of Respectus

*it[er in[vium ubi iugi]]/ter
conne[antes pe]r[iclitabant[ur / ad
ius]tam stabi[litatem redd(idit)] /*

hat der unwegsamen Trasse,
wo die Reisenden in ständiger Gefahr waren,
wieder den richtigen Halt gegeben

Excerpt from the inscription of Hermias:

*invium, commiantium periclitante
populo ad pontem transitum*

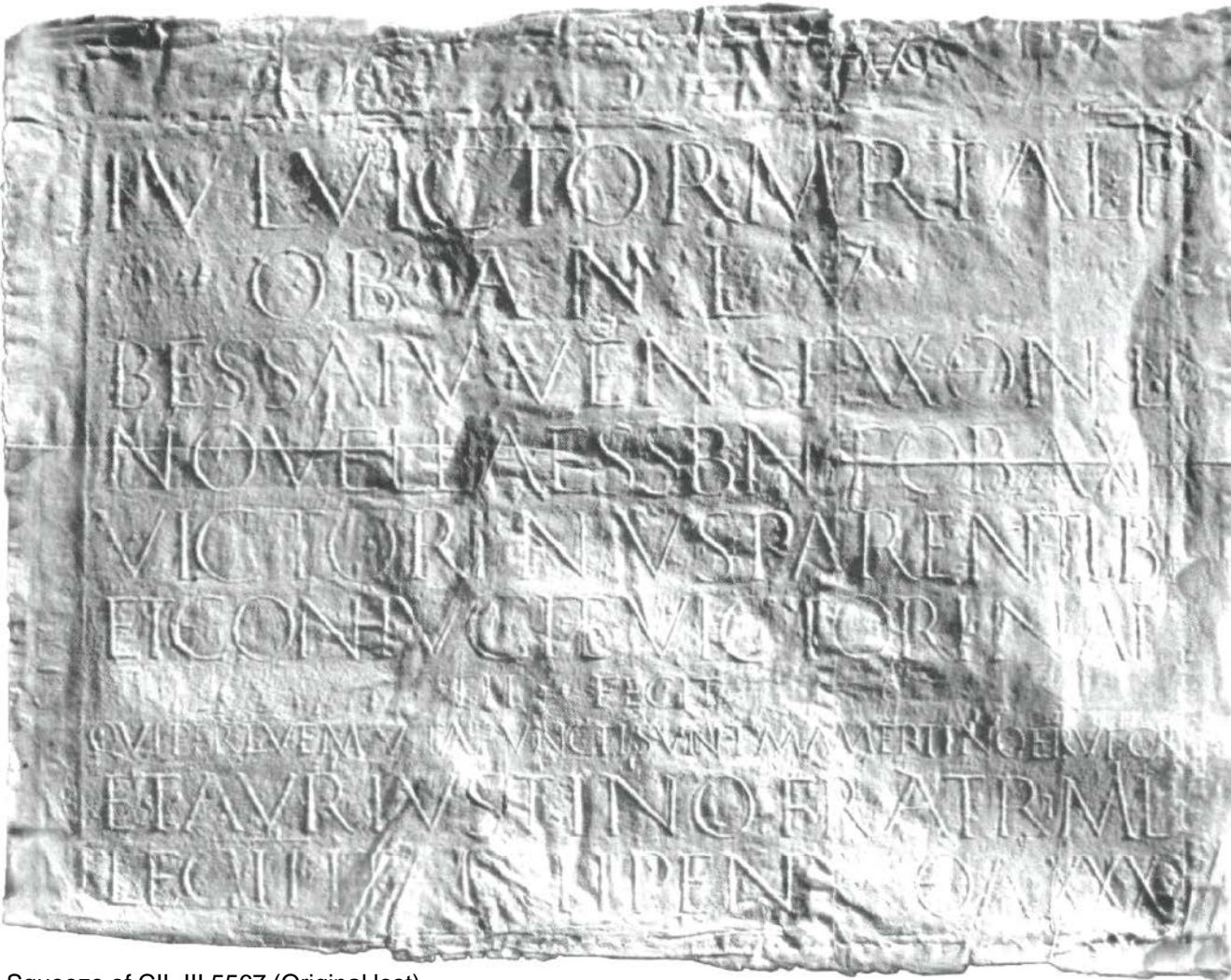
die häufig unwegsame Brücke,
wo die Reisenden in Gefahr gerieten

Excerpt from the inscription of Valentinian:

*hoc it(e)r ubi homines et
animalia cum periculo
commeabant apertum est*

wurde dieser Weg, wo Menschen und
Tiere unter Gefahr
dahinzogen, eröffnet

Victims of the "Antonine plague"? (182 AD)



D(is) M(anibus).

Iul(ius) Victor Martial(is) f(ilius),

ob(itus) an(norum) LV.

Bessa Iuvenis f(ilia) ux(or), (obita) an(norum) XLV.

Novella Essibni f(ilia), ob(ita) a(nnorum) XVIII.

Victorinus parentib(us)

et coniugi et Victorinae

fil(iae) fecit,

qui per luem vita functi sunt

Mamertino et Rufo co(n)s(ulibus),

et Aur(elio) Iustino fratri, mil(iti)

leg(ionis) II Ital(icae), stipend(iorum) X,

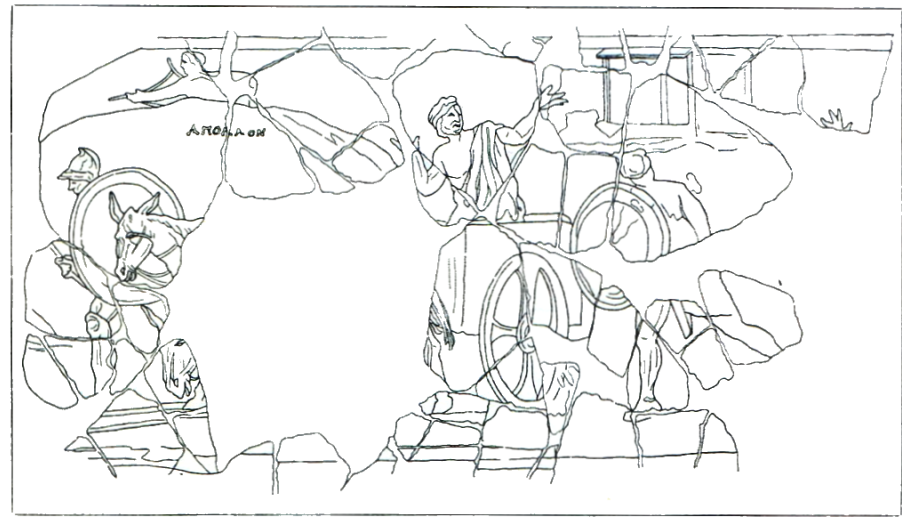
(obito) a(nnorum) XXX.

Squeeze of CIL III 5567 (Original lost)

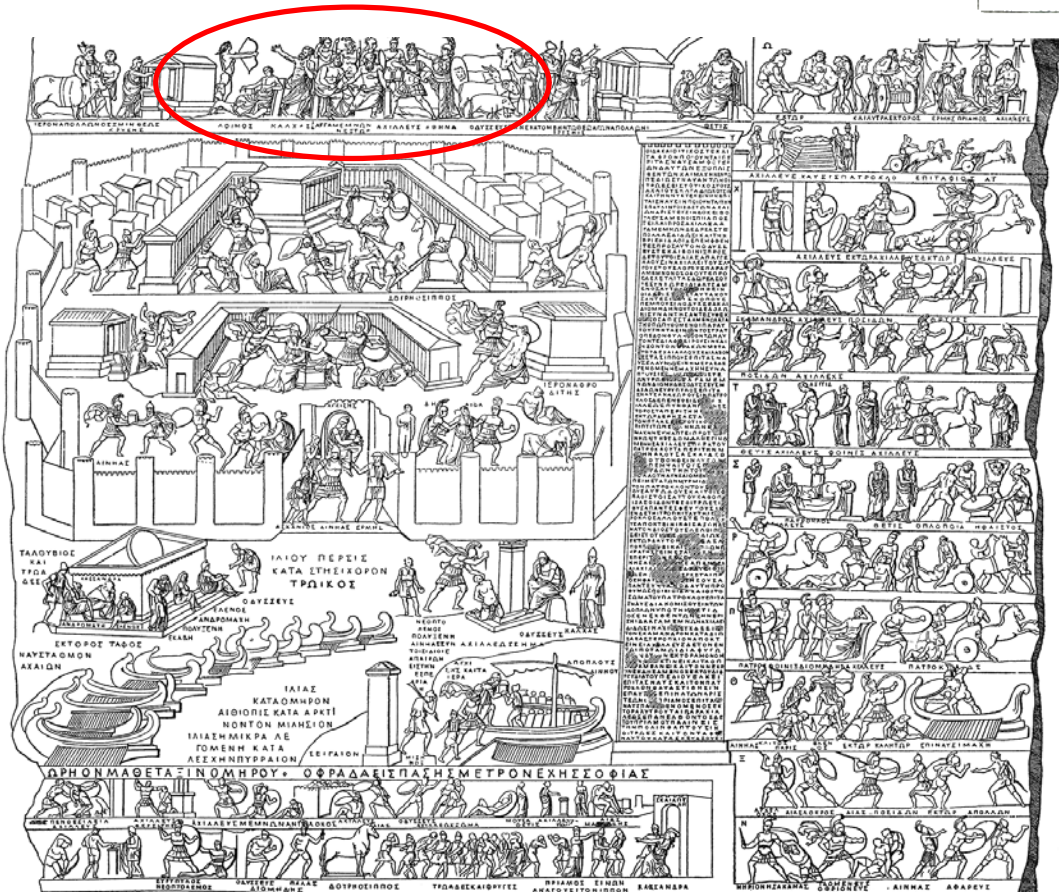
... **qui per luem vita functi sunt** – who lost their lives through the plague

Pagan gods spread diseases (the plague) by shooting arrows

- Hittites : Catalogue of Hittite Texts 425
- Ancient India : Rig-Véda 7,46,1–3; 11,2,26
- The Old Testament : e.g. Dtn 24,8. 32,23; Hi 6,4; Ps 7,13. 38,2. 64,3. 91,5; Ez 5,16; Hab 3,11; Sach 9,14
- Greco-Roman World : **Hom. Il. 1,43–53. Macr. Sat. 1,17**



Pompeii, Casa del criptoportico

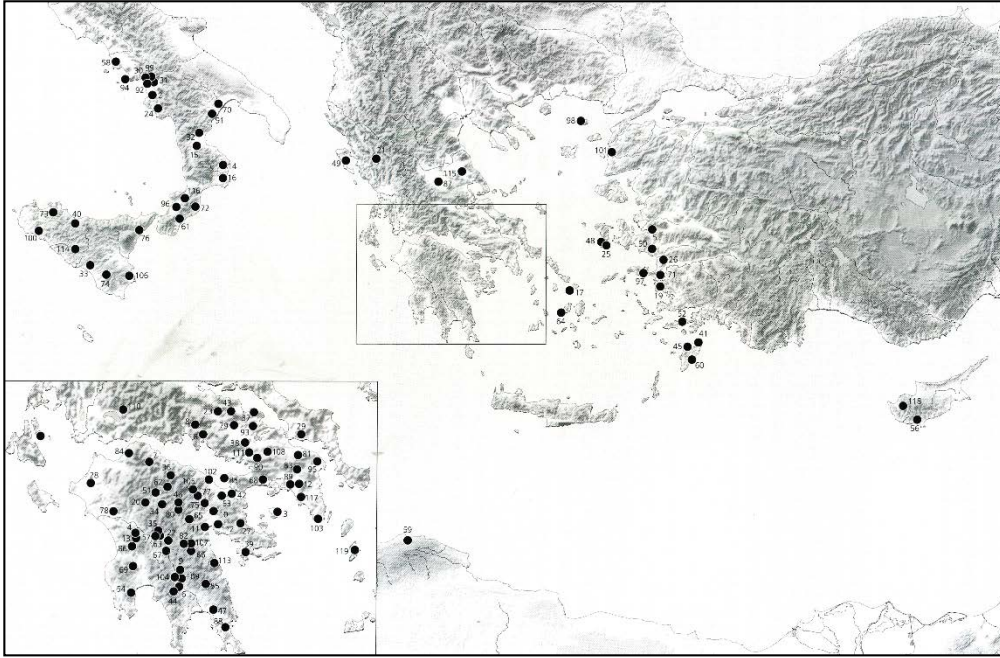


Iliadic table

The Capitoline Museum MC 0316

Finds of weapons, especially arrows in ancient sanctuaries

Weapons in greek sanctuaries



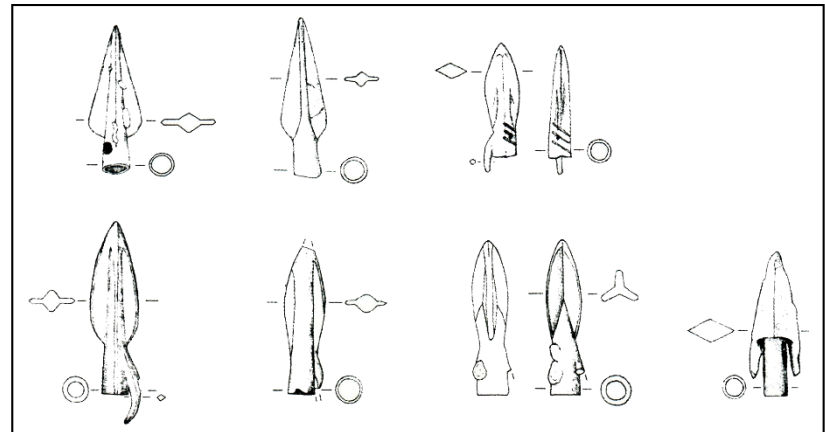
Gournay-sur-Aronde



Olympia, temple of Zeus



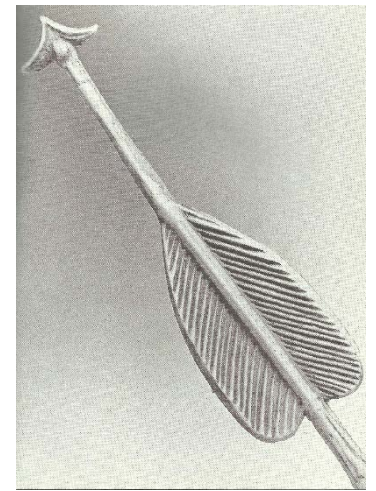
Ephesus, temple of Artemis



Also the christian God spreads diseases (the plague) by shooting arrows



consecrated arrows of St. Sébastien (Ebersberg near Munich)



votive arrow (collection H. Hipp)

votive image at Ebersberg for the preservation against smallpox



Montone, museum of the town



San Gimignano, St. Augustin

