

Fish-tanks and sea level change some remarks from Southern Latium



Some notes for an archaeological approach to
the study of ancient *piscinae ac vivaria*

DEPTH IS THE KEY

- if you take correct measurements
- if you don't adapt it to your needs
- if you consider that it can also exclude your interpretation

HUMAN STRUCTURES LAST
CENTURIES

- and they have their own stories, moments, phases of building, refurbishing, destruction, reconstruction, change of the original function

NOT EVERY PART OF A FISHPOND IS
UNDERWATER

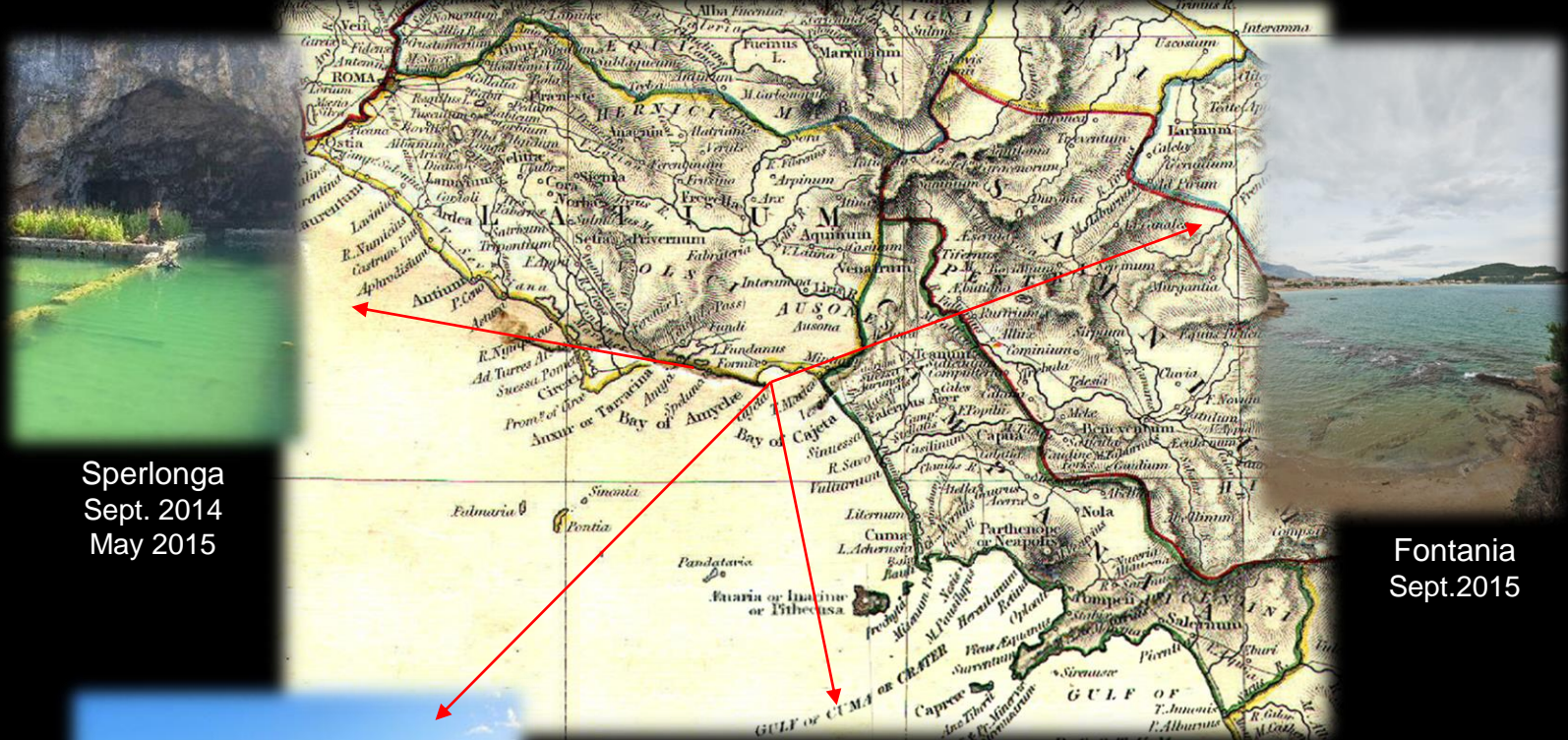
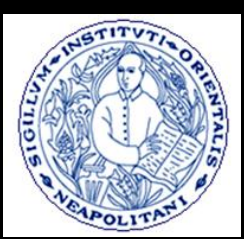
(OR AT THE SAME DEPTH)

- a well-trained eye can distinguish *crepidines*, *cataractae* (and their parts), original seabed, decorative elements
- a well-trained eye can distinguish decay and degradation on ancient structures, with tangible effects on the measurements

LITERARY SOURCES ARE GREAT

- but human structures have their own variations

2013-2017: The Southern Latium Underwater Survey



Sperlonga
Sept. 2014
May 2015



Fontania
Sept. 2015



Gianola
Sept. 2013
Sept. 2014



Villa Accetta
May 2017

Direction:
Fabrizio Pesando / Michele Stefanile
Operational team:
MA Students / BA Students / Support unity

Villae maritimae

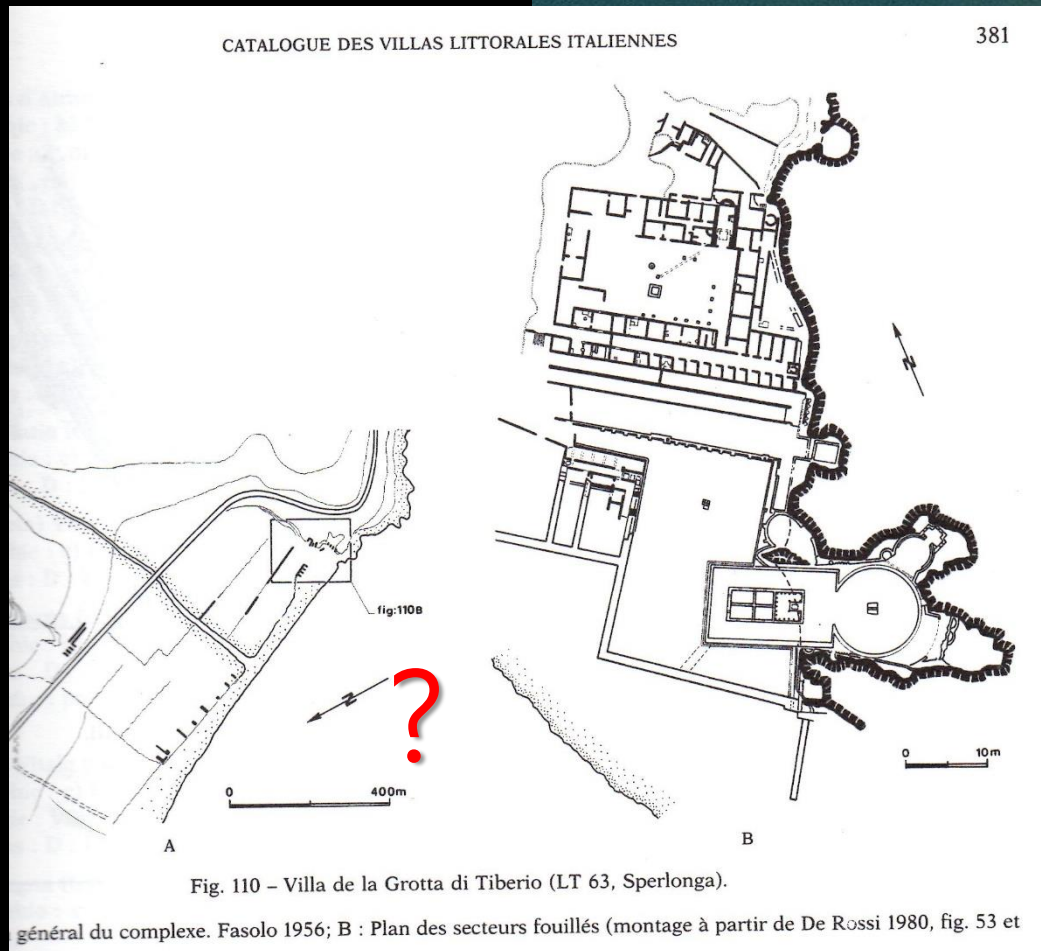
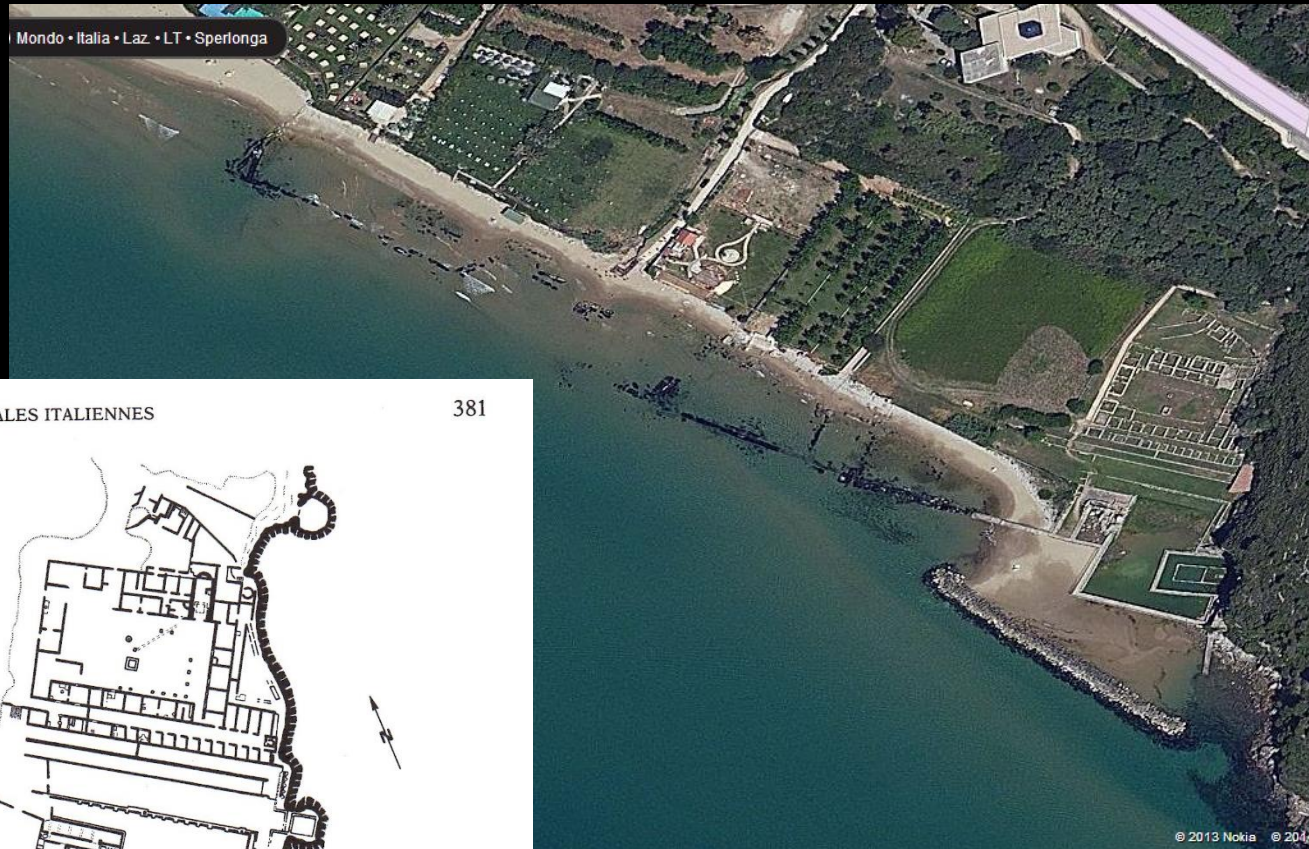


‘Les Romains dont la réputation de peuple terrien constitue un des thèmes majeurs de leur littérature, ont mis au point une forme particulière d’habitat, la villa maritima. Simple paradoxe ou, au contraire, suprême victoire de la terre sur la mer, cette notion n’a jamais fait l’objet d’une étude d’ensemble [---]’

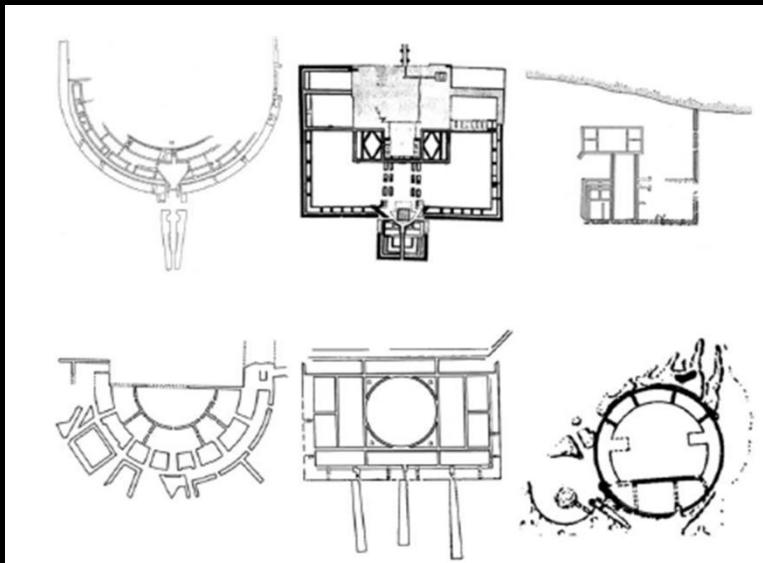
X. Lafon

Problematic aspects:

1. Lack of studies on the submerged part of the villas



2. Lack of coordination between the researches on the land and in the sea

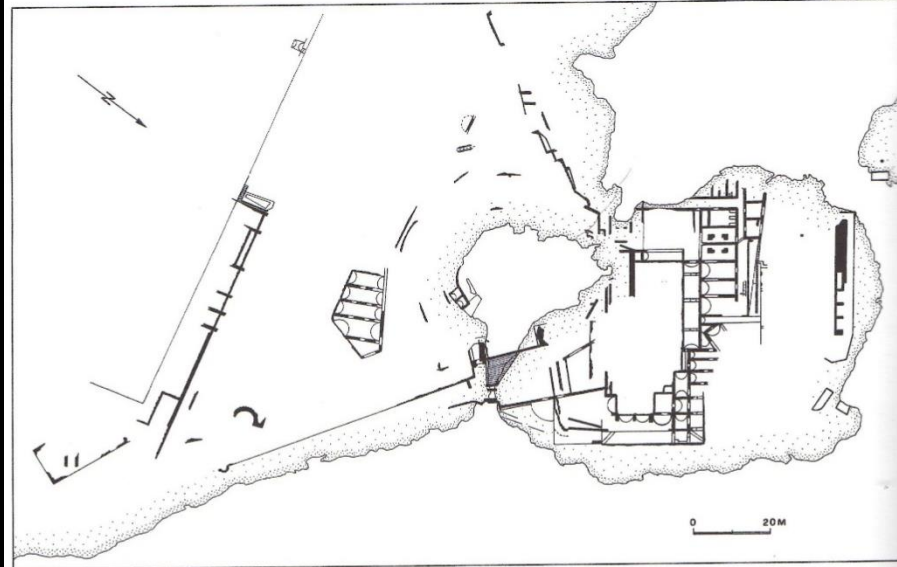


3. Exposure of the sites to natural erosion (by the wind and by the sea)

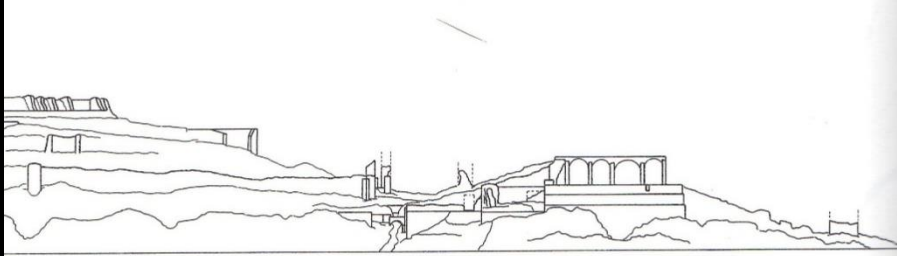




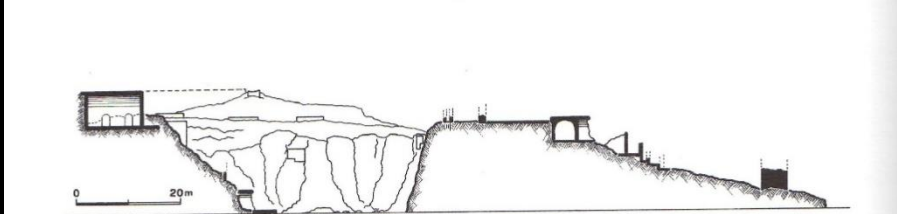
4. Exposure to heavy human impact



A



B



C

Fig. 158 - Villa Punta di Sorrento (SUR 10, Sorrento). Mingazzini-Pfister 1946, carta III.

Plan; B : Élévation; C : Section.

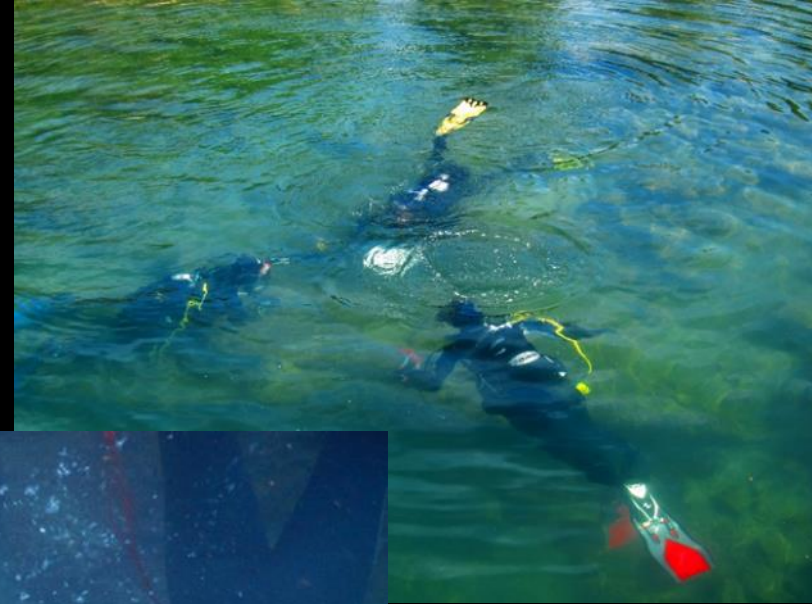
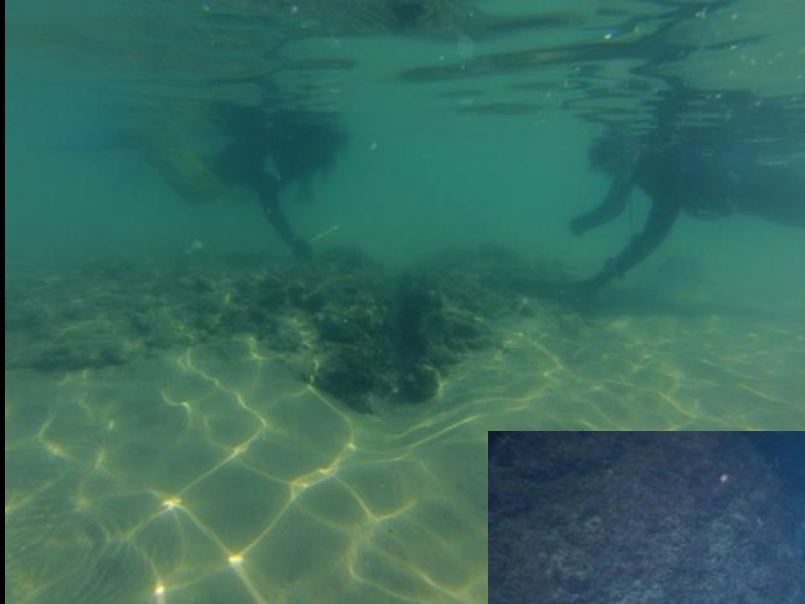
The effort in the modification of the maritime landscape is the keypoint



Reversing the perspective: maritime villas from the sea



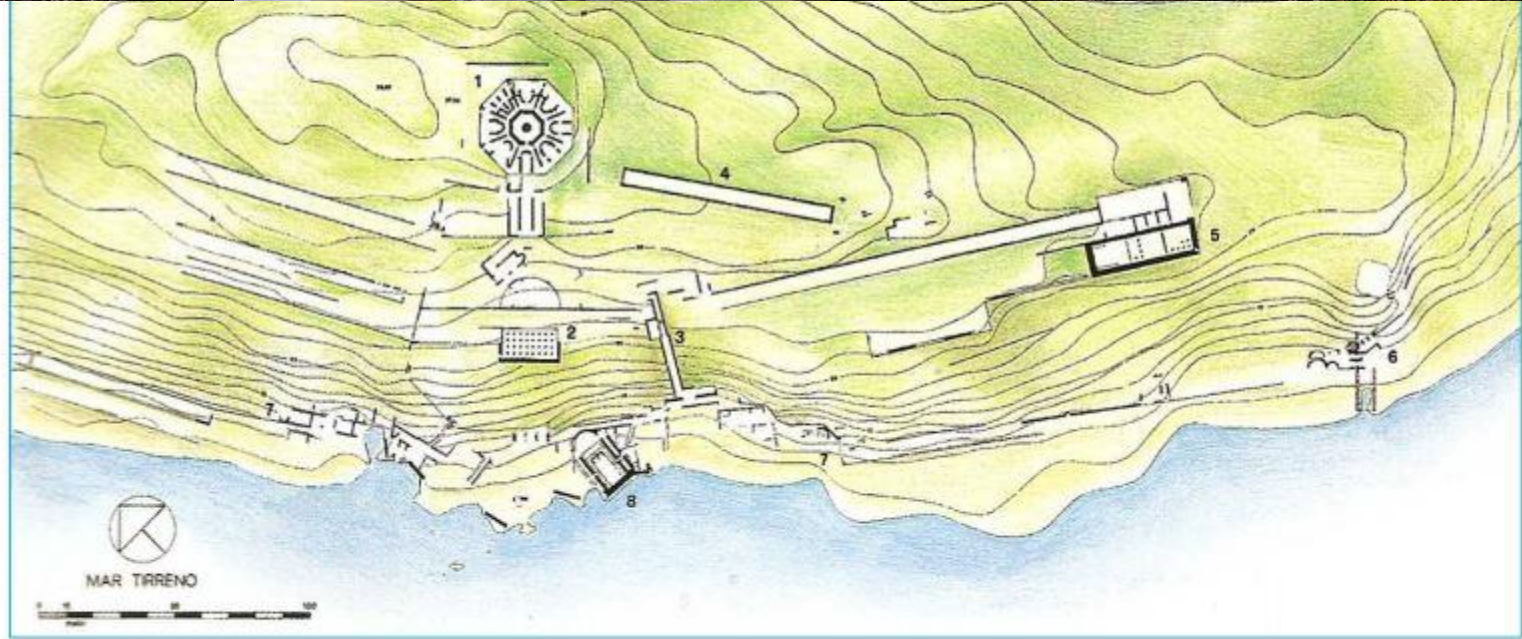
Underwater Researches in Roman maritime villas



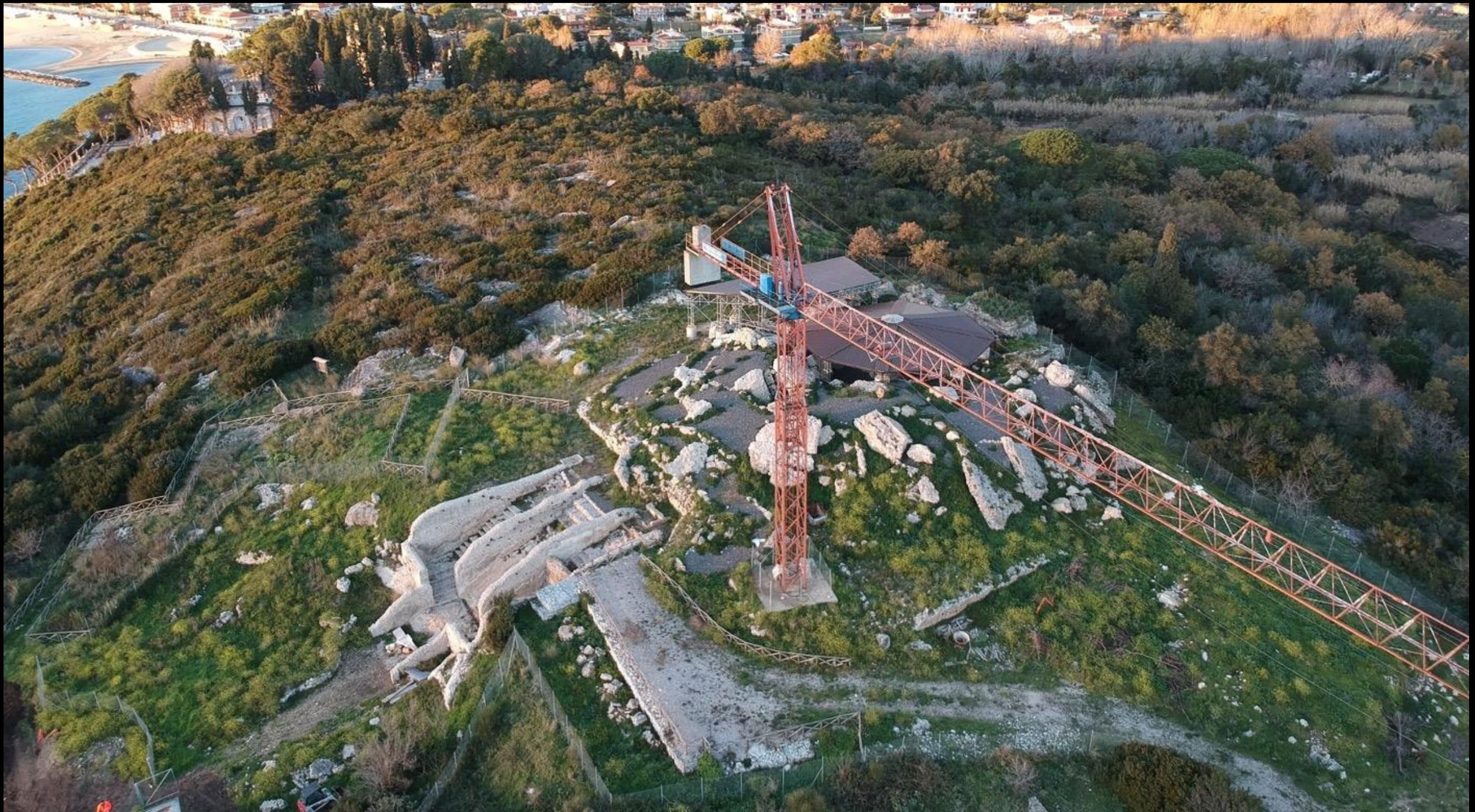


Gianola





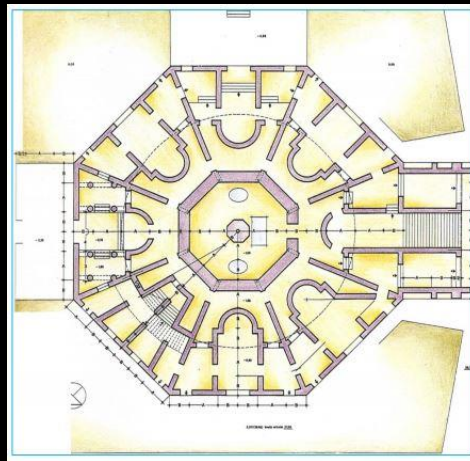
Pianta della villa di Giànola: 1. musaeum cosiddetto Tempio di Giano; 2. cisterna cosiddetta Trentasei Colonne; 3. scala coperta cosiddetta Grotta della Janara; 4. canale ornamentale; 5. cisterna maggio-re e contiguo horreum; 6. castellum aquae e triclinio invernale; 7. fontane a nicchia; 8. balneum (S. Ciccone, 1987, 1996)





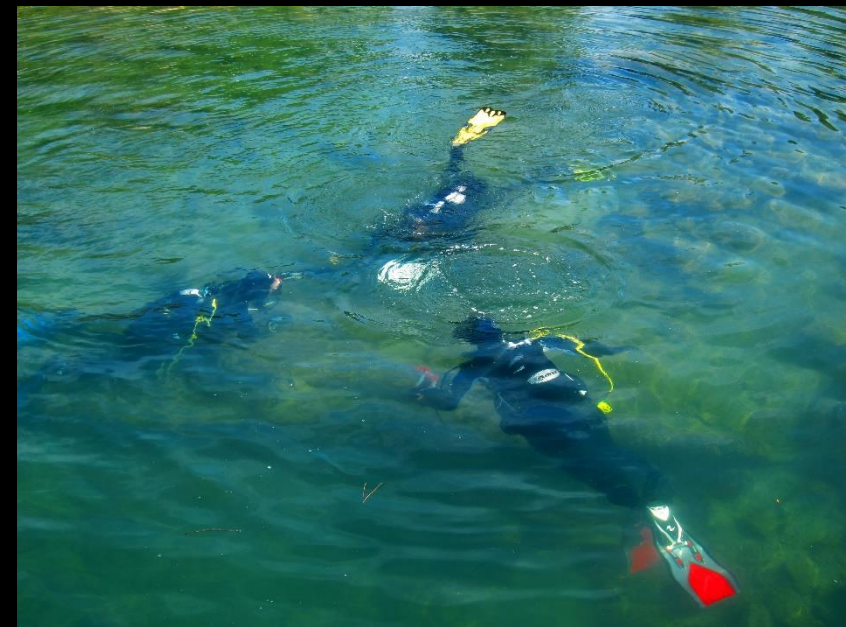
SCOPRENTENZA
ARCHEOLOGIA DEL LAZIO
E DELL'ETRURIA MERIDIONALE

iCr ISTITUTO ITALIANO
PER LA CONSERVAZIONE
ED IL RESTAURO





Gianola 2013





Gianola 2014

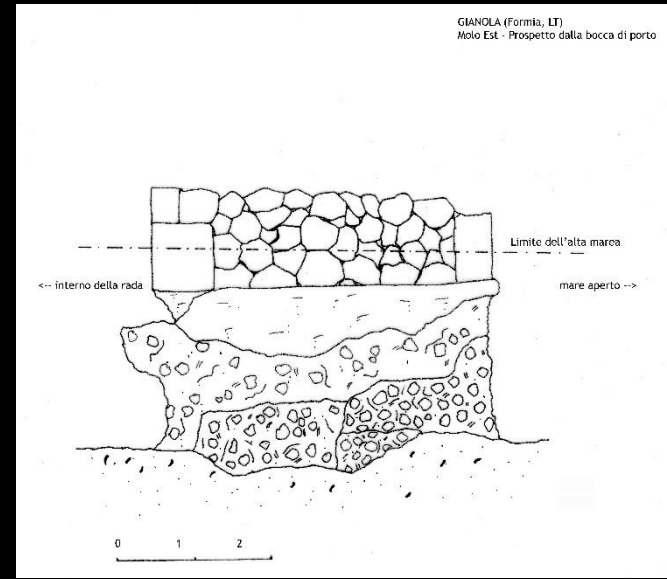




The "Porticciolo Romano"





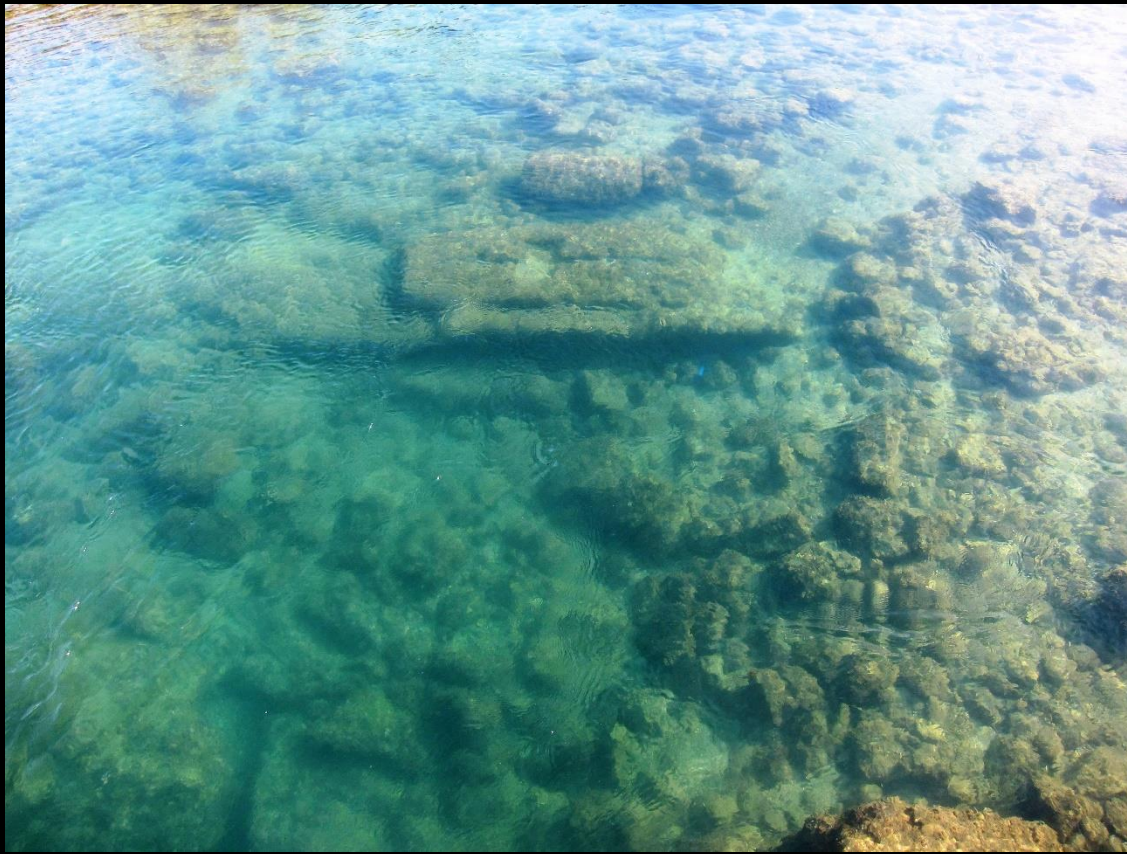




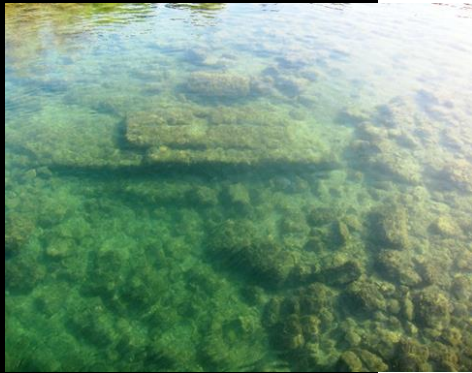
N° Blocco	Alt.	Largh.	Spess.	Prof.	In situ
C1	140	50	30	110	
C2	107	47	46	90	
C3	114	50	30	terra	
C4	90	36	20	10	
C5	100	34	28	105	
C6	98	47	34	terra	
C7	115	31	38	90	
C8	40	20	11	100	
C9	44	60	19	100	
C10	121	35	22	105	
S1	250	95	30	140	
C11	40	50	40	50	
C12		30	16		
C13	65	35	18	65	X
C14	75	45	35	0-- 75	X
C15	65	45	35	10-- 75	X
C16	45	50	35	0	







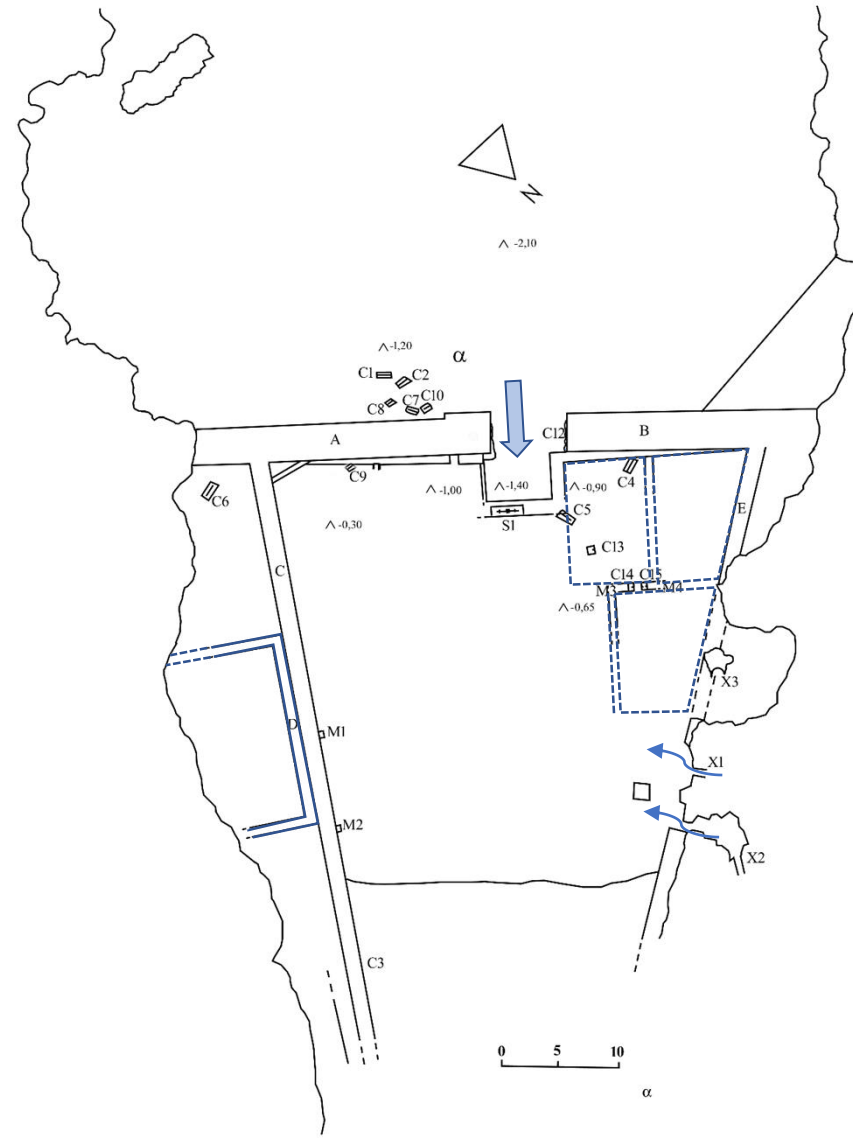




Varro Rust.

3.17.4:

*Nam ut Pausias et
ceteri pictores
eiusdem
generis loculatas
magnas habent
arculas,
ubi discolores sint
cerae, sic hic
loculatas
habent piscinas,
ubi dispares
disclusos
habeant pisces*



Estimated
area:

1550 mq

[average for
*piscinae in
litorae
constructae*
on the
Thyrrhenian
coasts: 1000-
1300 mq;
Torre Astura:
15000 mq)

	Actual Depth	Ancient Depth
Threshold S1	-1,40	?**
Sluice-gates in situ C14-C15	-1,40*	?***

* C14 0 - -0,75
C15 -10 - -0,75

But the full dimation of the blocks
(like C1, complete) is 1-40



** with +0,70m we would have the
basis of the central sluice gate at a
depth of -0,70



** with +0,70m we would have
the basis of the channel at a depth
of -0,70, an the top of the blocks at
+0,70



	Actual Depth	Ancient Depth
Threshold S1	-1,40	?**
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** with +1,20m we would have the
basis of the central sluice gate at a
depth of -0,20



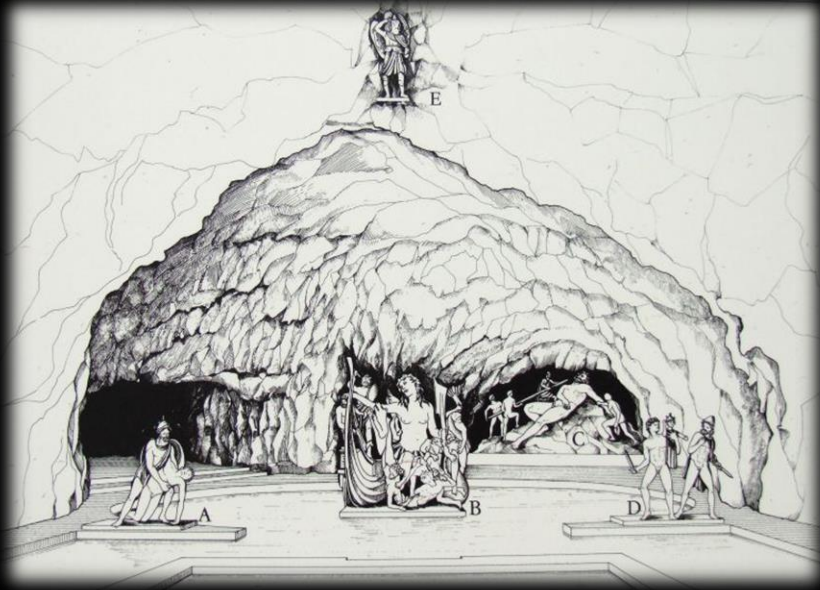
** with +1,20m we would have
the basis of the channel at a depth
of -0,20, an the top of the blocks at
+1,20

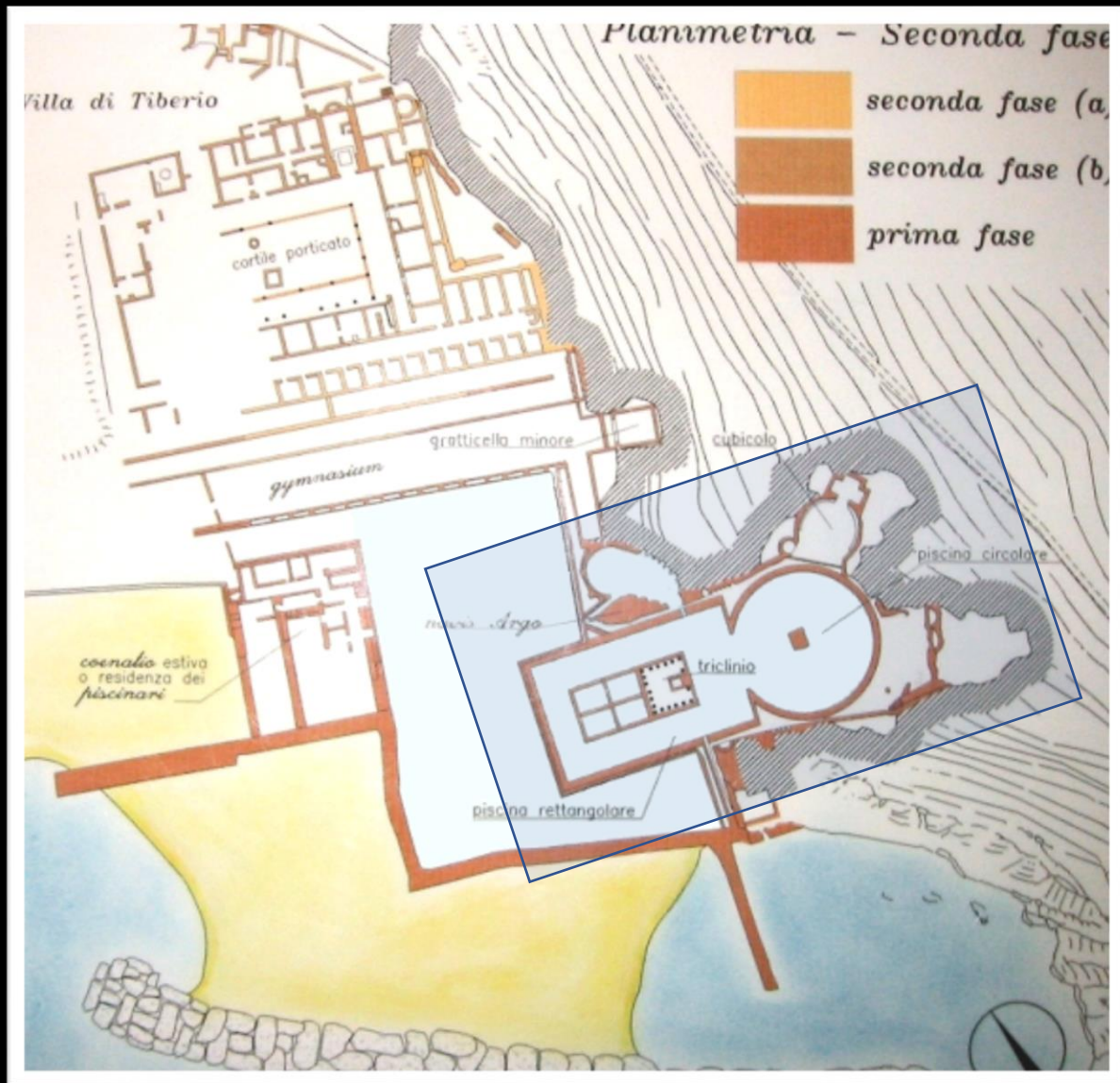




Sperlonga



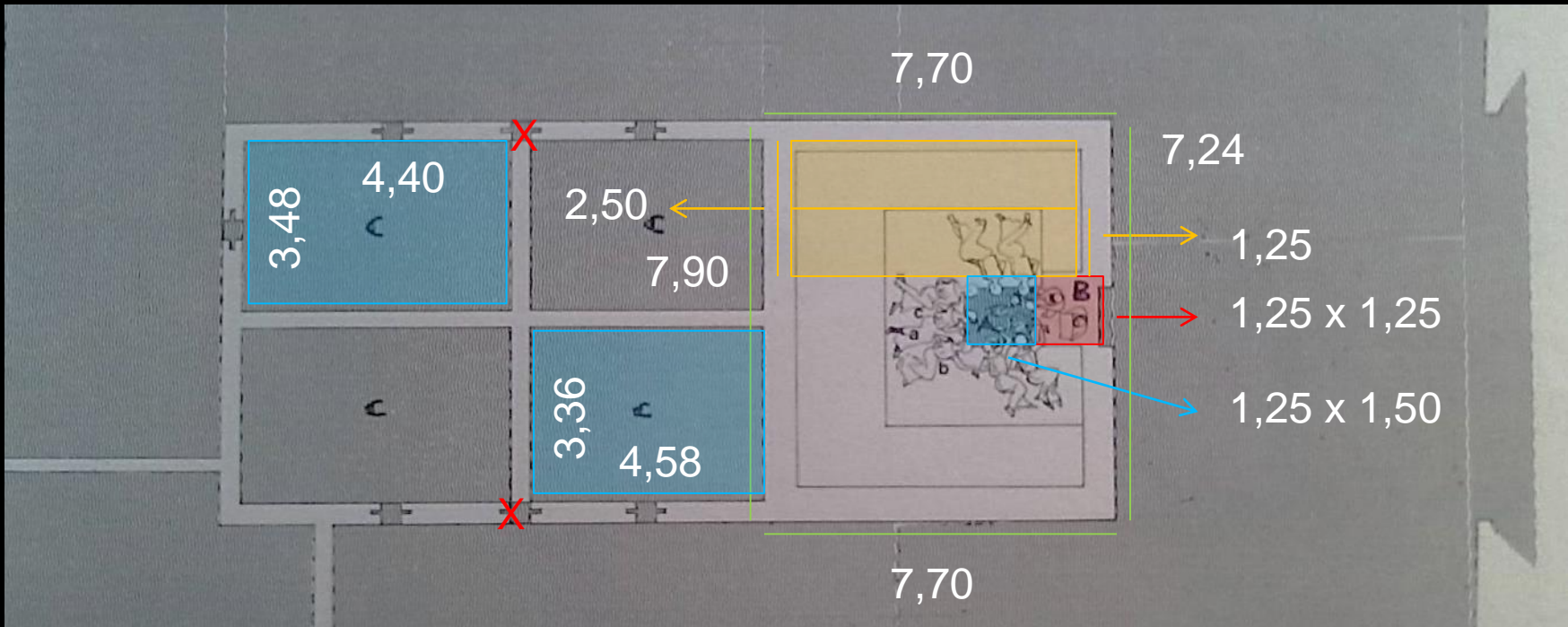
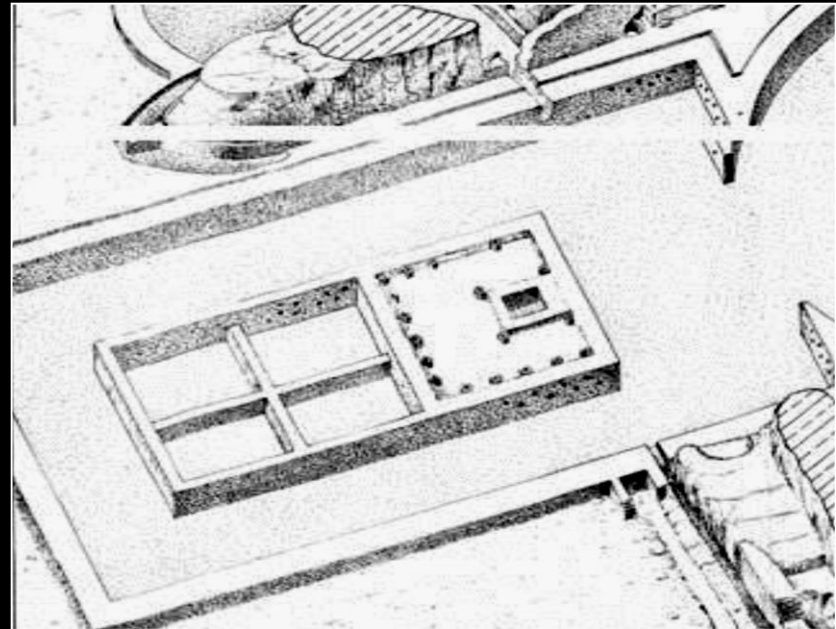






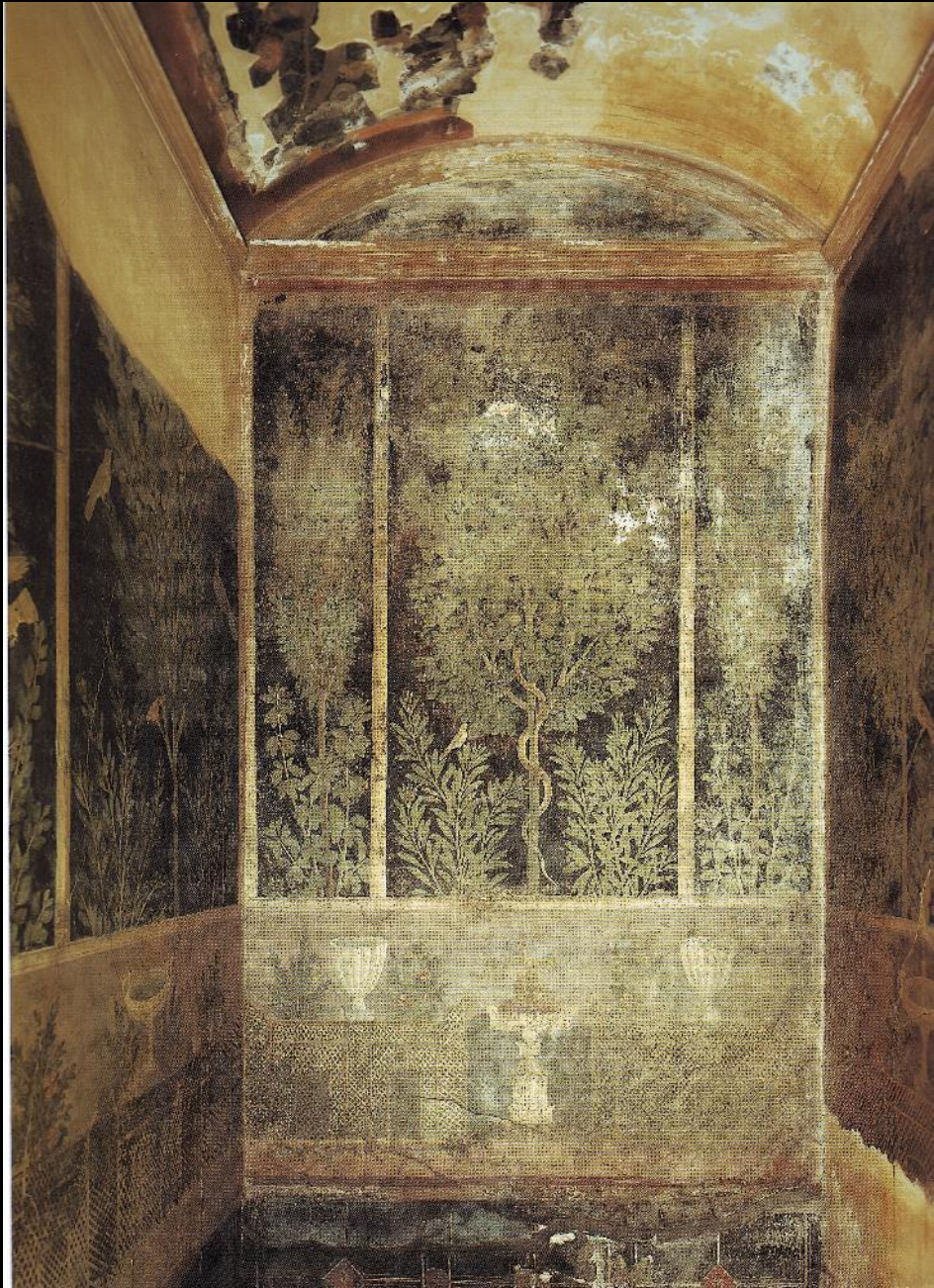




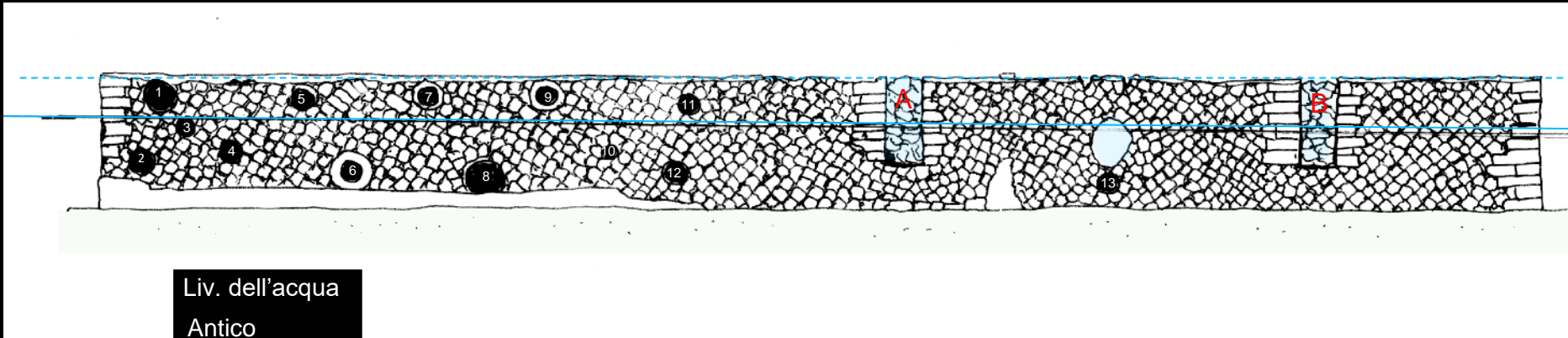








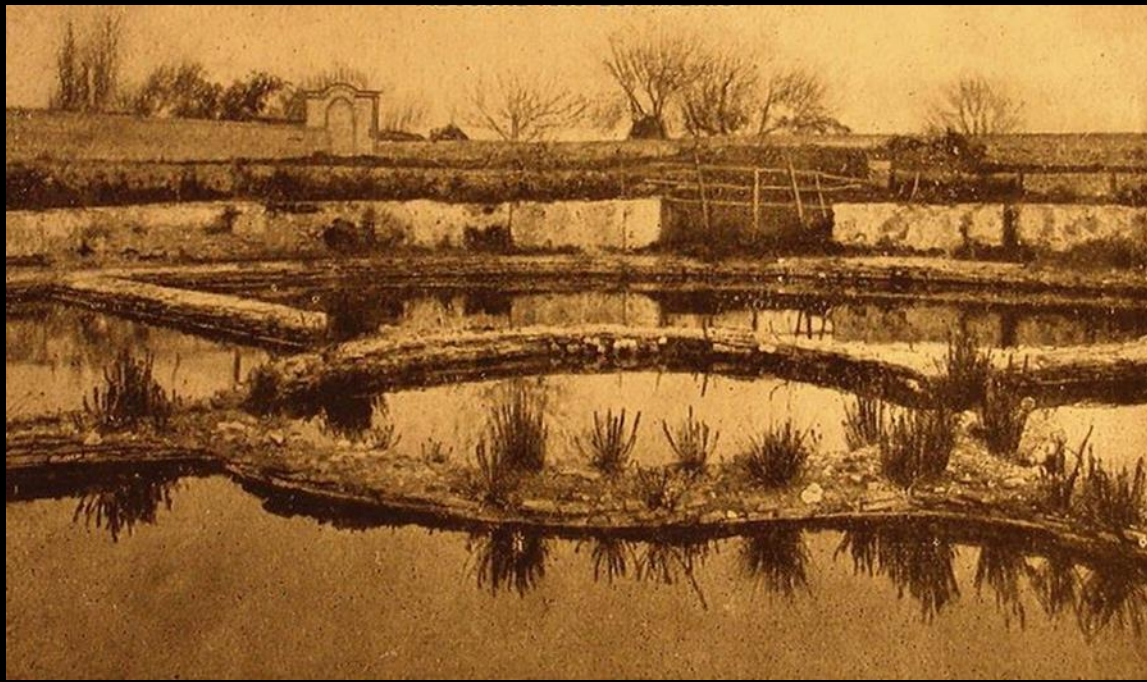




Liv. dell'acqua
Antico
Moderno







Multi putant in eiusmodi stagnis longos piscibus recessus et flexuosos in lateribus **specus** esse fabricandos, quo sint opaciores aestuantibus latebrae. Sed si recens mare non semper stagnum permeat, id facere contrarium est. Nam eiusmodi receptacula nec facile novas admittunt aquas, et difficulter veteres emittunt: plusque nocet putris unda, quam prodest opacitas.

Debent tamen **similes** velut **cellae** parietibus excavari, ut sint, quae protegant refugientes ardorem solis, et nihilominus facile, quam conceperint aquam, remittant. Verum meminisse oportebit, ut rivis, per quos exundat piscina, praefigantur aenei foraminibus exiguis cancelli, quibus impediatur fuga piscium. Si vero laxitas permittit, e litore scopulos, qui praecipue verbenis algae vestiuntur, non erit alienum per stagni spatia disponere, et quantum comminisci valet hominis ingenium, repraesentare faciem maris,

Artificial shelters

[Columella, VIII, 17, 5-6]



Use of ceramic vessels in *alvearia*



Quod ad locum pertinet, hoc genus potissimum eligendum iuxta villam, non quo non in villae porticu quoque quidam, quo tutius esset, **alvarium** collocarint. Ubi sint, alii faciunt ex viminibus rutundas, alii e ligno ac corticibus, alii ex arbore cava, alii **fictiles**, alii etiam ex ferulis quadratas longas pedes circiter ternos, latas pedem, sed ita, ubi parum sunt quae compleant, ut eas conangustent, in vasto loco inani ne despondeant animum.[---]

Alvi optimae fiunt corticeae, **deterrimae fictiles**, quod et frigore hieme et aestate calore vehementissime haec commoventur.

[Varr., 3,16,15-17]

Igitur ordinatis sedibus, **alvearia** fabricanda sunt pro conditione regionis. Sive illa ferax est suberis, haud dubitanter utilissimas alvos faciemus ex corticibus, quia nec hieme frigent, nec candent aestate; sive ferulis exuberat, iis quoque, quod sunt naturae corticis similes, aequae commode **vasa** texuntur. [---]

Deterrima est conditio fictilium, quae et accenduntur aestatis vaporibus, et gelantur hiemis frigoribus.

[Colum. 9,6,1-2]



Axius, Si possem emere, inquit, peristerona factum, quem ad modum, in aedibus cum habere vellem, emi **fictilia columbaria**, iam issem emptum et misissem ad villam. Quasi vero, inquit Pica, non in urbe quoque sint multi. An tibe columbaria qui in tegulis habent, non videntur habere peristeronas, cum aliquot supra centum milium sestertium habeant instrumentum?

[Varr. 3,7,11]

Eiusque parietes, ne iam dicta iteremus, ut in ornithone praecepimus, continuis cubilibus exeaventur: vel si non ita competit, paxillis adactis tabulae superponantur, quae vel loculamenta, quibus nidificent aves, vel **fictilia columbaria** recipiant, praepositis vestibulis, per quae ad cubilia perveniant

[Colum. 8,8,3]



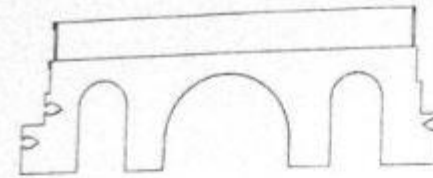
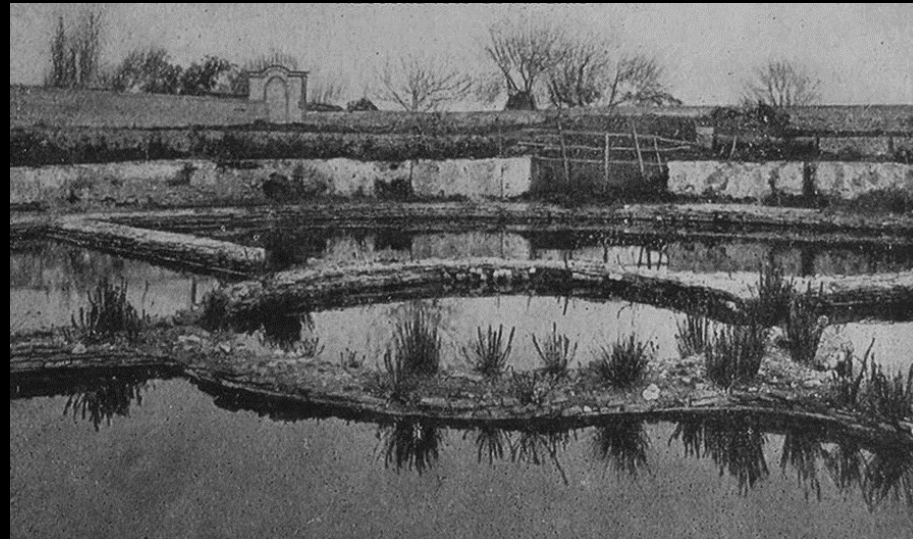
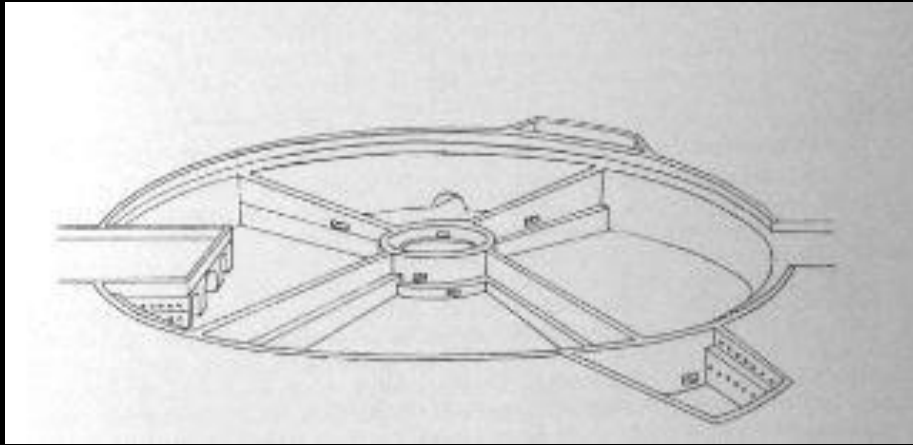
Sed utcumque fabricatum est, si semper influente gurgite riget, **habere debet specus iuxta solum**, eorumque alios simplices et rectos, quo secedant squamosi greges, alios **in cochleam retortos**, nec nimis spatiosos, in quibus **muraenae** delitiscant



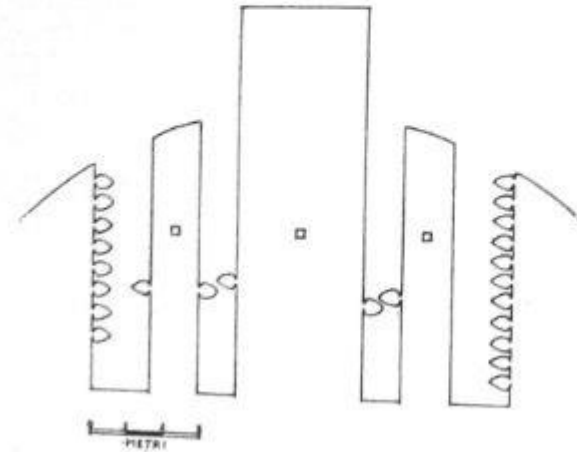
[Colum. VIII, 17]



...rectos, quo secedant squamosi greges

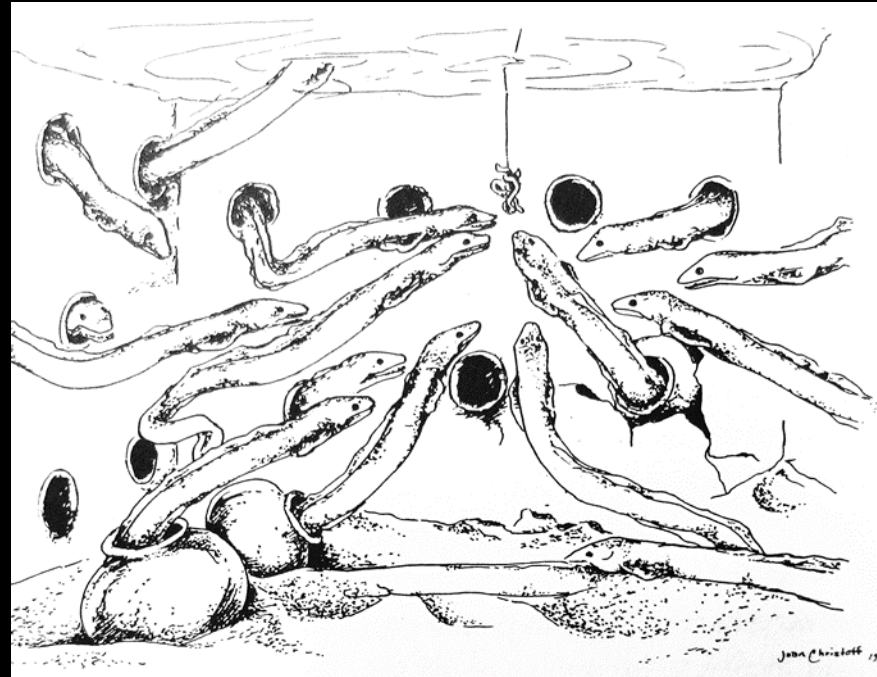


137 - Piscina detta "Piscina di Lucullo". Prospetto della piattaforma L (da Chiappella).



136 - Piscina detta "Piscina di Lucullo". Pianta della piattaforma L (da Chiappella).

...in cochleam retortos, nec nimis
spatiosos, in quibus muraenae delitescant



Le vivier augustéen du Lac-de-Capelles à Port-la-Nautique (Narbonne)

Nicolas CARAYON* et Clément FLAUX**

avec la collaboration de Corinne SANCHEZ**, Gaël PIQUÈS**, Nuria ROVIRA**, Margaux TILLIER***, Séverine SANZ-LALIBERTÉ**, Julien CAVERO****, Vivien MATHÉ*****, Stéphanie WICHA*****, et Patrice CERVELLIN*****

Fig. 3 : Plan du vivier circulaire et du *triclinium* estival (DAO, N. Carayon) et plan restitué du vivier du Lac-de-Capelles (clichés : S. Sanz-Laliberté ; SIG : J. Caverio ; DAO : N. Carayon, CNRS).

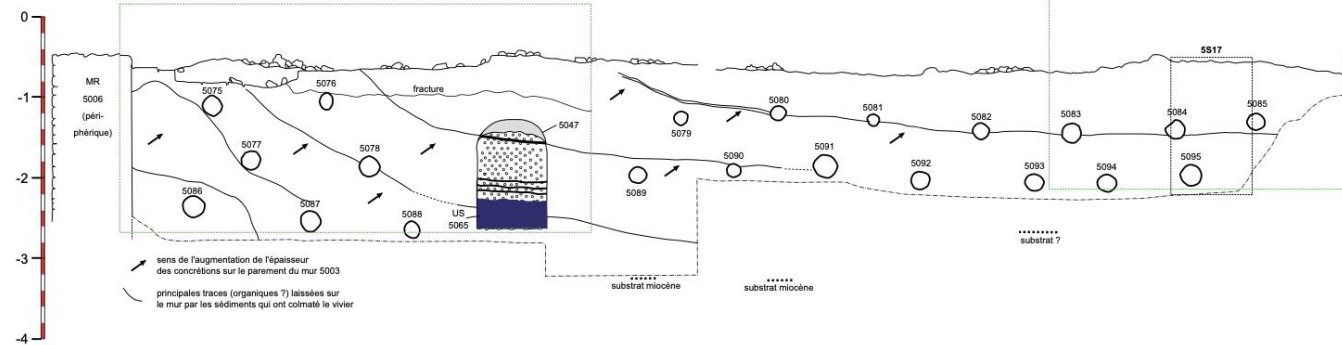
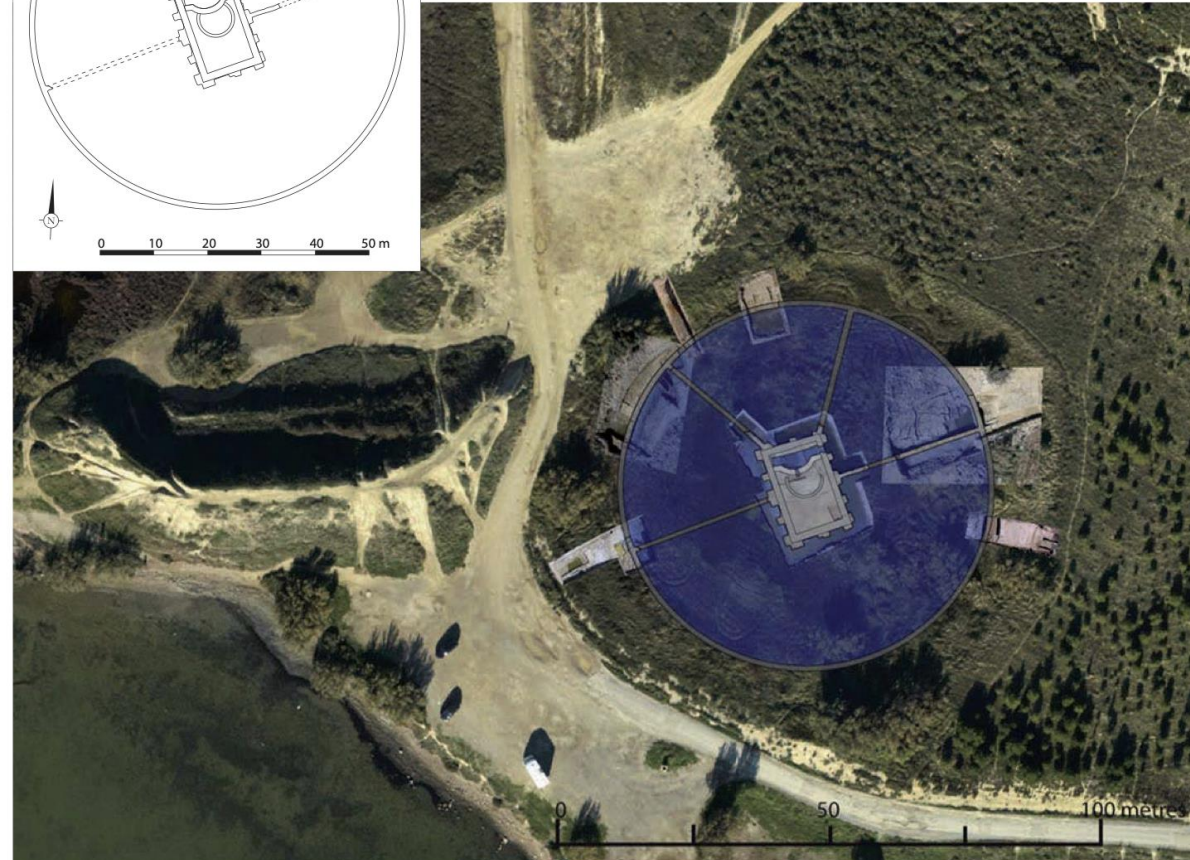
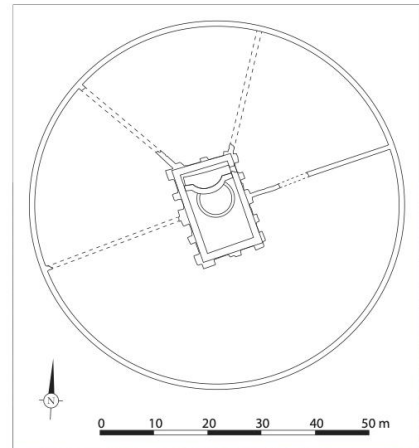
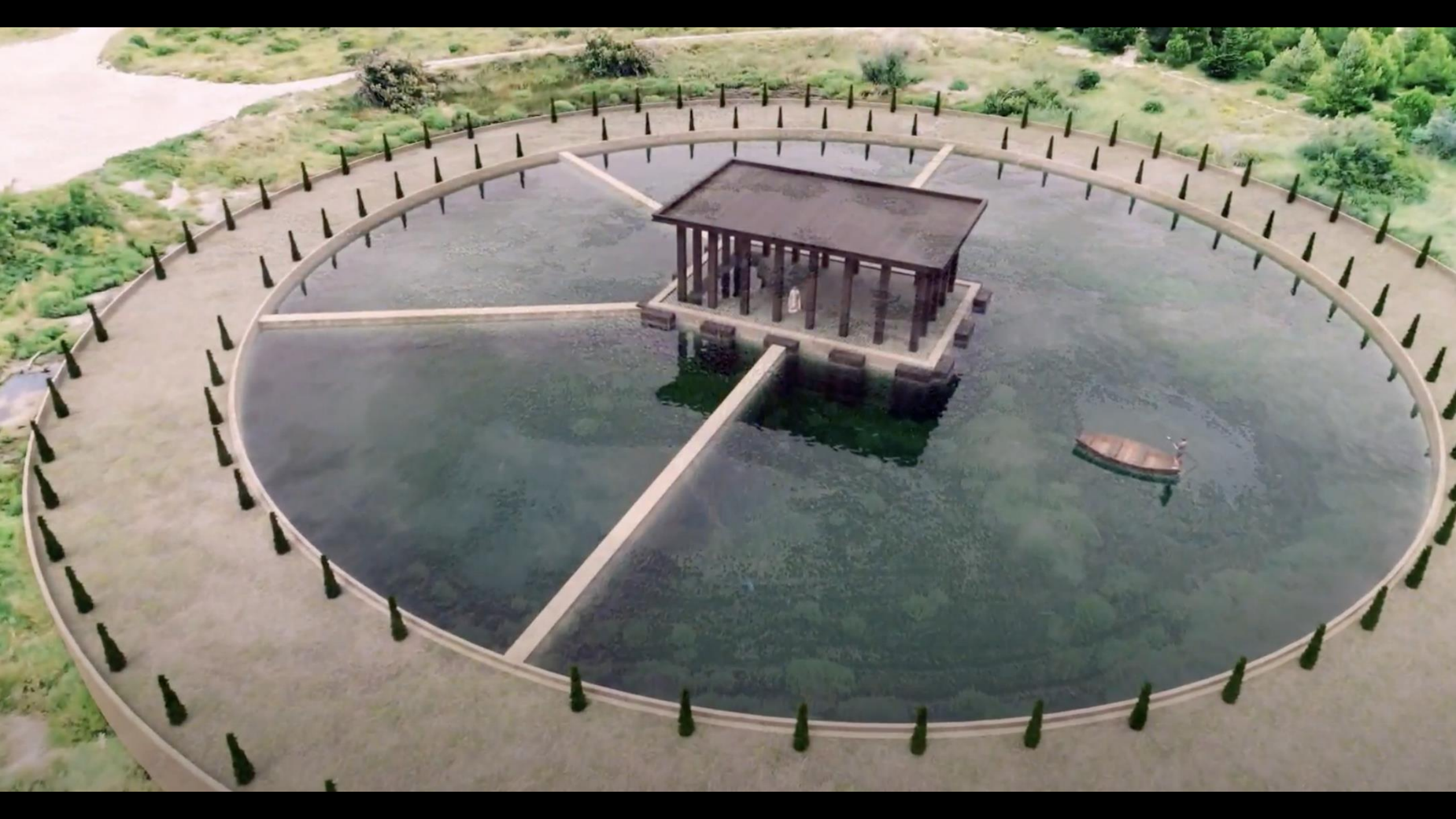


Fig. 5 : Élévation et photographies du mur rayonnant oriental, depuis le nord (clichés : N. Carayon ; relevé : J. Bertel et J. Devogelaere ; DAO : Cl. Flaux, CNRS).







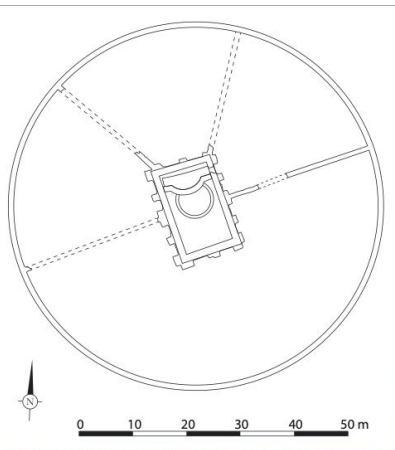
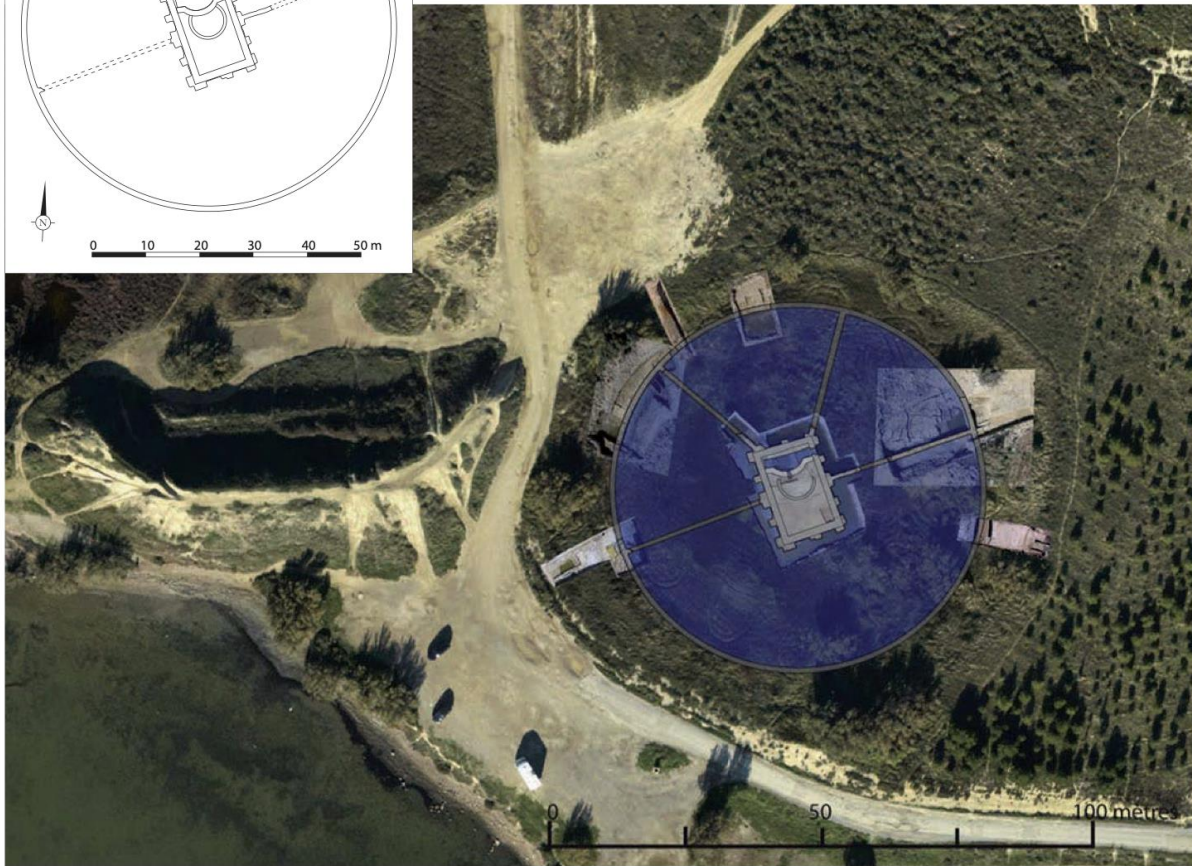


Fig. 3 : Plan du vivier circulaire et du *triclina* estival (DAO, N. Carayon) et plan restitué du vivier du Lac-de-Capelles (clichés : S. Sanz-Laliberté ; SIG : J. Cavero ; DAO : N. Carayon, CNRS).



préhension et la datation de la structure. Directement sur le fond du bassin, un niveau contemporain de son utilisation a conservé une très grande quantité d'ichtyoresstes dont la détermination a permis d'identifier les espèces conservées *in vivo*. La murène est l'espèce la plus représentée et on trouve également de nombreux labridés (labre vert, labre merle et labre paon). On note que ces espèces sont associées à un milieu marin rocheux et leur présence au Lac-de-Capelles illustre la qualité technologique de la structure qui permet de créer artificiellement un milieu adéquat en fond de lagune. La fouille a également mis au jour des

« Viviers à huîtres » de Narbonne antique

Anne BARDOT-CAMBOT⁽¹⁾

1. UN VIVIER DANS LE VIVIER : PREMIÈRES OBSERVATIONS ARCHÉOCONCHYLILOGIQUES SUR LES HUÎTRES DU LAC-DE-CAPELLES À PORT-LA-NAUTIQUE

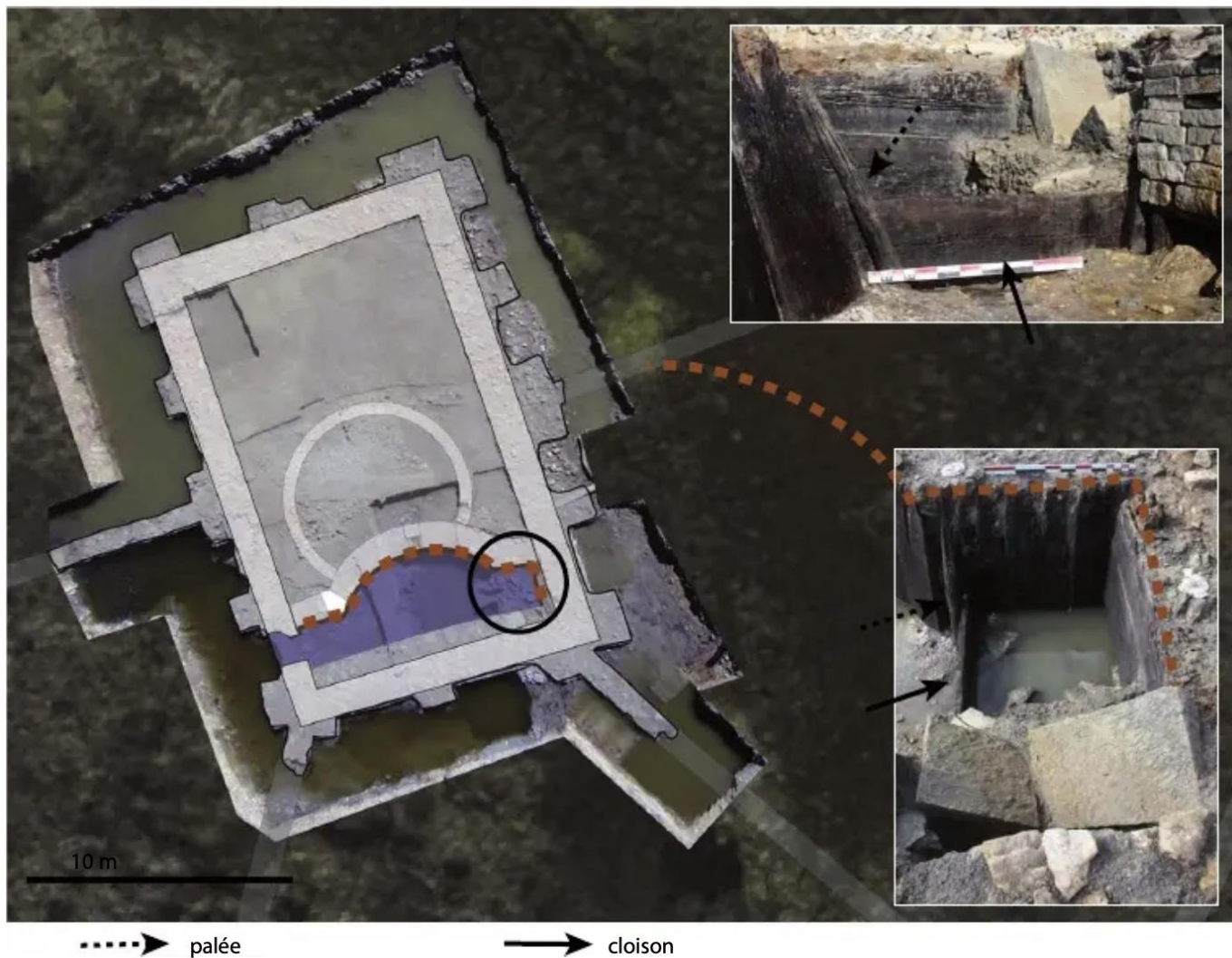


Fig. 1 : Compartiment réservé aux huîtres dans le vivier du Lac-de-Capelles (Narbonne/Aude) (N. Carayon).

Tum Canius "quaeso", inquit, "quid est hoc, Pythi? tantumne piscium? tantumne cumbarum?" Et ille: "Quid mirum?" inquit, "hoc loco est Syracusis quidquid est piscium, hic aquatio, hac villa isti carere non possunt." Incensus Canius cupiditate contendit a Pythio, ut venderet. Gravate ille primo. Quid multa? impetrat. Emit homo cupidus et locuples tanti, quanti Pythius voluit, et emit instructos. Nomina facit, negotium conficit. Invitat Canius postridie familiares suos, venit ipse mature, scalmum nullum videt. Quaerit ex proximo vicino, num feriae quaedam piscatorum essent, quod eos nullos videret. "Nullae, quod sciam," ille, "sed hic piscari nulli solent. Itaque heri mirabar quid accidisset."

Allora Canio disse: «Ti prego, cos'è questo, Pizio? Perché tanti pesci? Tante barche?». E quello «Di che ti stupisci? Tutti i pesci di Siracusa stanno qui, qui c'è aquatio, non possono fare a meno di questa villa». Canio, preso dal desiderio, chiese insistentemente a Pizio di vendergli la villa. Sulle prime quello faceva il difficile. Che altro? Ci riesce. Quell'uomo ricco e desideroso compra la villa a tanto quanto vuole Pizio, e compra l'arredamento. Registra i nomi, e l'affare è fatto. Il giorno dopo Canio invita i suoi amici, viene per tempo, ma non vede neppure una barca. Chiede al vicino più prossimo se c'è qualche festa dei pescatori, perché non ne vede nessuno. «Nessuna, per quanto ne sappia, ma qui nessuno viene a pescare: per questo ieri mi stupivo dell'accaduto».

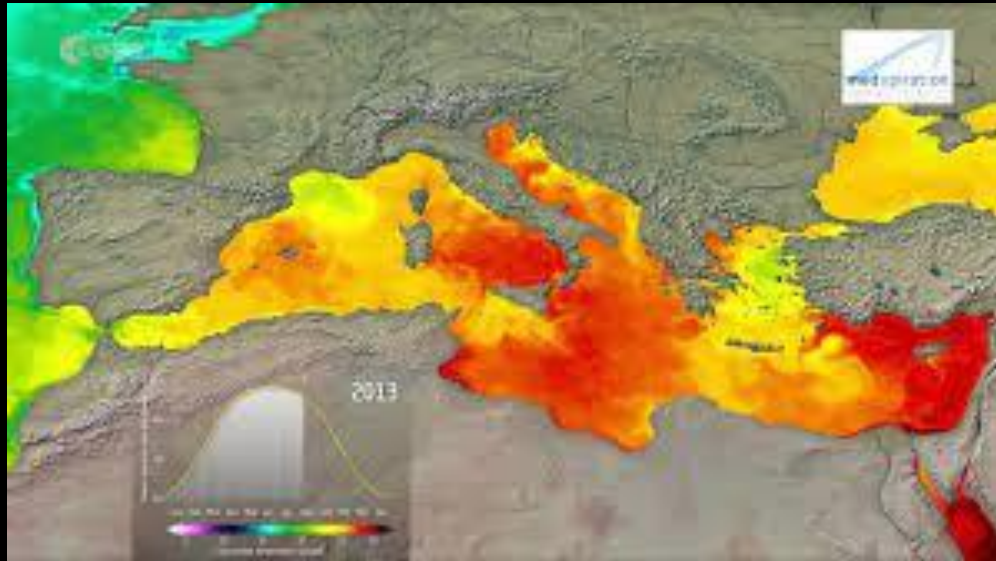
Murenarum vivarium privatim excogitavit ante alios C. Hirrius , qui cenis triumphalibus Caesaris dictatoris sex milia numero murenarum mutua appendit. Nam permutare quidem pretio nolit aliave merce. Huius villam infra quam modicam **[4.000.000 hs] piscinae vendiderunt. Invasit dein singulorum piscium amor. Apud Baulos in parte Baiana piscinam habuit Hortensius orator, in qua murenam adeo dilexit, ut exanimatam flesse credetur. In eadem villa Antonia Drusi murenae, quam diligebat, inaures addidit, cuius propter famam nonnulli Baulos videre concupierunt.

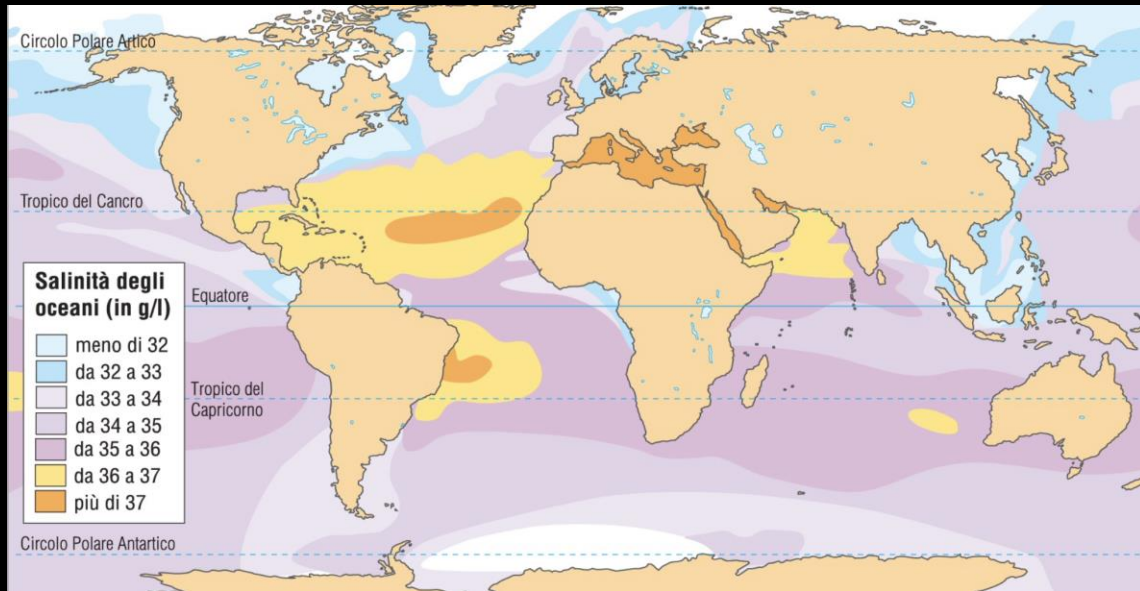
[Plin. IX, 40, 81]

Aquatio: a way to create brackish water?



Temperature

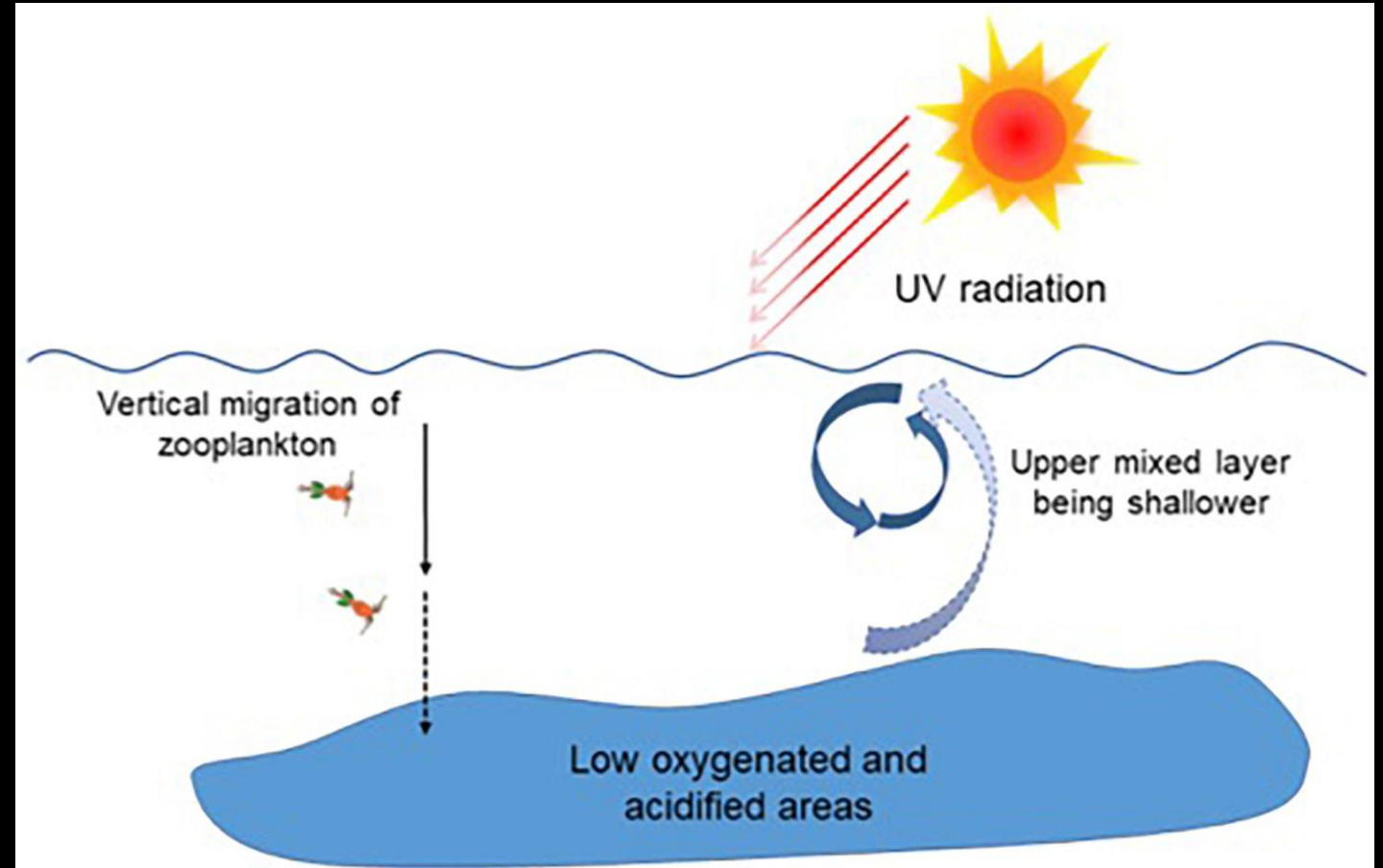
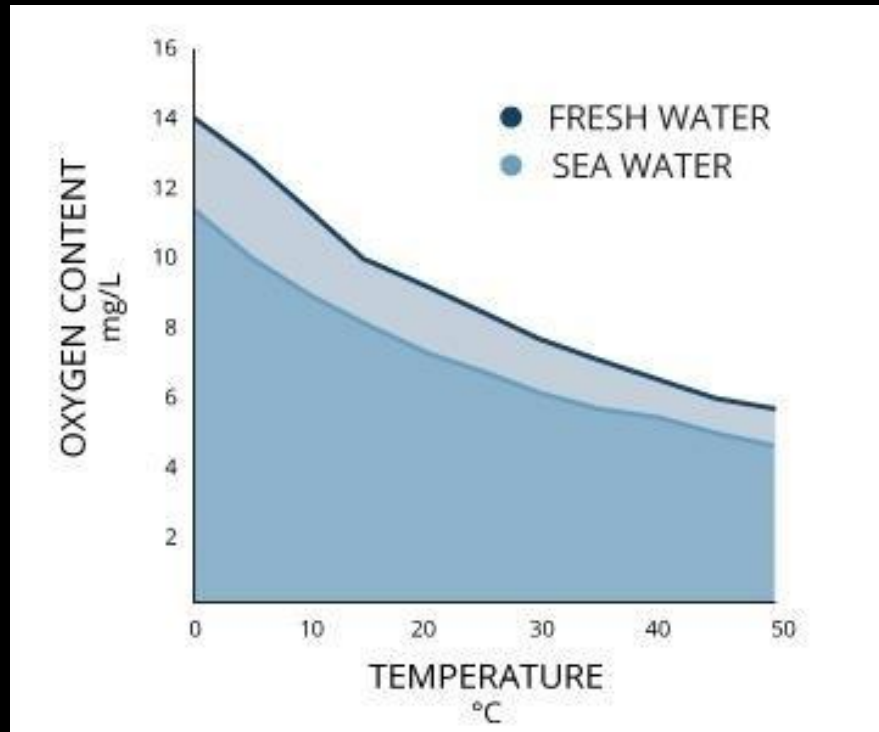




Salinity



Oxygenation / acidification









Fontania









collezione Alfredo Langella

collezione Alfredo Langella

collezione Alfredo Langella

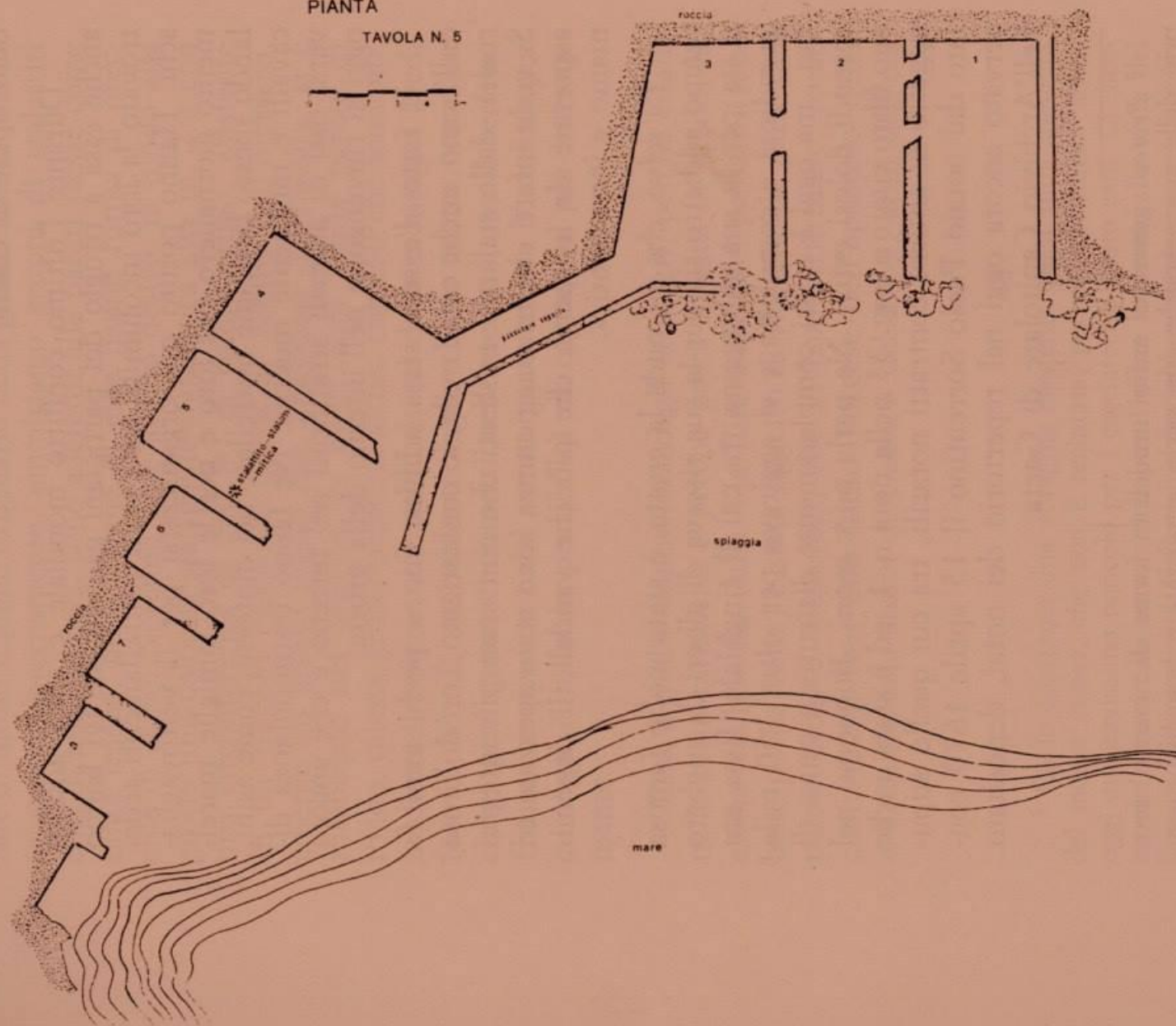
collezione Alfredo Langella



«grotte di fontania»

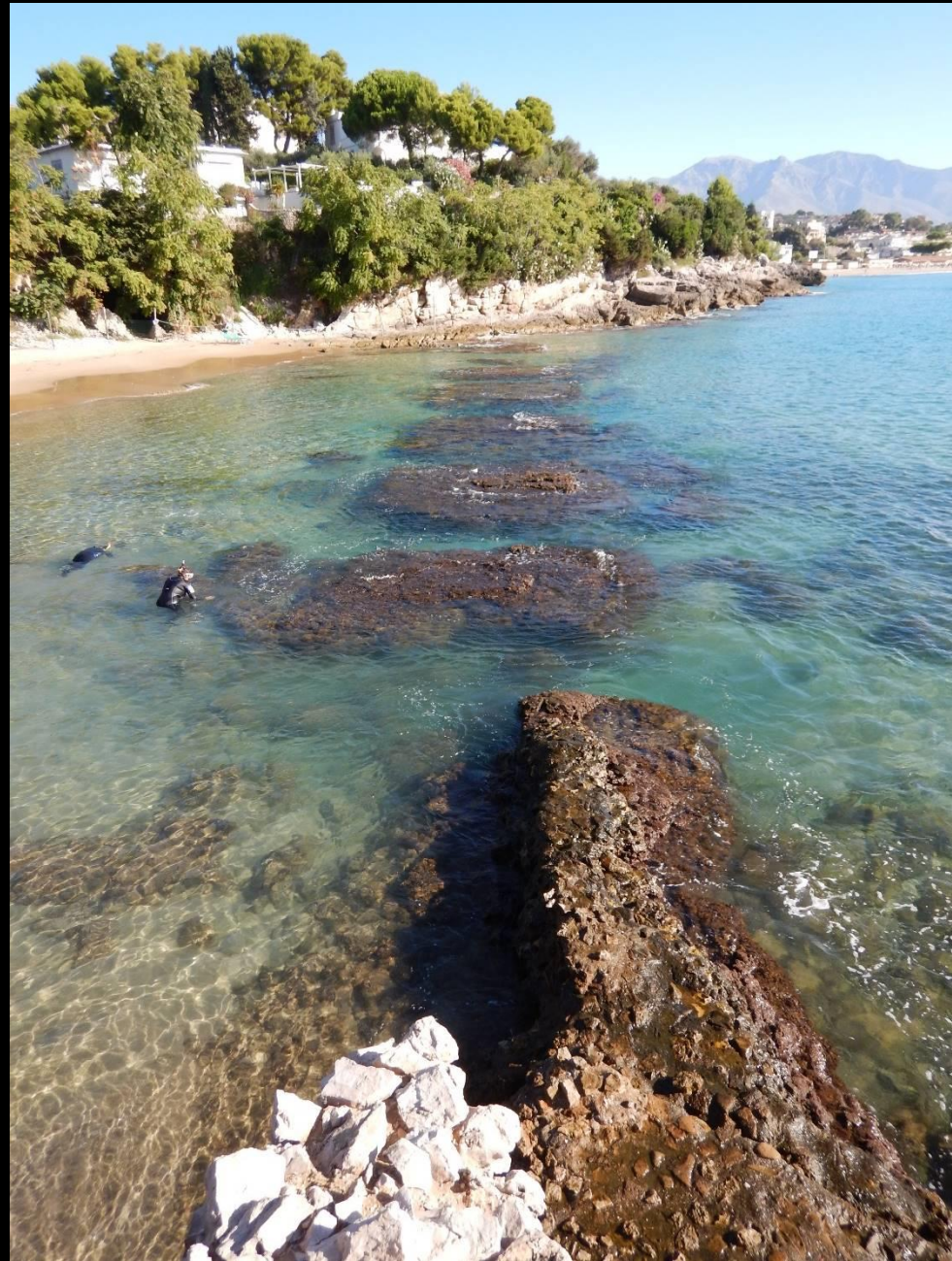
PIANTA

TAVOLA N. 5







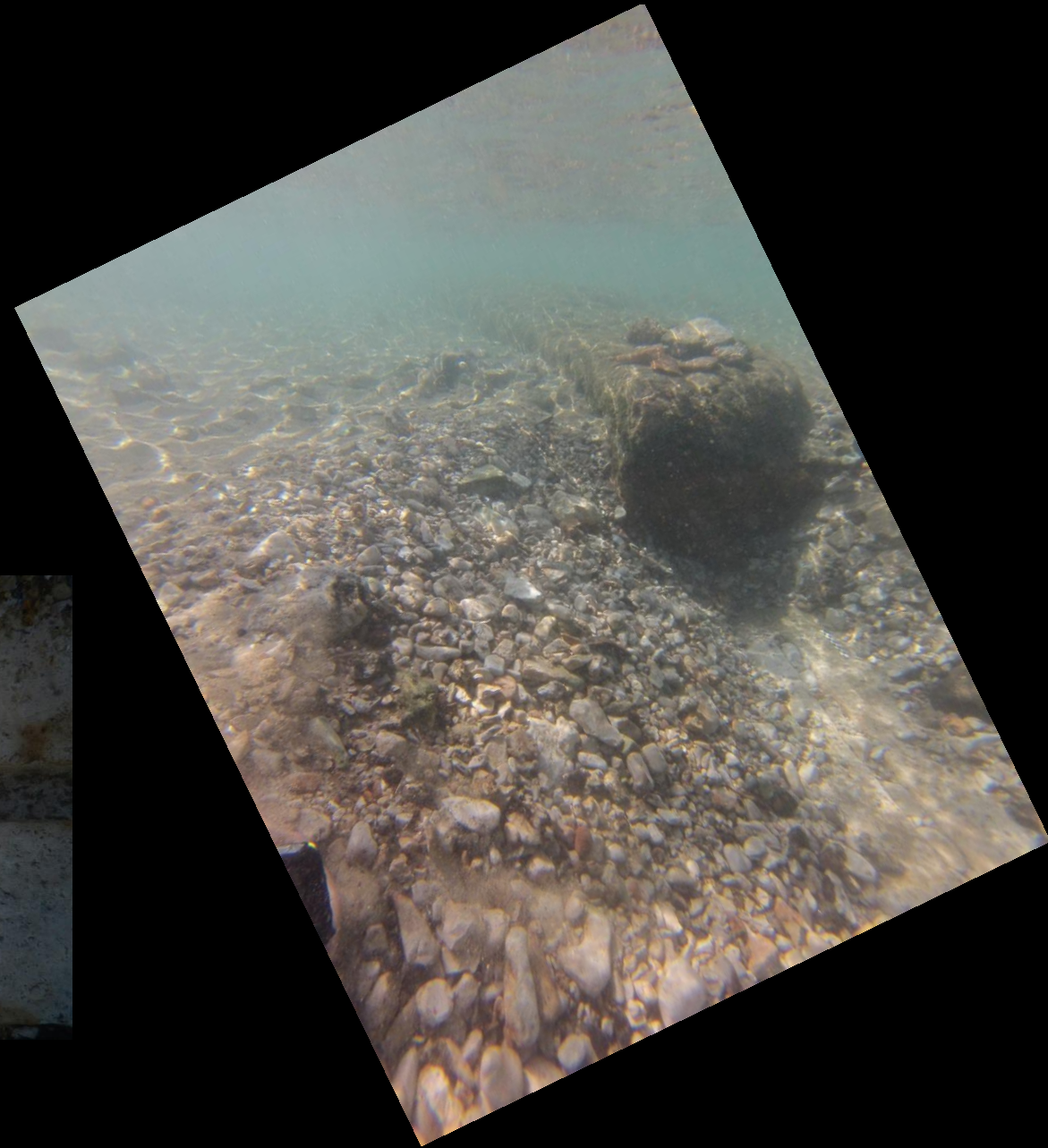








Threshold

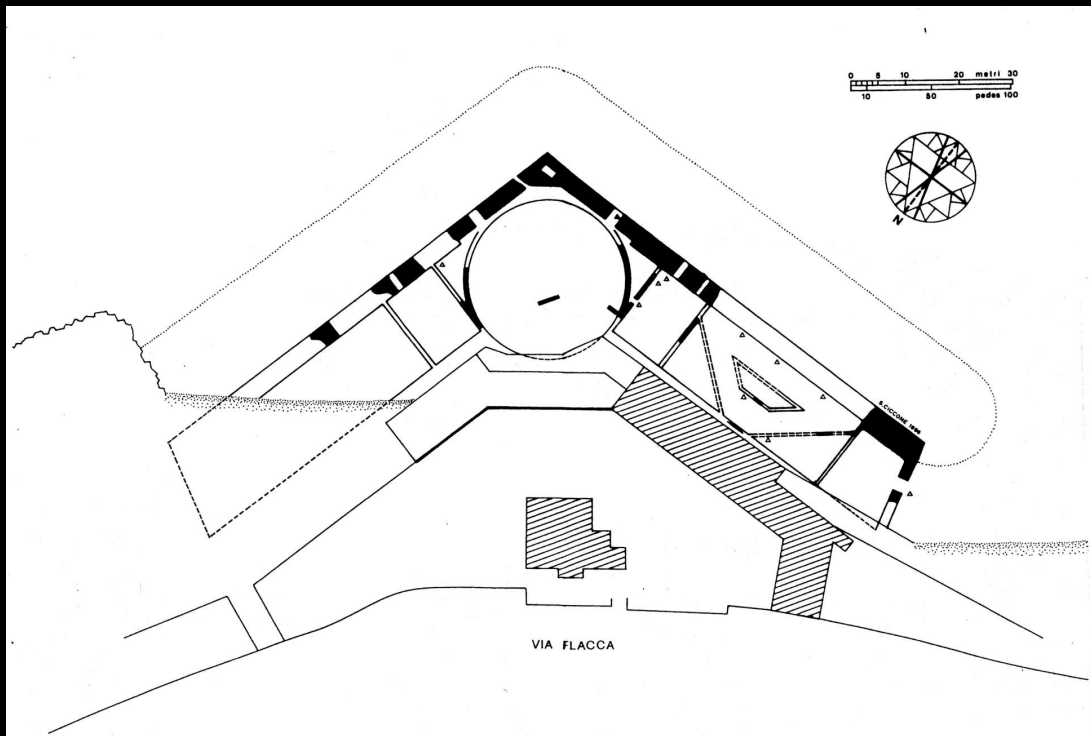


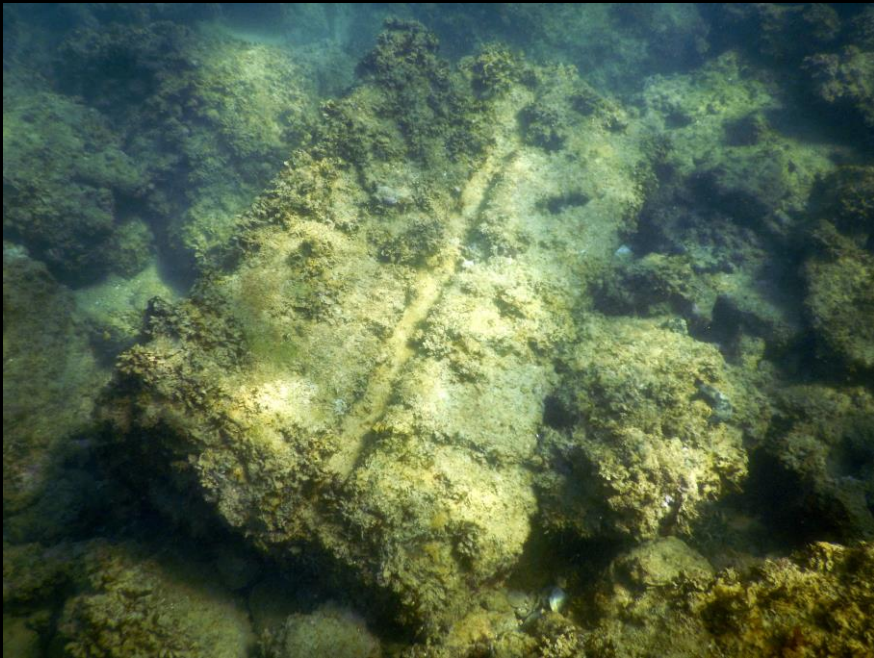


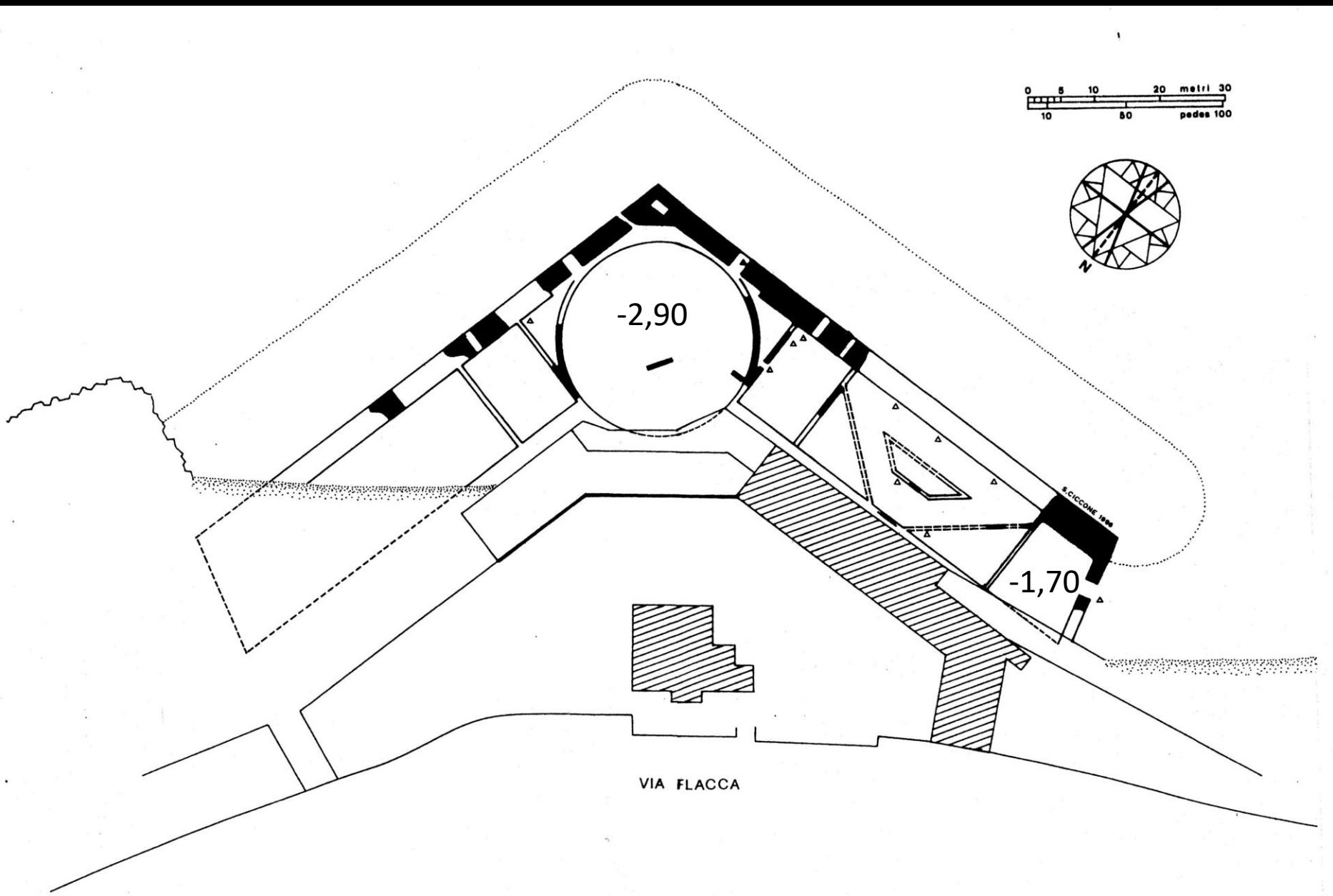




Villa Accetta









Thanks for your attention!

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