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# The Madrague de Giens ship: A photogrammetry from the past

Laetitia Cavassa, Pierre Poveda, Vincent Dumas, Ninon Basuau, Philippe Soubias

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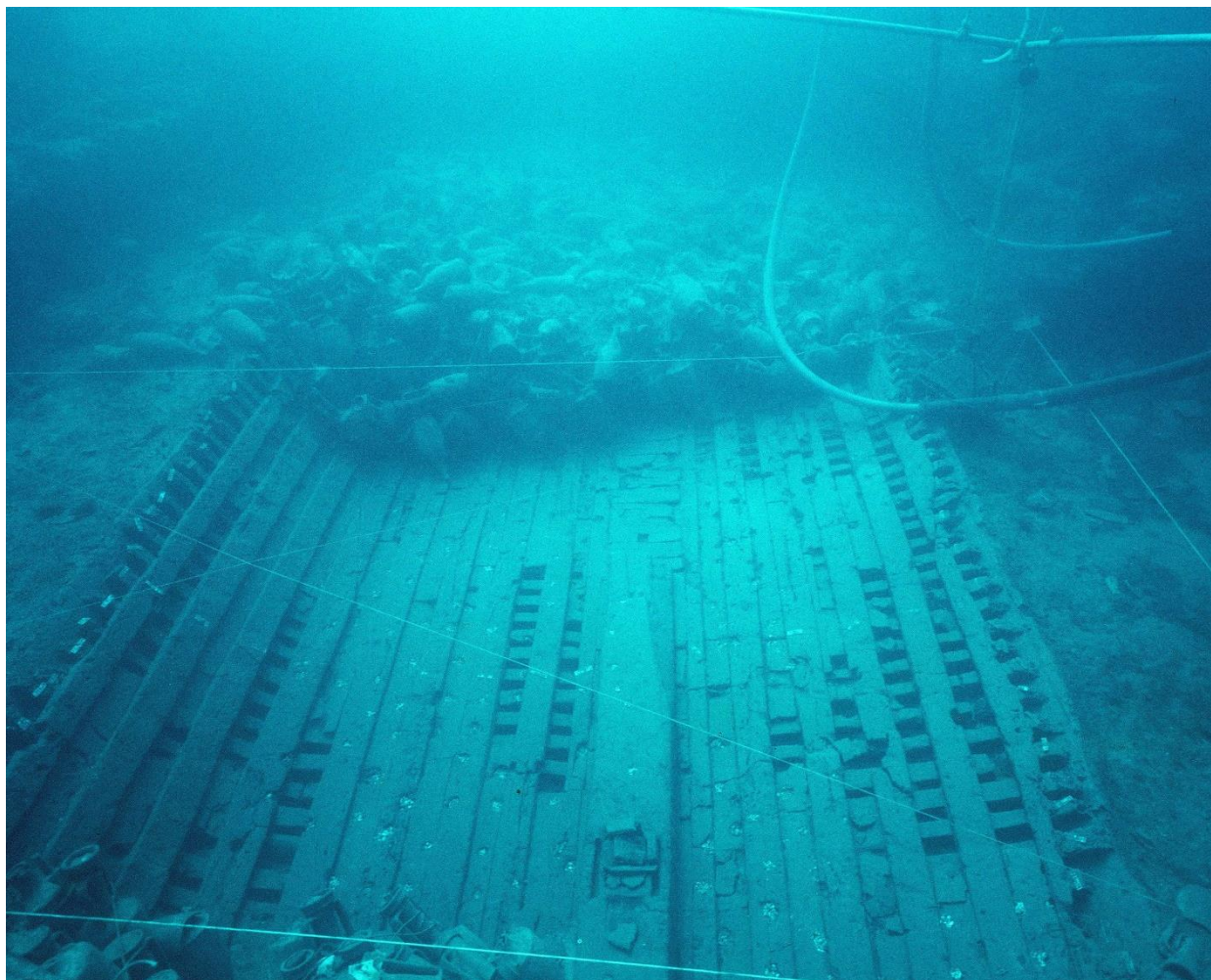
**HAL Id: halshs-04015726**

**<https://shs.hal.science/halshs-04015726v1>**

Submitted on 6 Mar 2023

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# The Madrague de Giens ship

A photogrammetry from the past:  
completing the study of an exceptional roman wreck

Laetitia Cavassa  
Pierre Poveda  
Vincent Dumas  
Ninon Basuau  
&  
Philippe Soubias

Centre Camille Jullian  
CNRS & Aix-Marseille University



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White Levy Program  
for  
Archaeological Publications





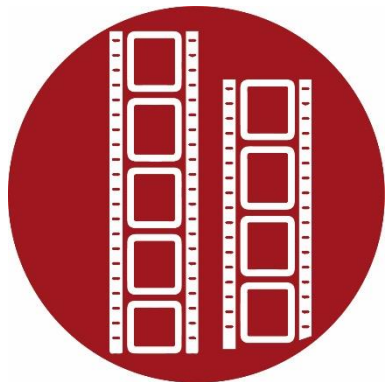
Ceramic Studies



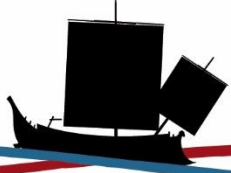
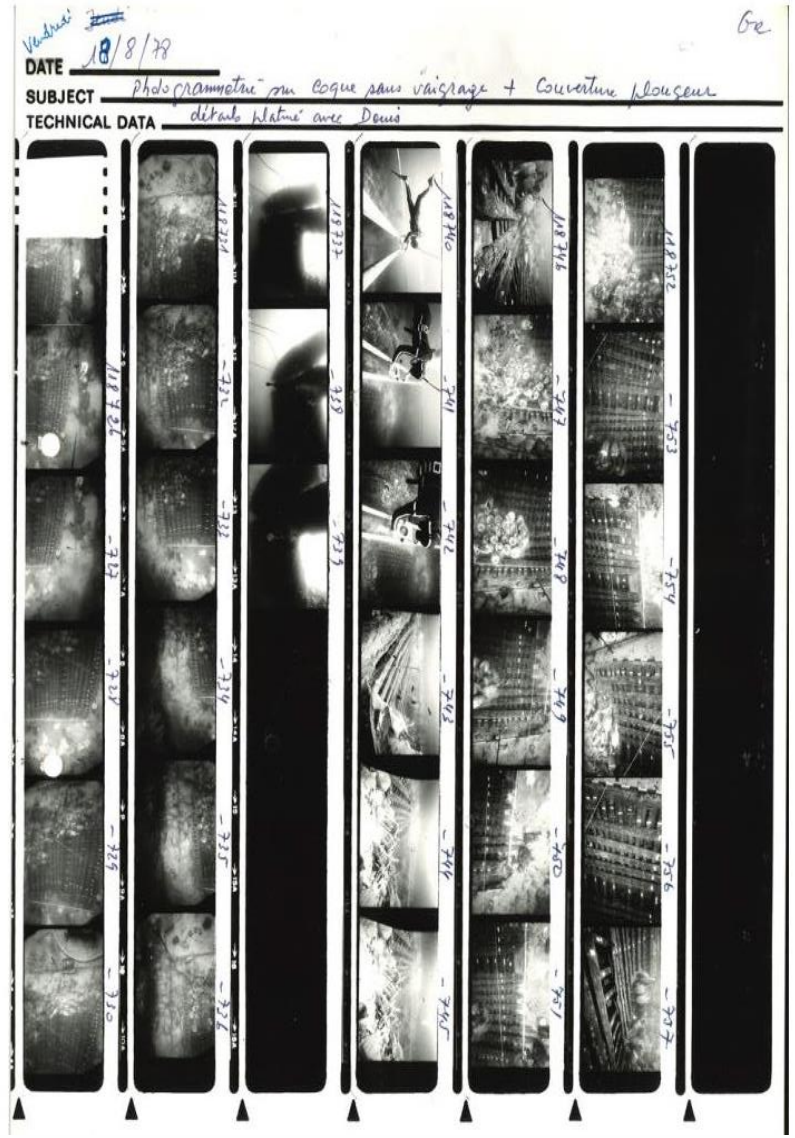
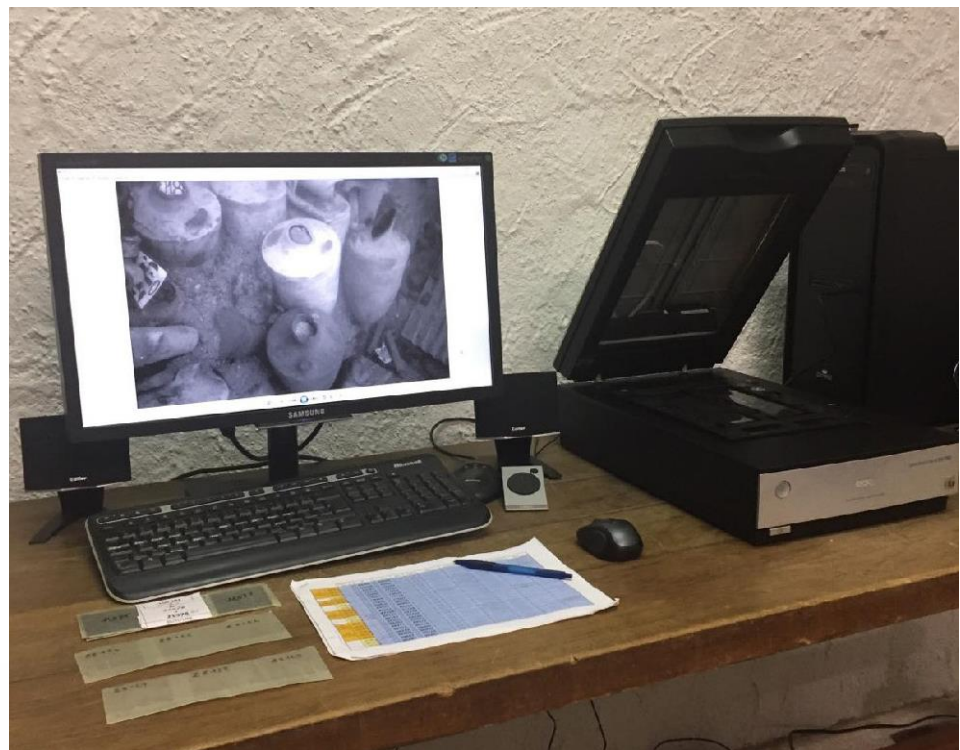
# The Madrague de Giens --- A photogrammetry from the past



Ceramic Studies



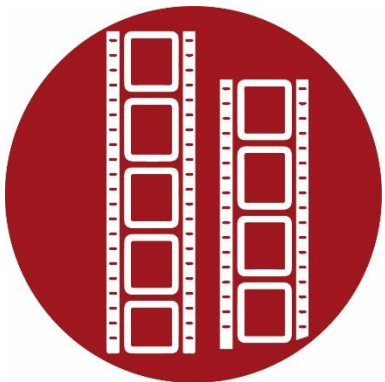
Photos digitizing



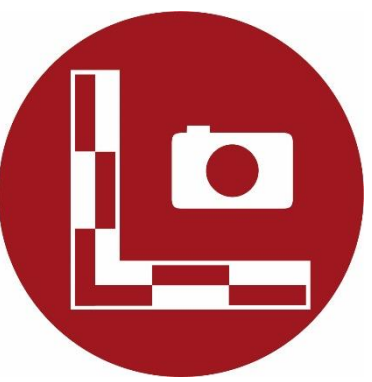
# The Madrague de Giens — A photogrammetry from the past



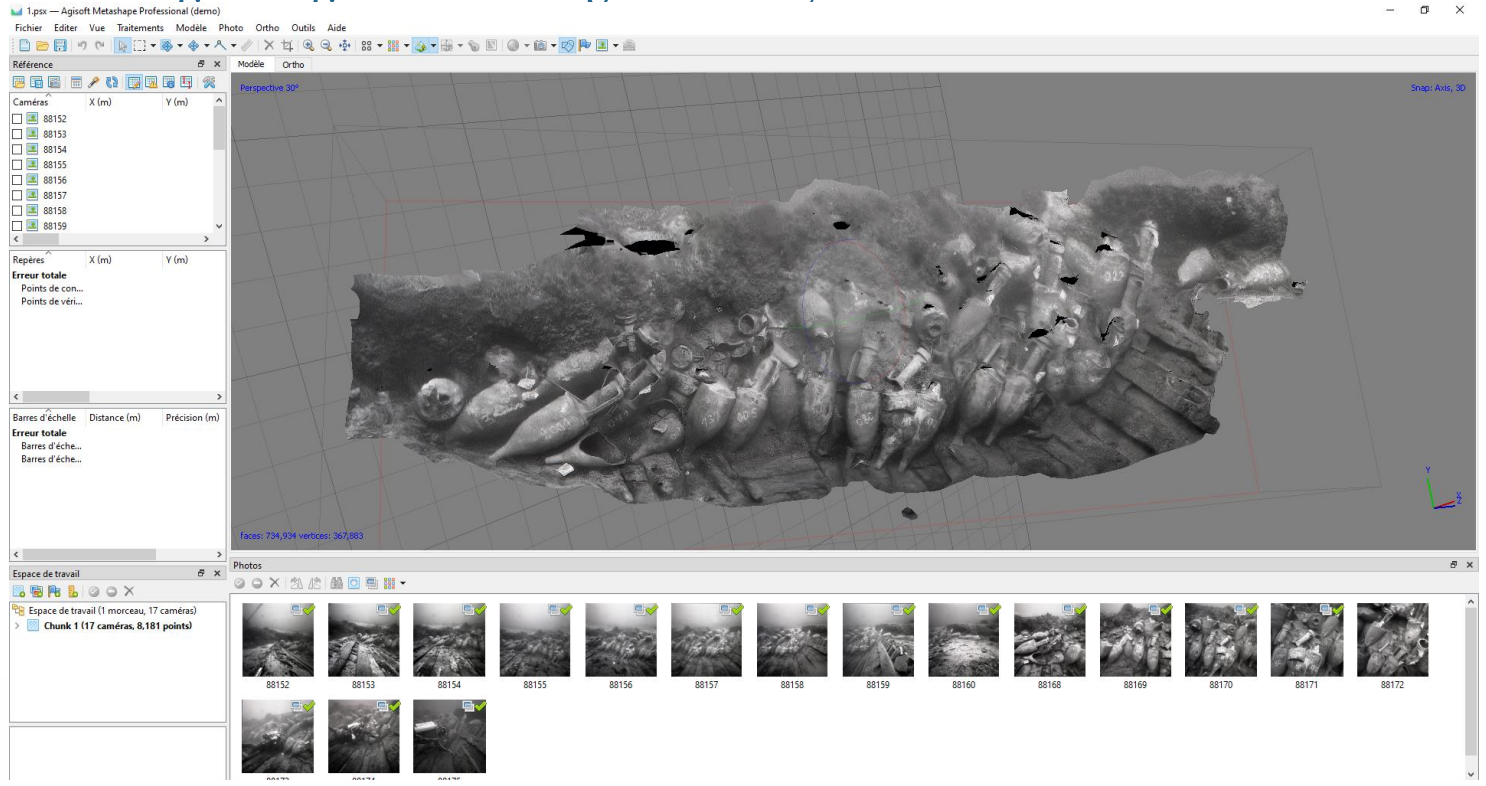
Ceramic Studies



Photos digitizing



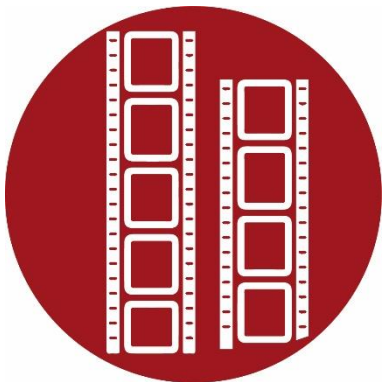
Photogrammetry



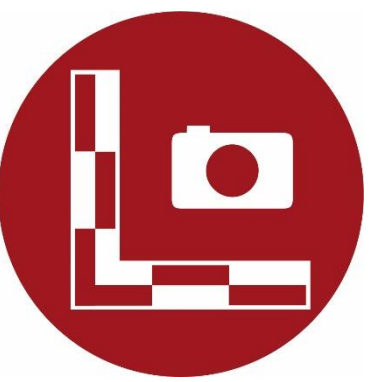
The Madrague de Giens --- A photogrammetry from the past



Ceramic Studies



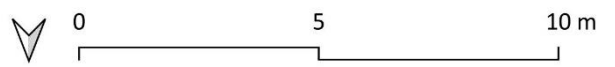
Photos digitizing



Photogrammetry

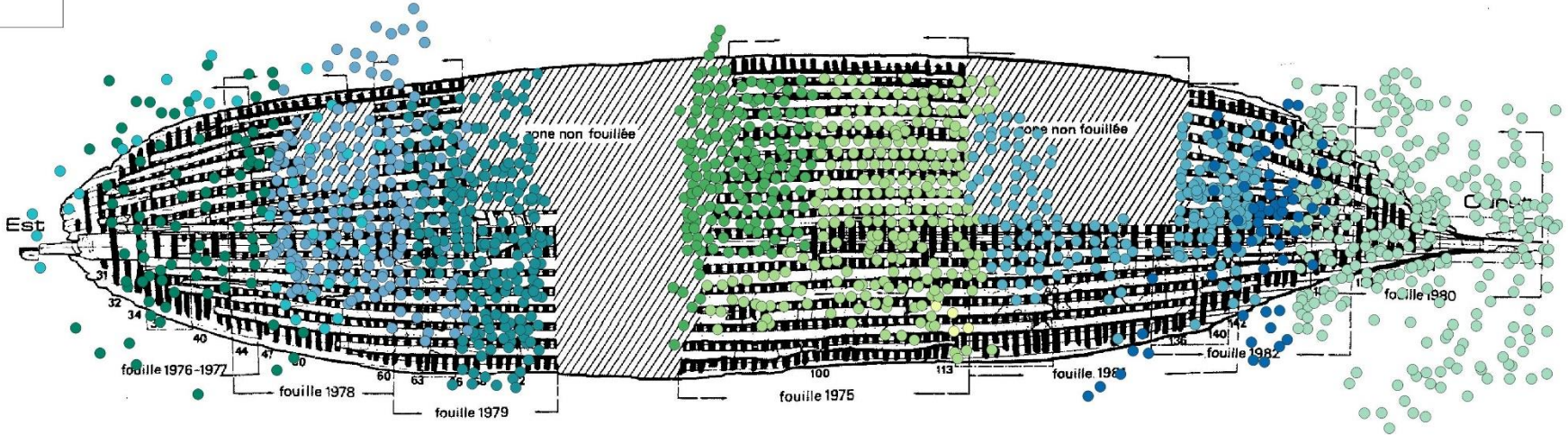


GIS



Géoréférencement de la cargaison  
État au 15 décembre 2021

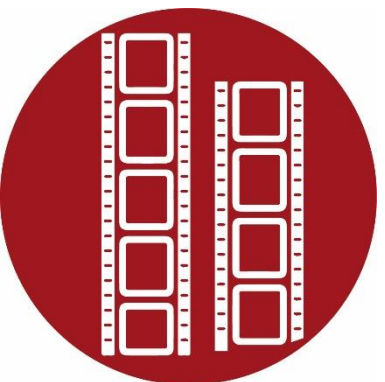
Avant	Centre	Arrière
● 1982	● 1973	● 1976
● 1981	● 1974	● 1977
● 1980	● 1975	● 1978
		● 1979



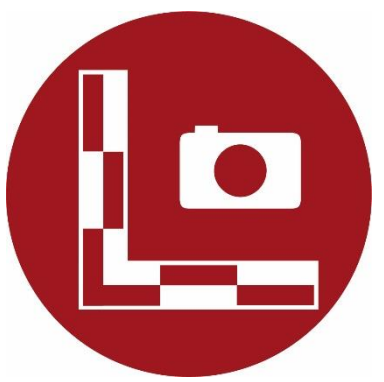
The Madrague de Giens --- A photogrammetry from the past



Ceramic Studies



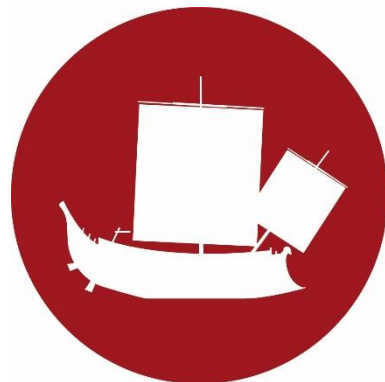
Photos digitizing



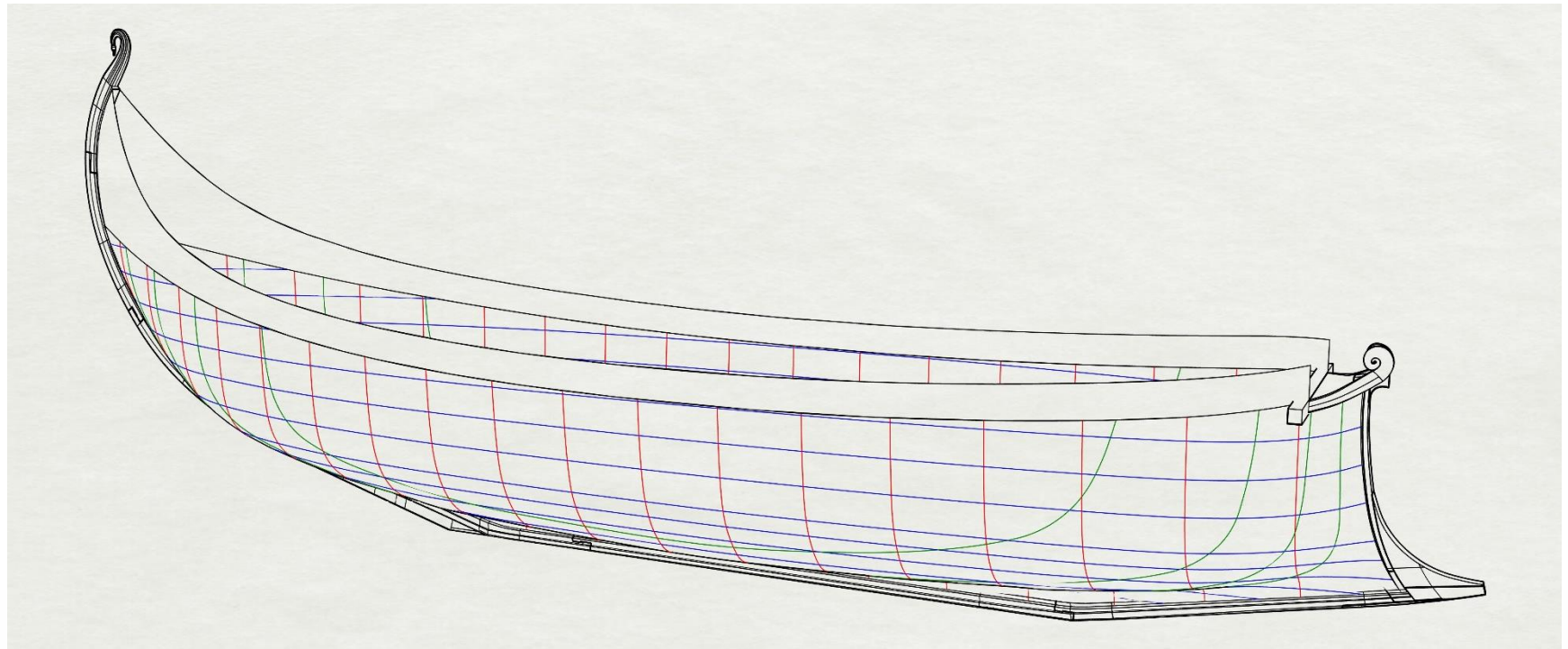
Photogrammetry



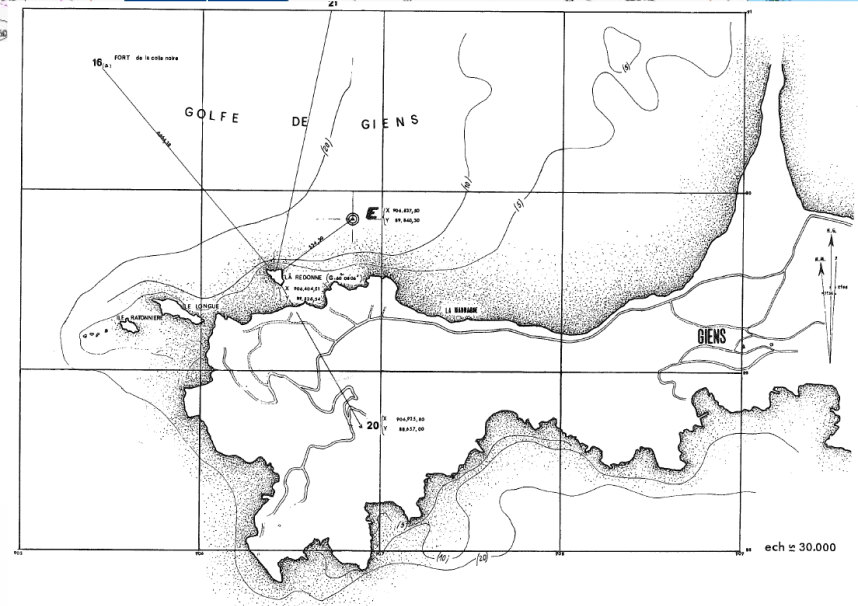
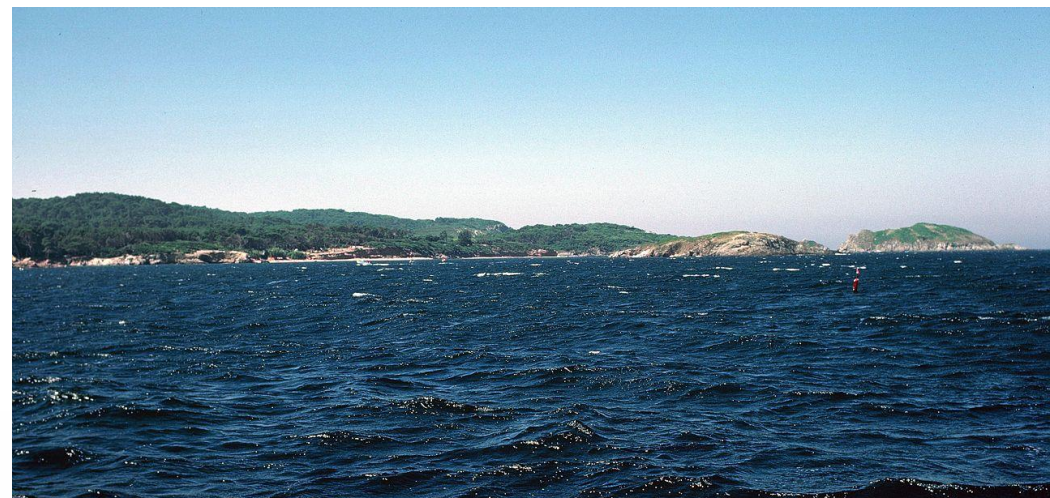
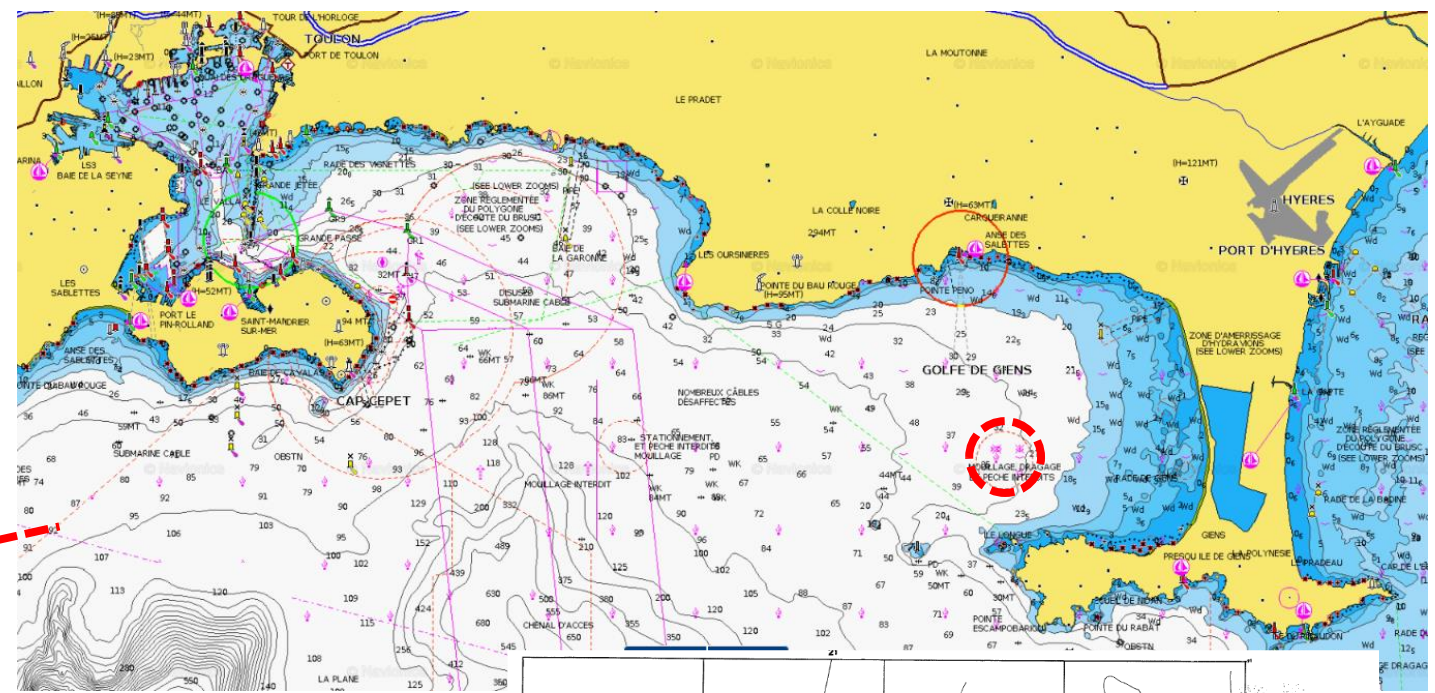
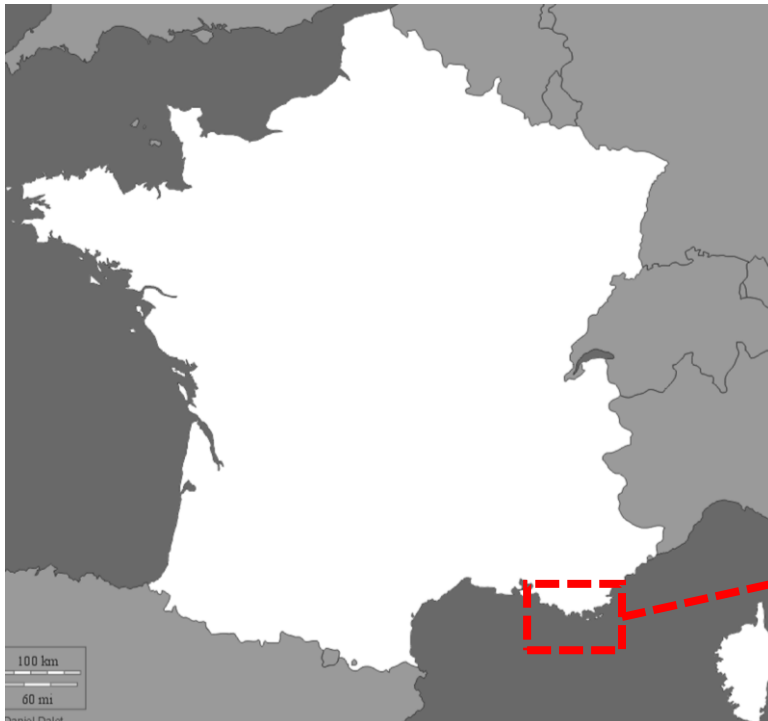
GIS



Reconstruction



The Madrague de Giens — A photogrammetry from the past



situation géographique de l'épave (E)





The Madrague de Giens --- A photogrammetry from the past



1972 - 1982



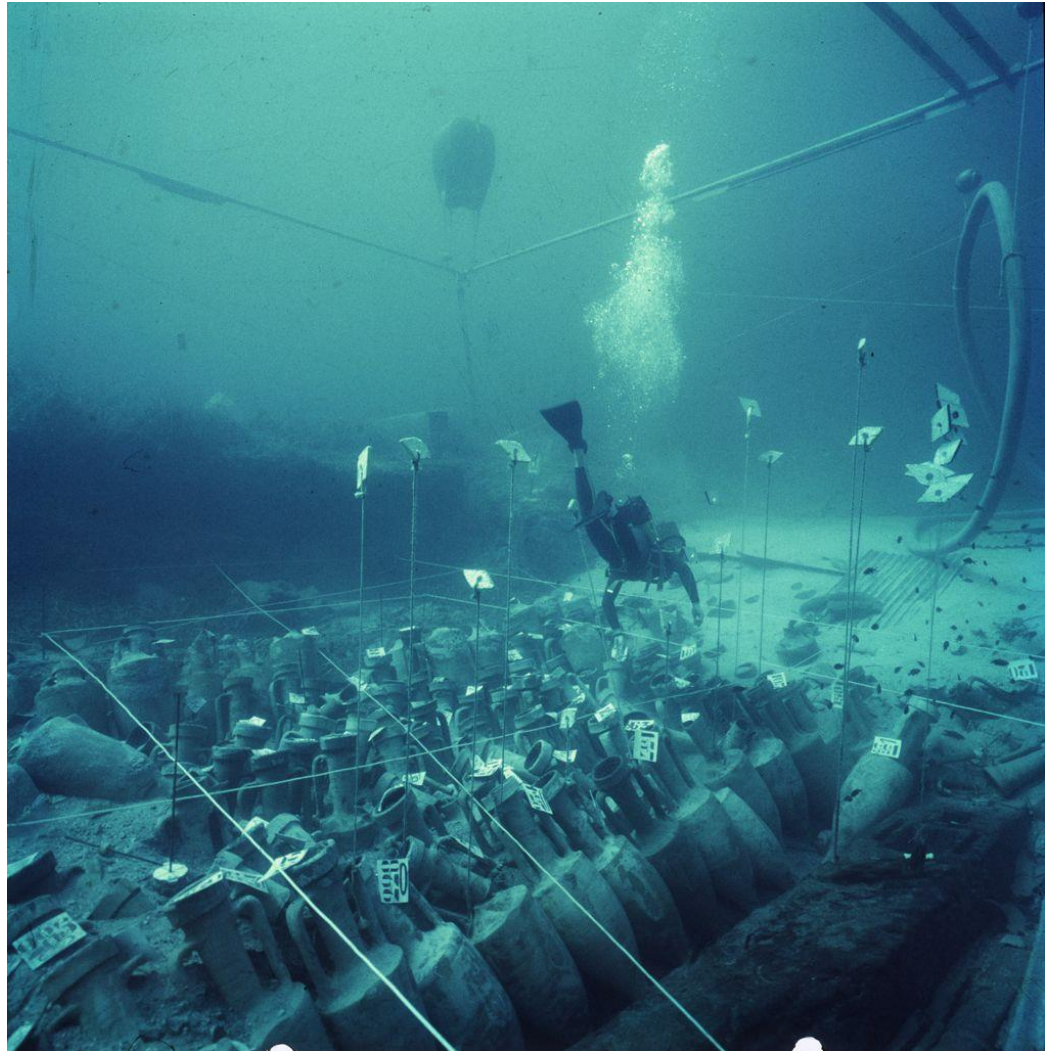
# The Madrague de Giens — A photogrammetry from the past

Epave de la Madrague de Giens  
Plan de situation

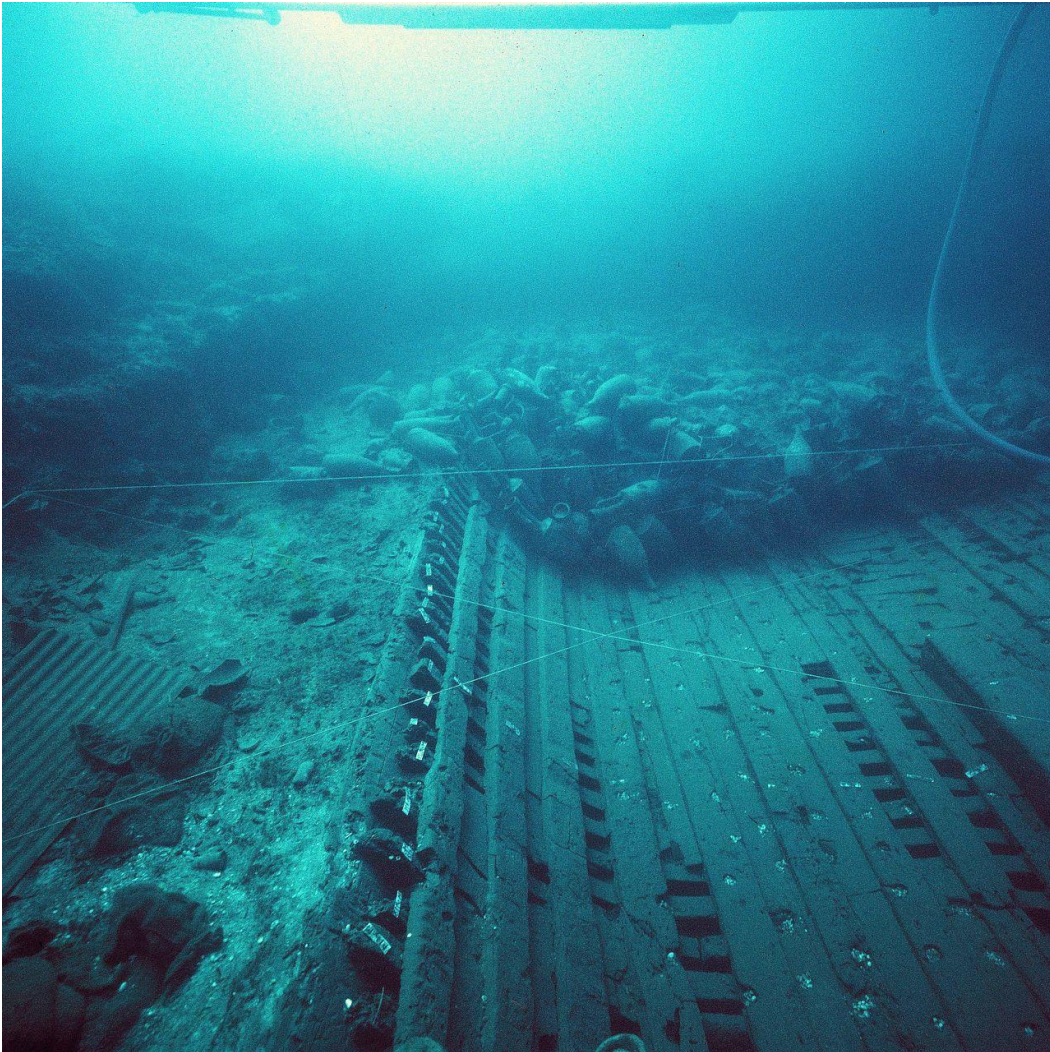
0 5m



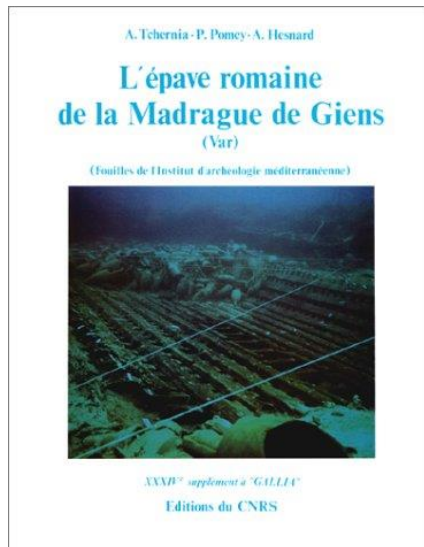
The Madrague de Giens --- A photogrammetry from the past



The Madrague de Giens --- A photogrammetry from the past

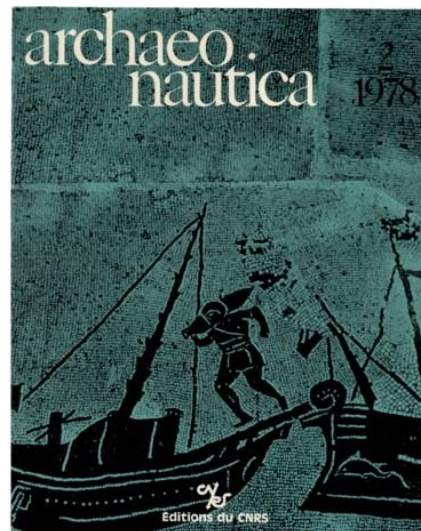


# The Madrague de Giens — A photogrammetry from the past



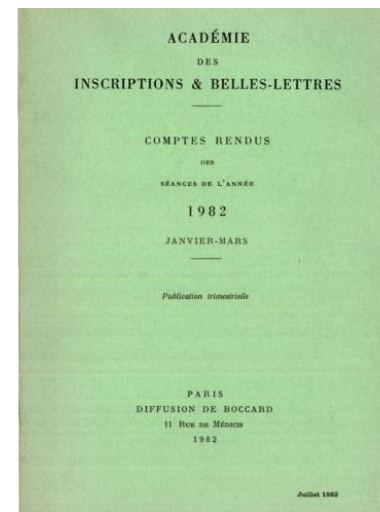
1978

Tchernia, André; P. Pomey; A. Hesnard (1978).  
*L'épave romaine de la Madrague de Giens, Var: campagnes 1972-1975 (XXXIV supplément à Gallia ed.)*



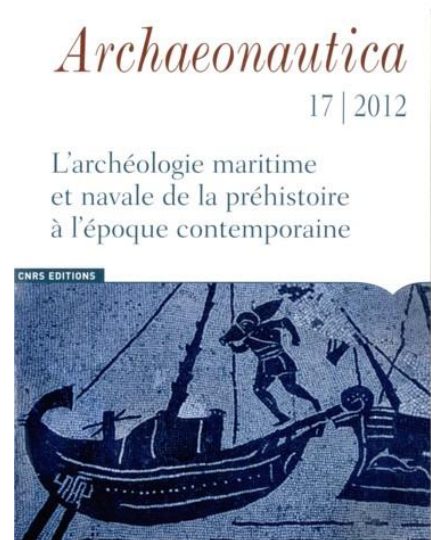
1978

Formenti Françoise, Hesnard Antoinette, Tchernia André. Note sur le contenu d'une amphore Lamboglia 2 de l'épave de la Madrague de Giens. In: *Archaeonautica*, 2, 1978. pp. 95-100



1982

Pomey, Patrice (1982). "Le Navire Romain de la Madrague de Giens". *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*. 126 (1): 133–154.



2012

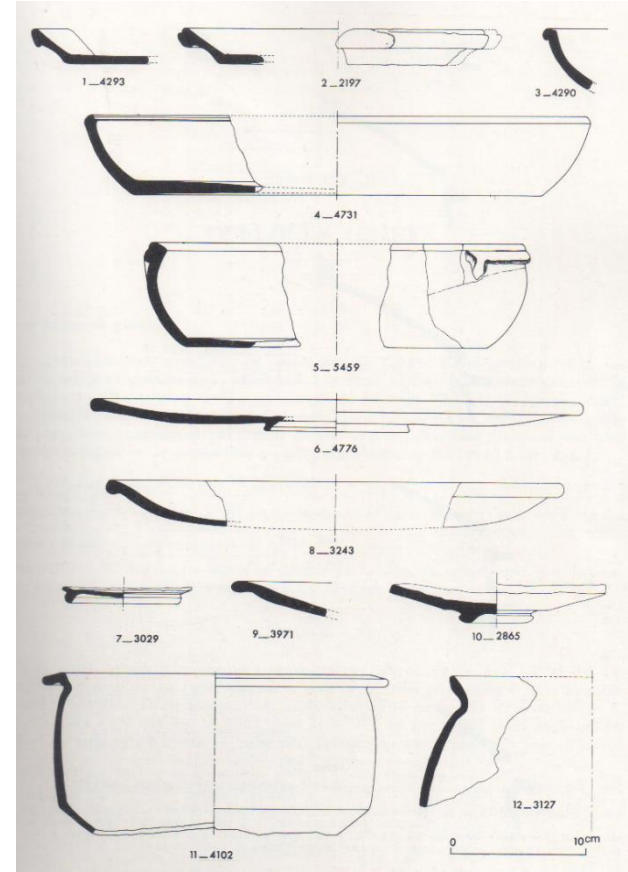
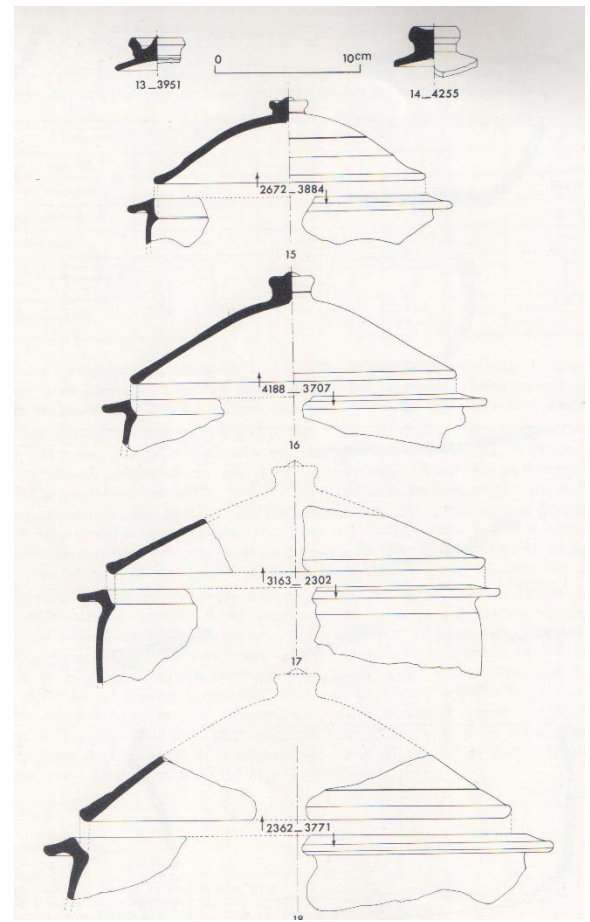
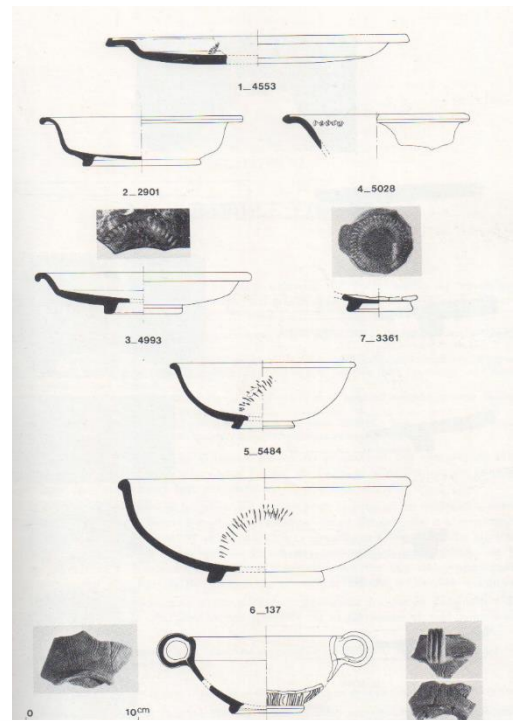
Hesnard Antoinette. L'épave la *Madrague de Giens* (Var) et la plaine de Fondi (Latium). Producteurs des vins, des amphores Dr. 1b et commerçants. In: *Archaeonautica*, 17, 2012. pp. 71-93.



# The Madrague de Giens A photogrammetry from the past



Ceramic Studies



Cooking pots



Black ware pottery



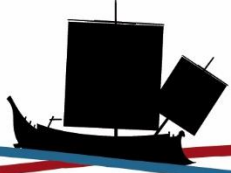
# The Madrague de Giens — A photogrammetry from the past



Ceramic Studies



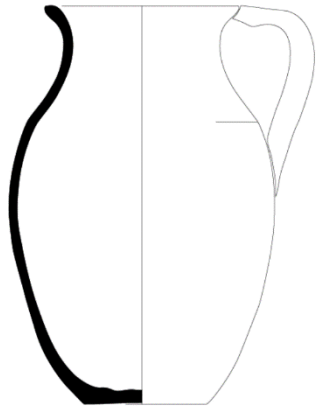
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02 19 0	02 19 1	02 19 2	02 19 3	02 19 4	02 19 5	02 19 6	02 19 7	02 19 8	02 19 9	02 20 0	02 20 1	02 20 2	02 20 3	02 20 4	02 20 5	02 20 6	02 20 7	02 20 8	02 20 9	02 21 0	02 21 1	02 21 2	02 21 3	02 21 4	02 21 5	02 21 6	02 21 7	02 21 8	02 21 9	02 22 0	02 22 1	02 22 2	02 22 3	02 22 4	02 22 5	02 22 6	02 22 7	02 22 8	02 22 9	02 23 0	02 23 1	02 23 2	02 23 3	02 23 4	02 23 5	02 23 6	02 23 7	02 23 8	02 23 9
02 19 0	02 19 1	02 19 2	02 19 3	02 19 4	02 19 5	02 19 6	02 19 7	02 19 8	02 19 9	02 20 0	02 20 1	02 20 2	02 20 3	02 20 4	02 20 5	02 20 6	02 20 7	02 20 8	02 20 9	02 21 0	02 21 1	02 21 2	02 21 3	02 21 4	02 21 5	02 21 6	02 21 7	02 21 8	02 21 9	02 22 0	02 22 1	02 22 2	02 22 3	02 22 4	02 22 5	02 22 6	02 22 7	02 22 8	02 22 9	02 23 0	02 23 1	02 23 2	02 23 3	02 23 4	02 23 5	02 23 6	02 23 7	02 23 8	02 23 9
02 19 0	02 19 1	02 19 2	02 19 3	02 19 4	02 19 5	02 19 6	02 19 7	02 19 8	02 19 9	02 20 0	02 20 1	02 20 2	02 20 3	02 20 4	02 20 5	02 20 6	02 20 7	02 20 8	02 20 9	02 21 0	02 21 1	02 21 2	02 21 3	02 21 4	02 21 5	02 21 6	02 21 7	02 21 8	02 21 9	02 22 0	02 22 1	02 22 2	02 22 3	02 22 4	02 22 5	02 22 6	02 22 7	02 22 8	02 22 9	02 23 0	02 23 1	02 23 2	02 23 3	02 23 4	02 23 5	02 23 6	02 23 7	02 23 8	02 23 9



# The Madrague de Giens — A photogrammetry from the past



Ceramic Studies



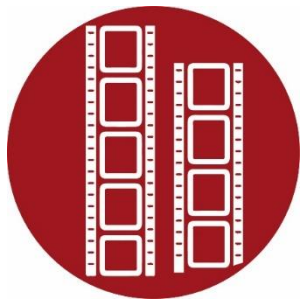
Madrague de Giens  
73241

echelle 1:1

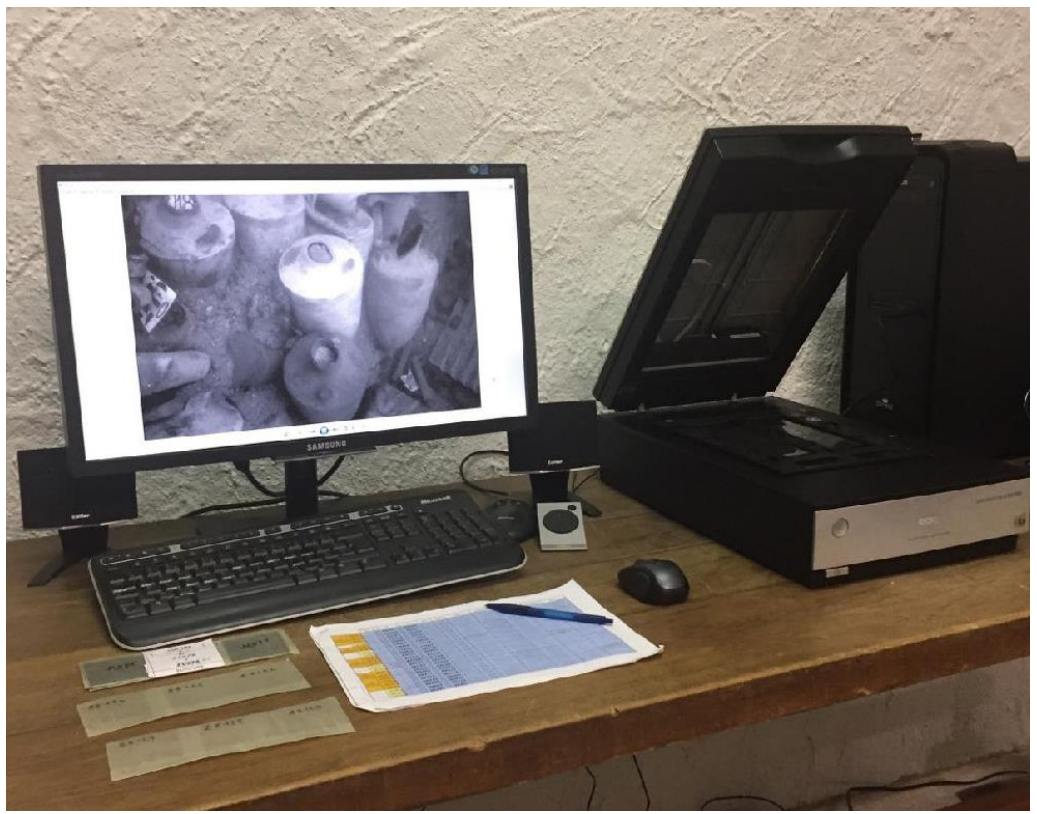




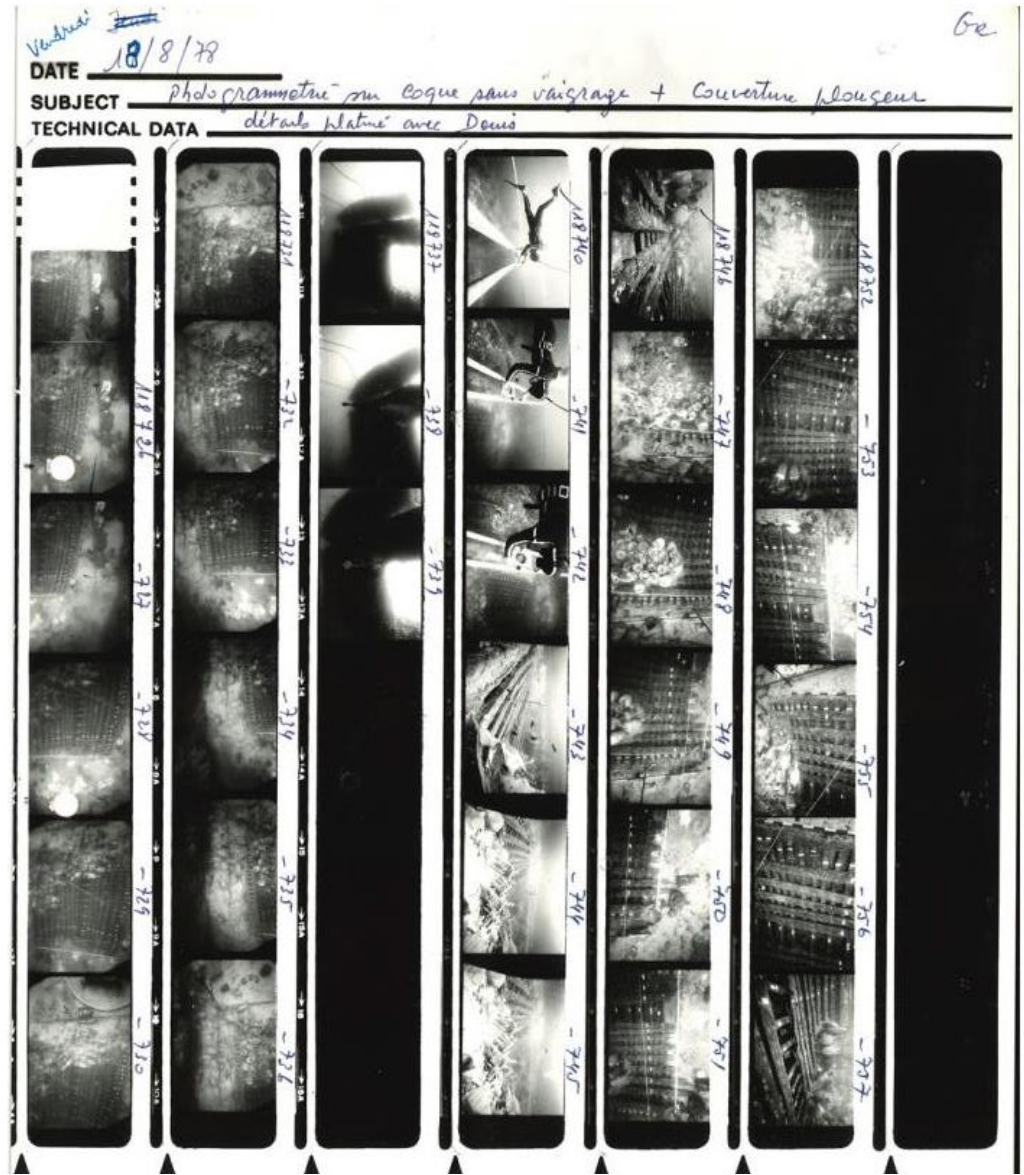
# The Madrague de Giens --- A photogrammetry from the past



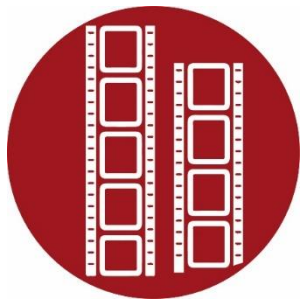
Photos digitizing



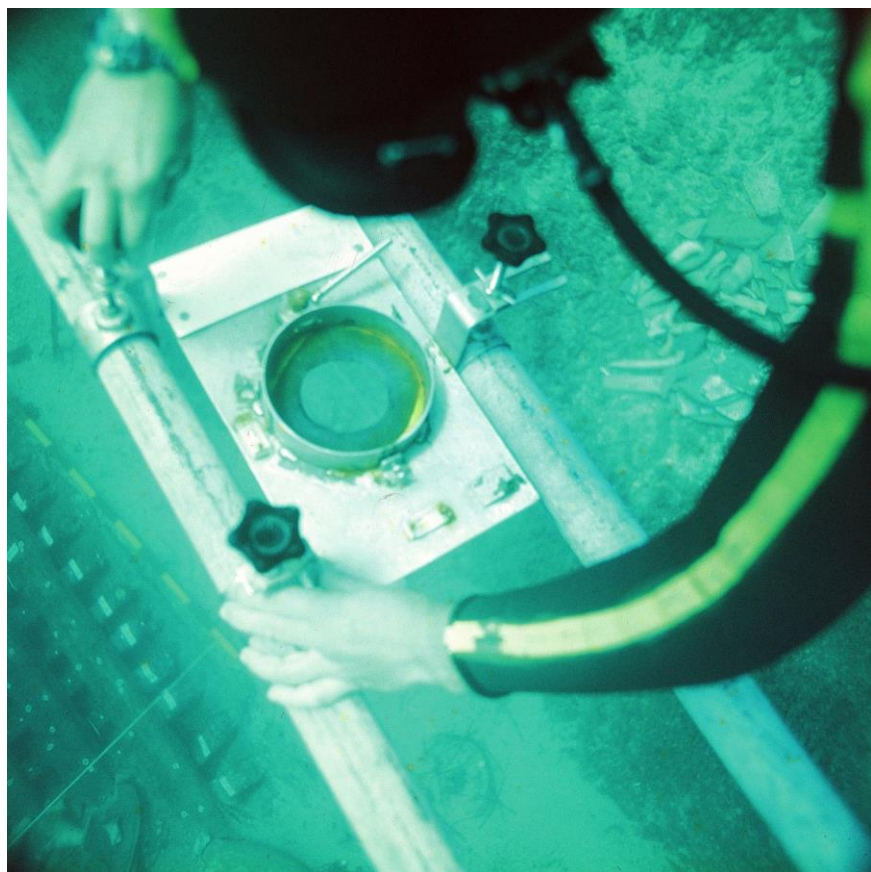
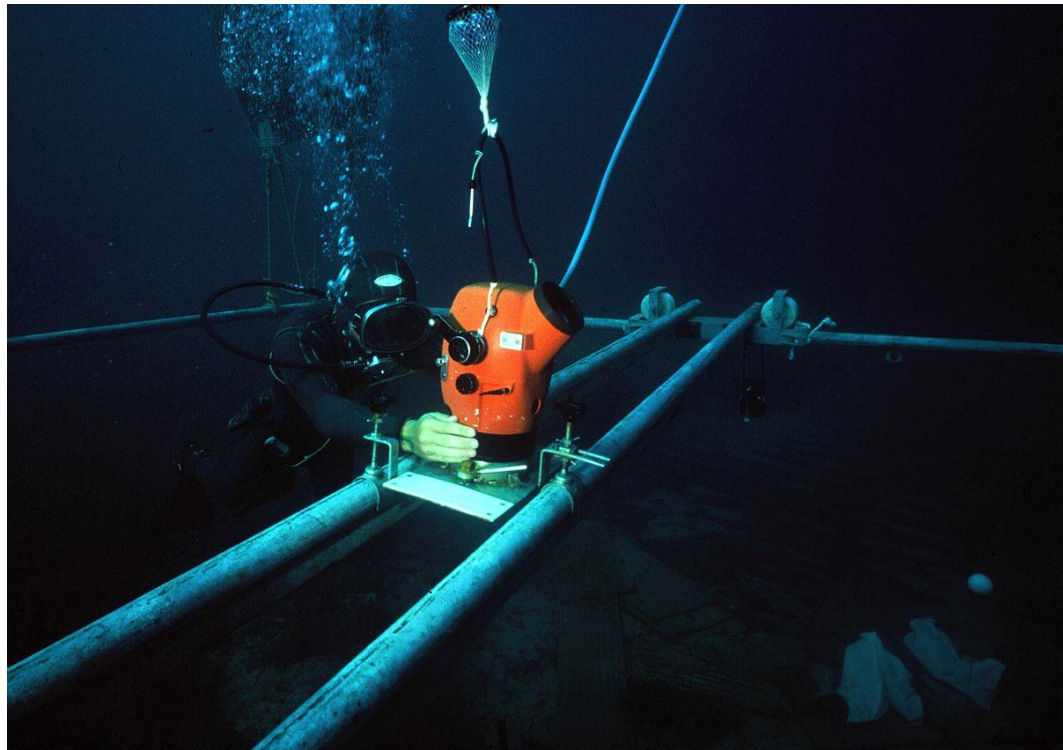
10'171 photo negatives digitized



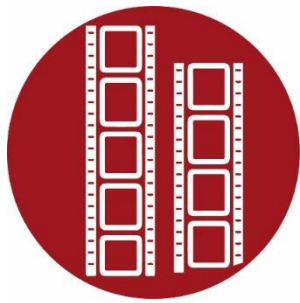
# The Madrague de Giens --- A photogrammetry from the past



Photos digitizing



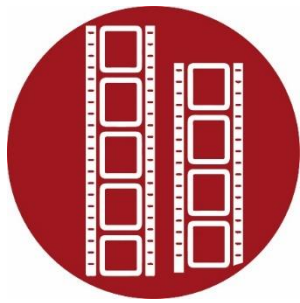
# The Madrague de Giens — A photogrammetry from the past



Photos digitizing



# The Madrague de Giens A photogrammetry from the past



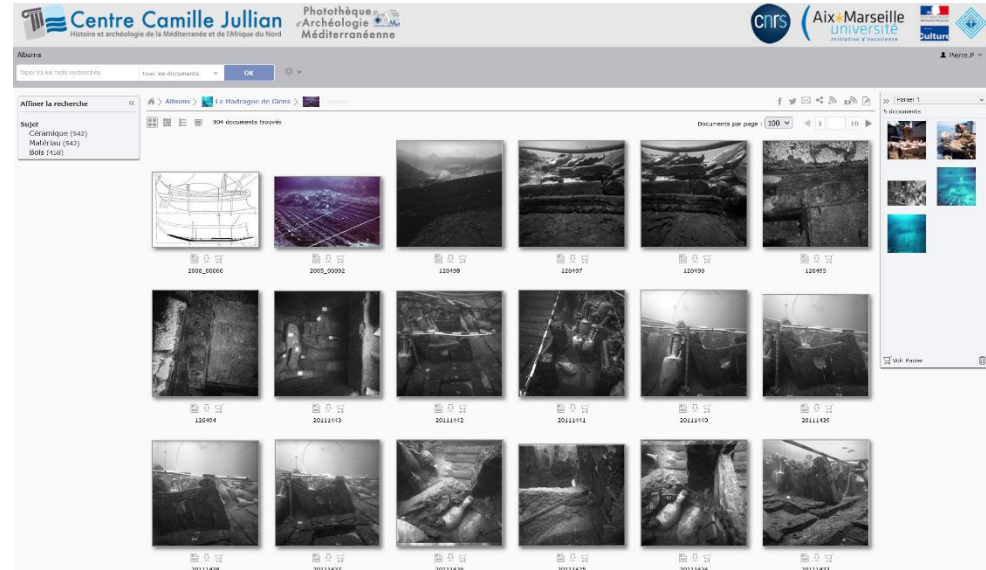
Photos digitizing



Dr.2 Lamps



Dr.3 Lamps



<https://photoarcheomed.mms.h.fr/phototheque>



# The Madrague de Giens A photogrammetry from the past



## Photogrammetry

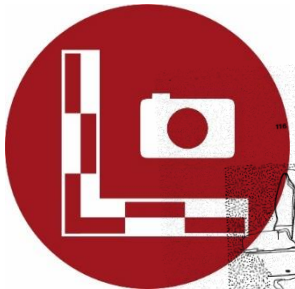
Nom fichier Photogram	N° de Lot	Année prise de vue	Date de développement	Partie concernée	N° cliché début	N° cliché fin	N° clichés
<b>1974</b>	41	1974	20-sept	Partie centrale	84132	84146	15
<b>1975_1</b>	58	1975	10-sept	Amphores Plani	87956	87973	18
<b>1975_2</b>	60	1975	10-sept	Amphores Coupe	88152	88175	17
<b>1975_3</b>	71	1975	10-sept	Maitre-Couple	89016	89070	37
<b>1977</b>	112	1977	01-juil	Extrémité arrière	97525	97670	22
<b>1978</b>	129	1978	01-sept	arrière	118726	118757	18
<b>1979_1</b>	139	1979	01-sept	Puits de la pompe	122356	122384	26
<b>1979_2</b>	139	1979	01-sept	Puits de la pompe	122356	122384	26
<b>1979_3</b>	141	1979	01-sept	Pompe + vaigrage	122472	122492	18
<b>1979_4</b>	146	1979	01-sept	Puits de la pompe	123163	123194	29
<b>1980</b>	153	1980	15-sept	Avant (avec l'étrave)	126544	126667	44
<b>1981</b>	165	1981	01-janv	avant emplanture tribord	129955	129981	27
<b>1982</b>	168	1982	01-janv	Avant (sans l'étrave)	132488	132507	20
							<b>317</b>



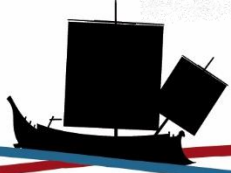
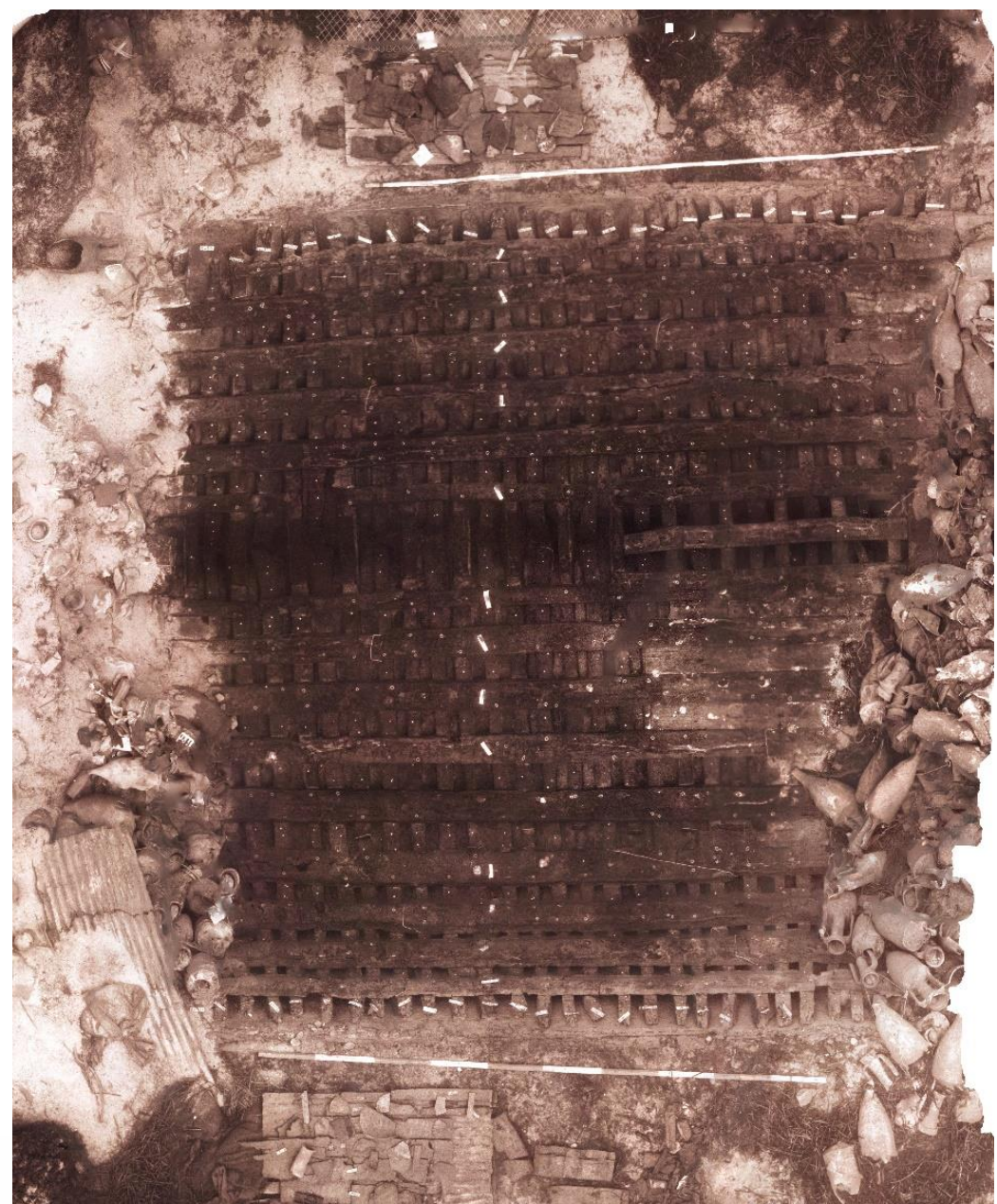
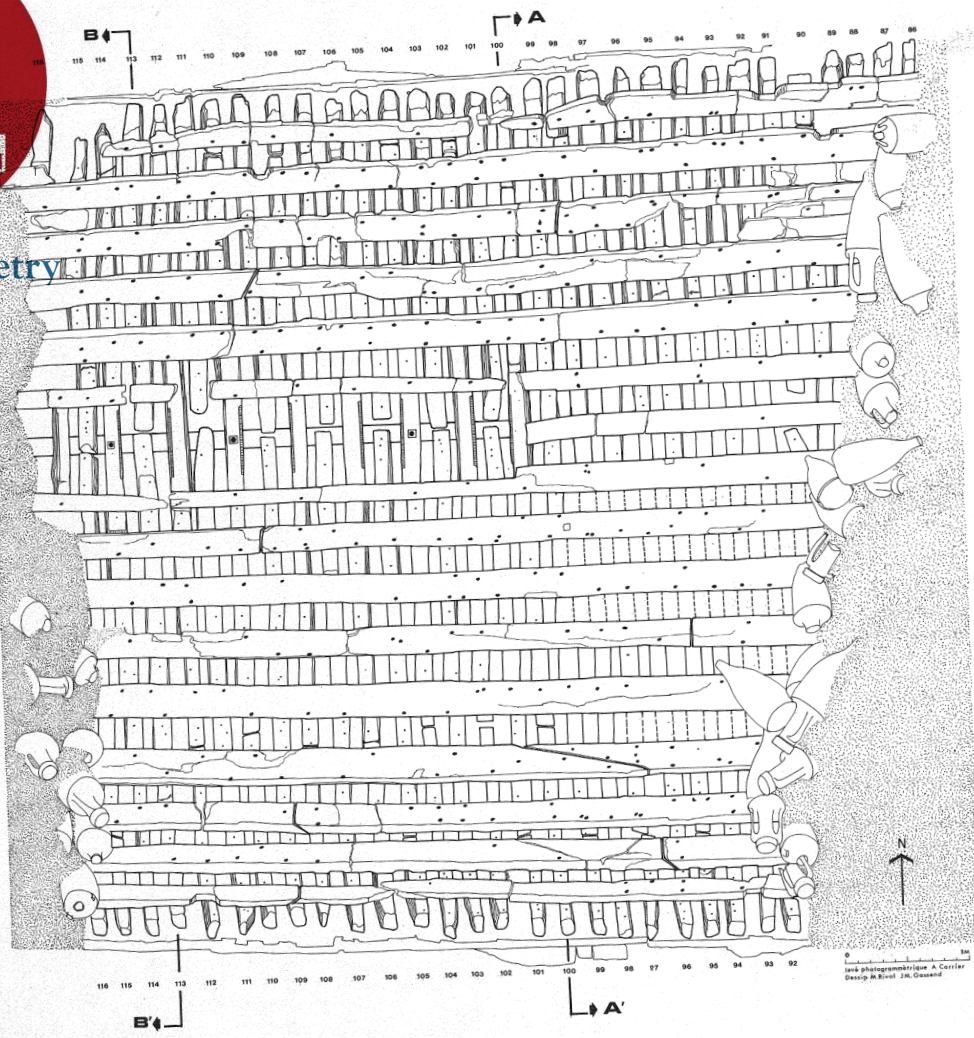
Set of 28 photos used for the reconstruction of the stern area  
(1977 campaign)



# The Madrague de Giens — A photogrammetry from the past



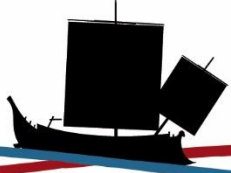
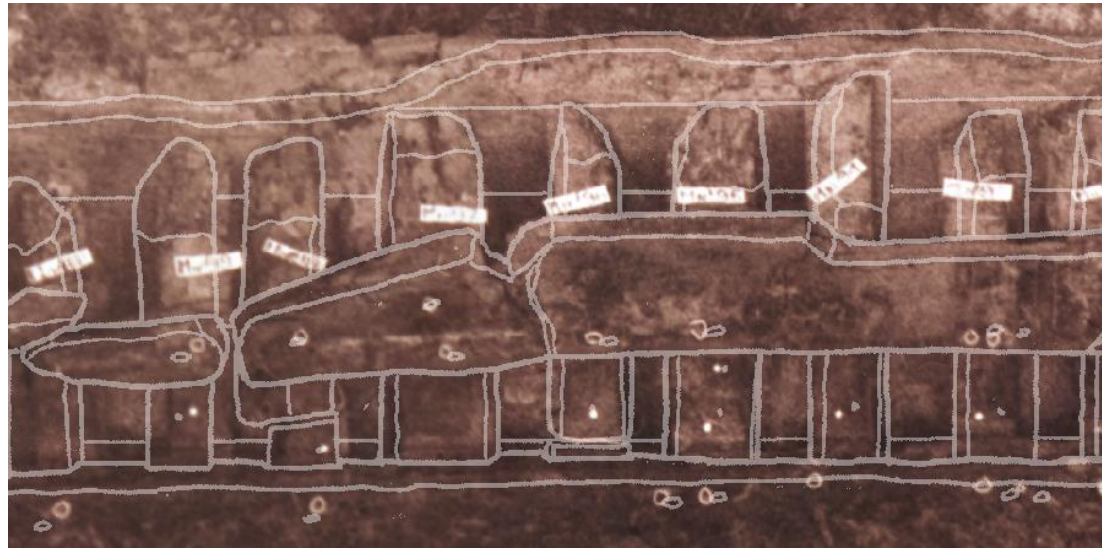
Photogrammetry

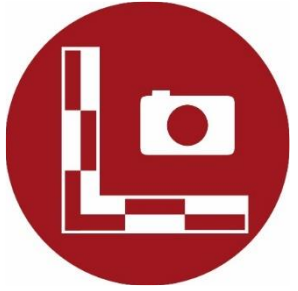


# The Madrague de Giens — A photogrammetry from the past



Photogrammetry





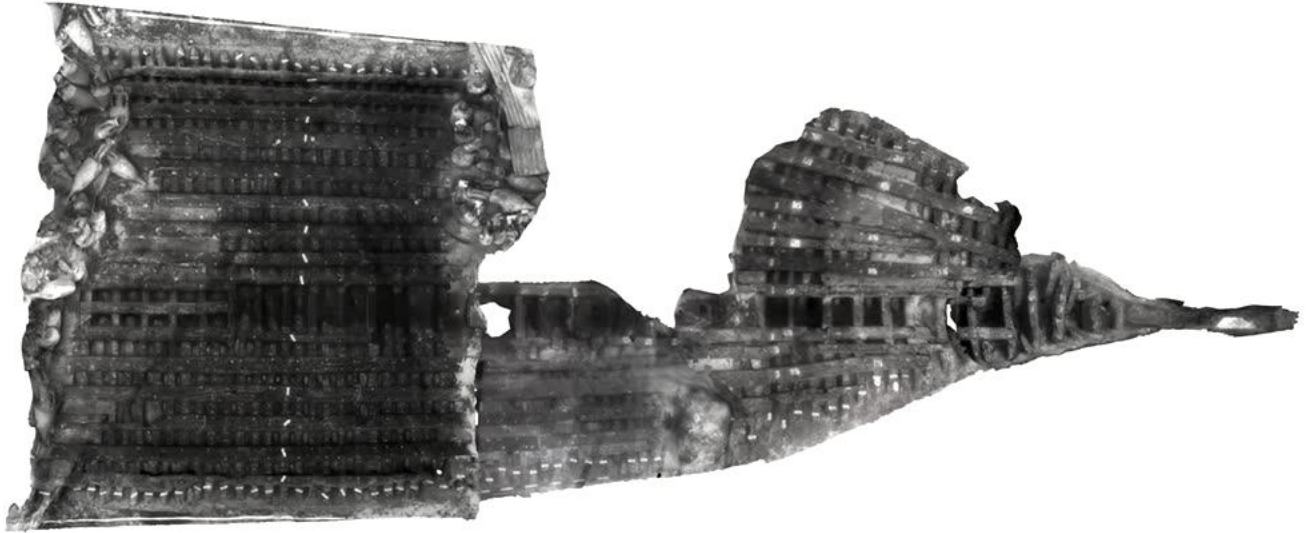
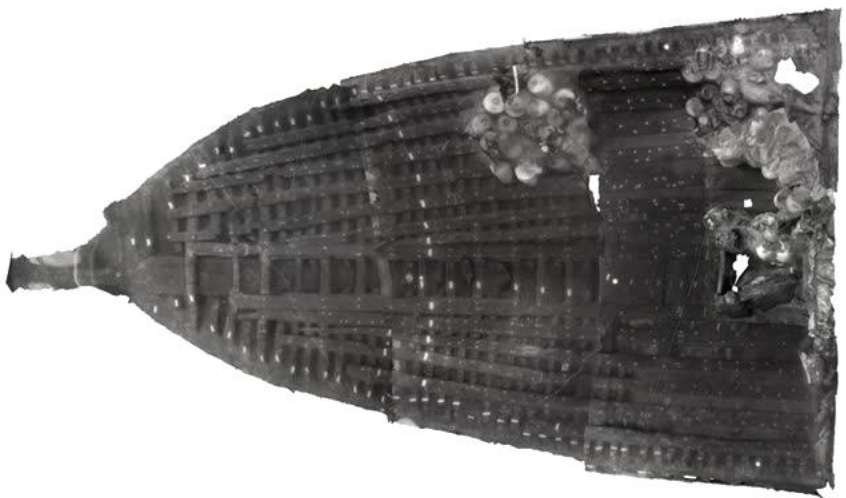
Photogrammetry



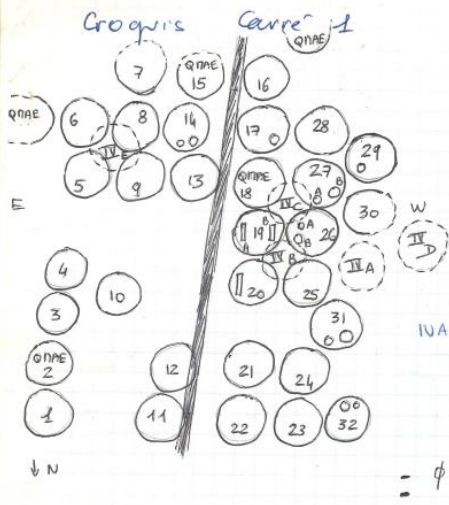
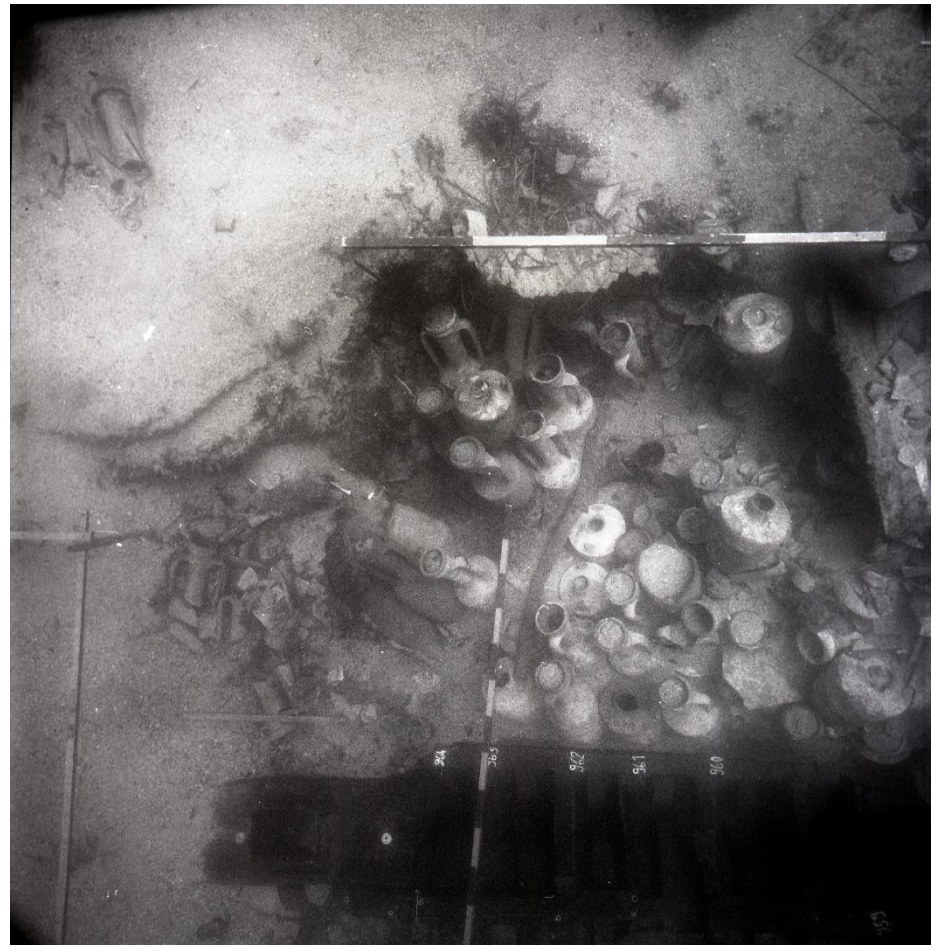
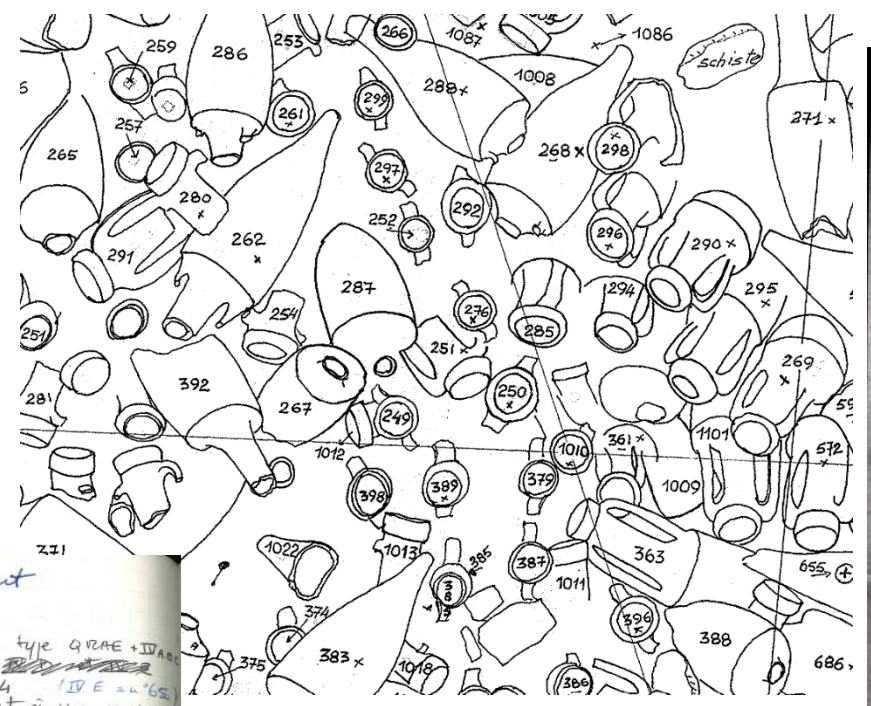




Photogrammetry



# The Madrague de Giens --- A photogrammetry from the past



le 7 Août

QRAE = Argile type QRAE + IVA B

- IV: Couche 4 (IV E = 65)
- IV D et E sont à un niveau supérieur par rapport aux autres IV

Troncs:

- 14 → ACIPE circulaire
- 17 → 34 mm = PAPUS
- 19 → A = 56 x 11 = SABINA  
B = 54 x 10 = PAPUS
- 20 → ACIPE rectangulaire
- 26 → A = 27 = NICOMUS  
B = 33 = PAPUS
- 27 → A = 25 = ACIPE  
B = 32 = PAPUS
- 29 → 27 = NICOMUS
- 58 → ACIPE probable
- 32 → illegible

IVA = fond of 35  
sappu 4 25

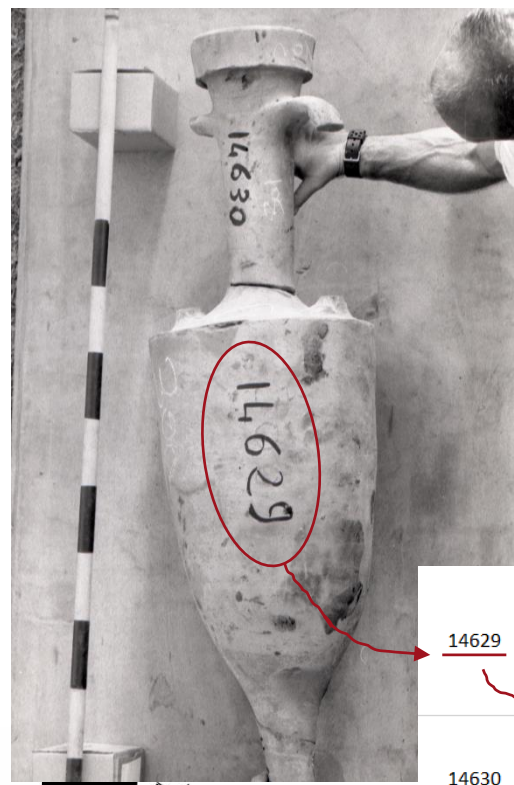
- φ Petit madrier inférieur : 60 mm
- Gros — supérieur : 80 mm



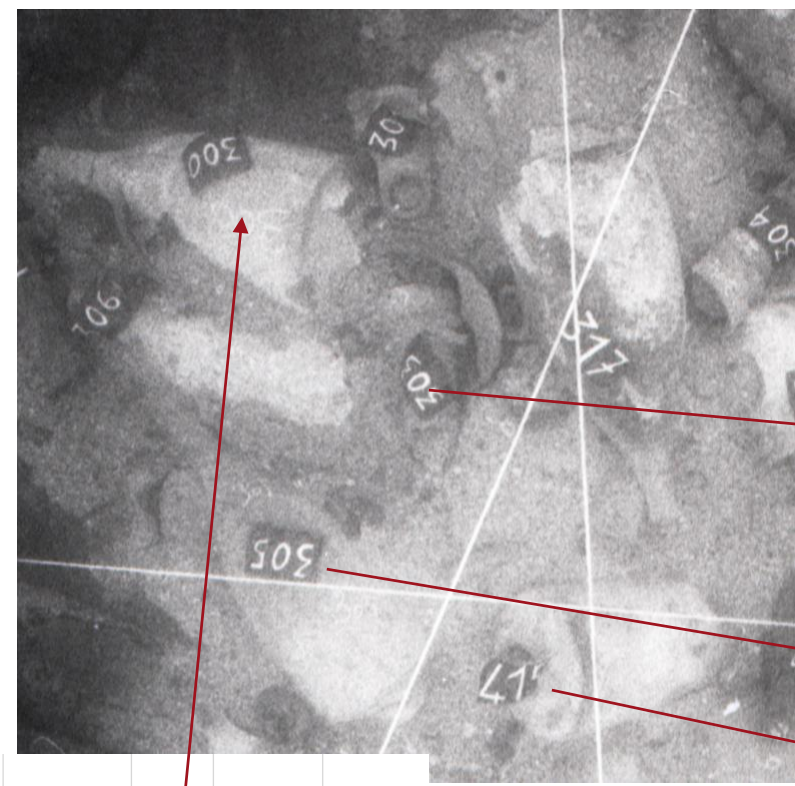


GIS

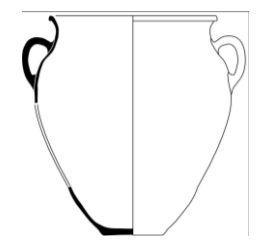
From well located amphora...



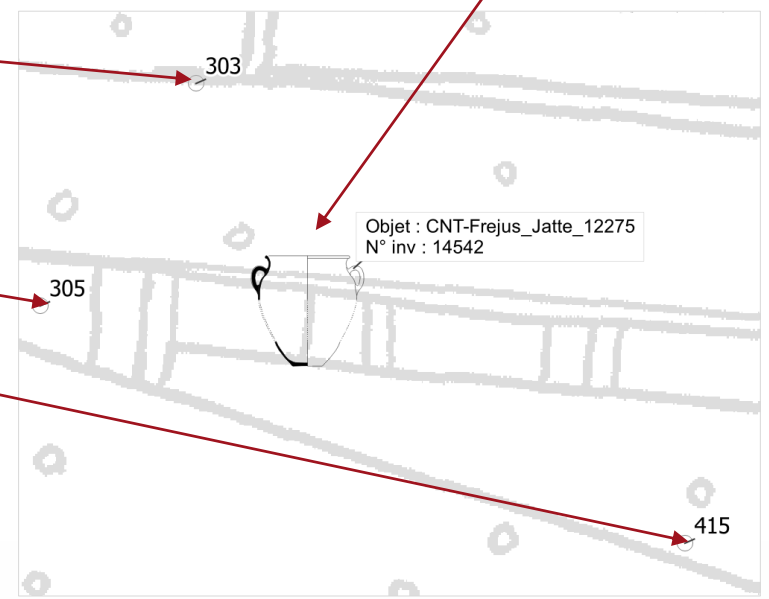
14629	Démontage le 21/6/1982	Carré 3, couche 7, dans la coque	300	AMPH	Dr. 1B
14630	Démontage le 21/6/1982	Carré 3, couche 7	301	AMPH	Dr. 1B



...to smaller scattered objects



CNT-Frejus_Jatte_12275	14542	3	415 au sud-est, entre 415, 305 et 303, couche 7, carré 3
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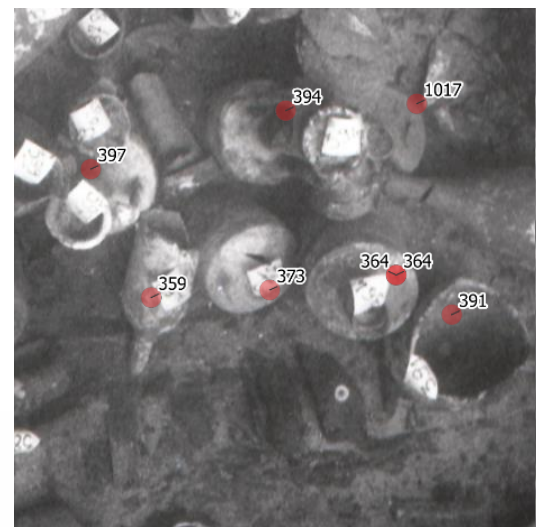
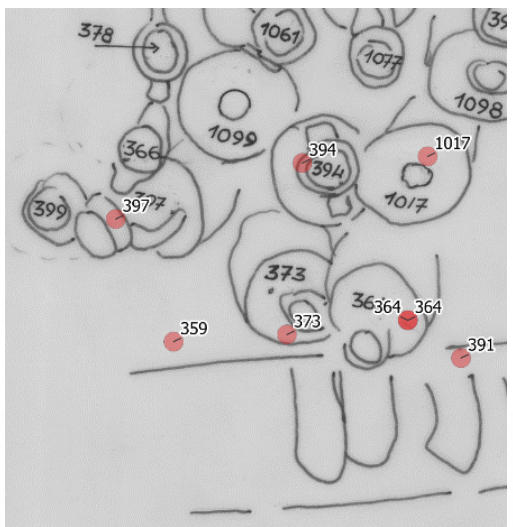
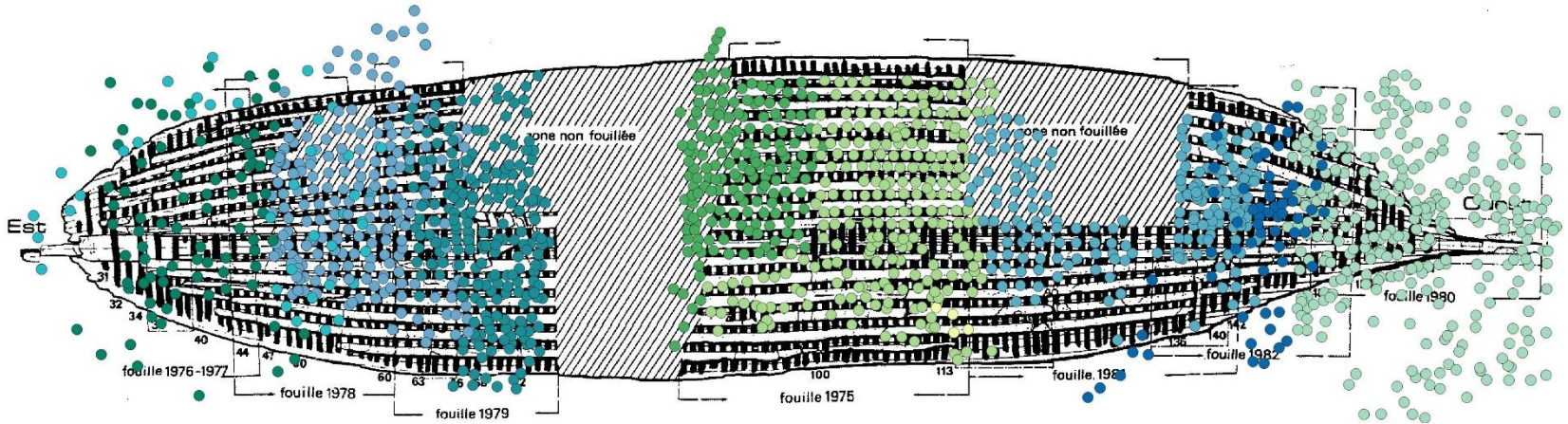
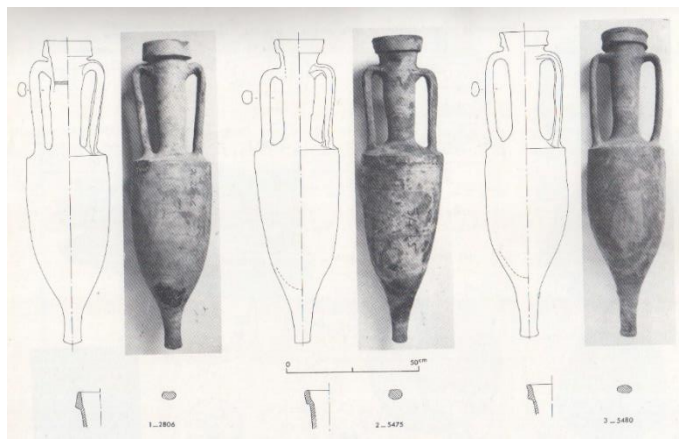
# The Madrague de Giens — A photogrammetry from the past

Géoréférencement de la cargaison  
État au 15 décembre 2021



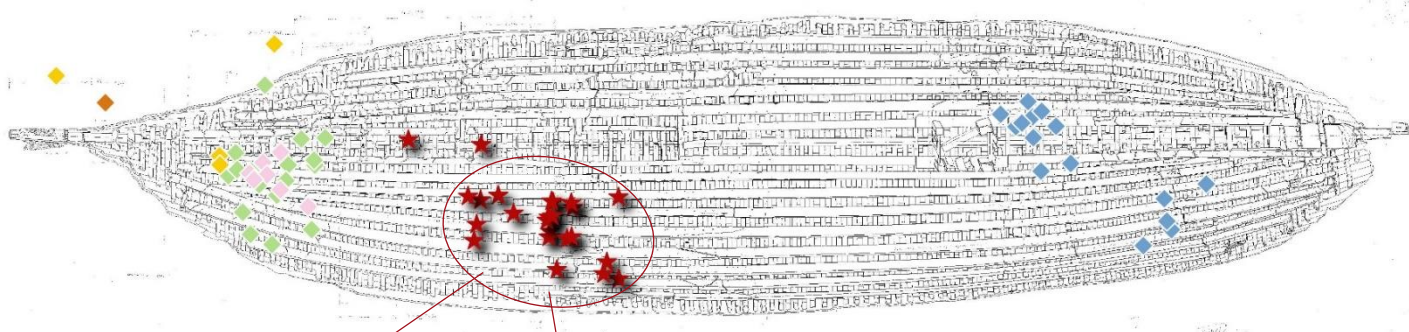
GIS

Avant	Centre	Arrière
● 1982	● 1973	● 1976
● 1981	● 1974	● 1977
● 1980	● 1975	● 1978
		● 1979





- Objet**
- ◆ OBJ\_001 (Marmite)
  - ★ OBJ\_002 (Cloche à pain)
  - ◇ CNT
  - ◆ CNT-PRO
  - ◆ CNT Fréjus
  - ◆ CNT-ALP 1
  - ◆ CNT-ALP 2



Fragments  
of  
bricks and tegulae

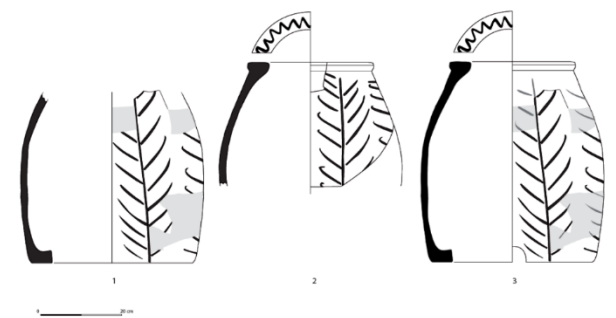
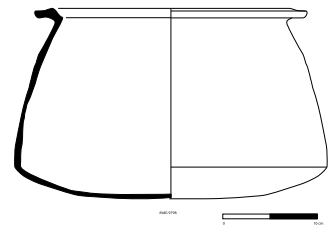


Bread kiln

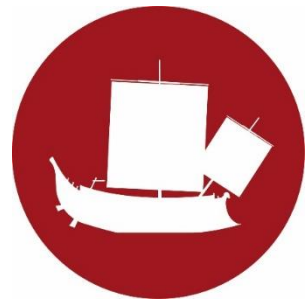
Archaic  
Megara Hyblaea

Tunisian bread kiln  
calling *Tabouna*

Used cooking  
pots



# The Madrague de Giens — A photogrammetry from the past



Reconstruction

Epave de la Madrague de Giens  
Profil évolutif des débits de membrures  
2<sup>ème</sup>, 3<sup>ème</sup> et 4<sup>ème</sup> séries

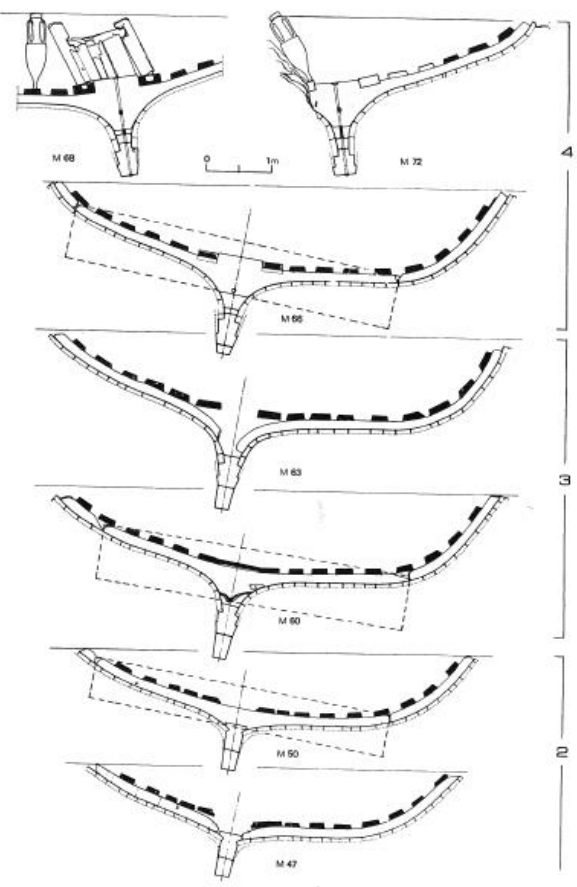


Planche 61

Epave de la Madrague de Giens  
Profil évolutif des débits de membrures  
1<sup>ère</sup> et 2<sup>ème</sup> séries

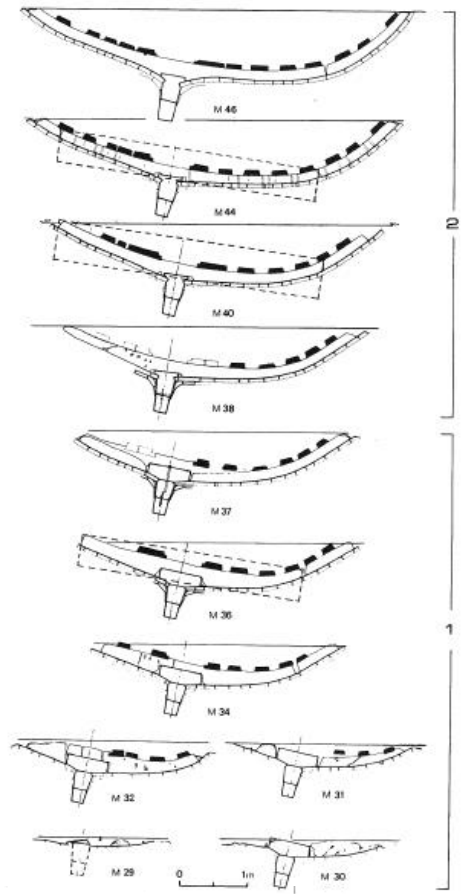


Planche 60

Epave de la Madrague de Giens

Position des coeurs des bois dans le débit des pièces axiales du navire

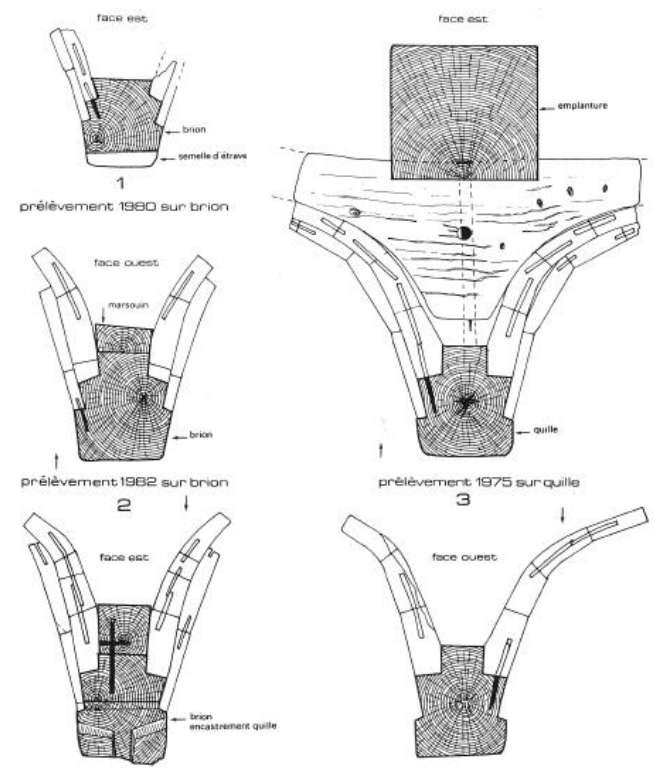
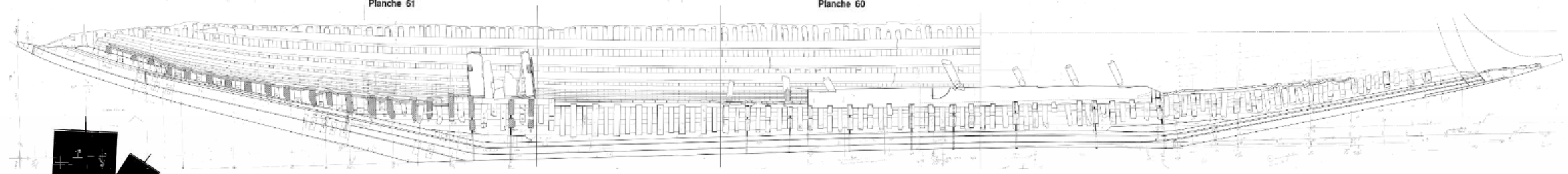
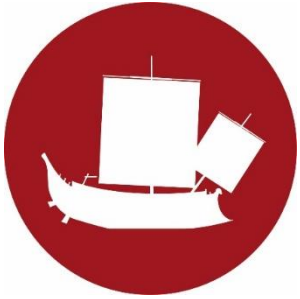


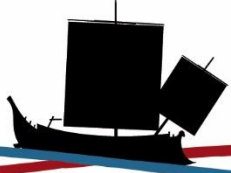
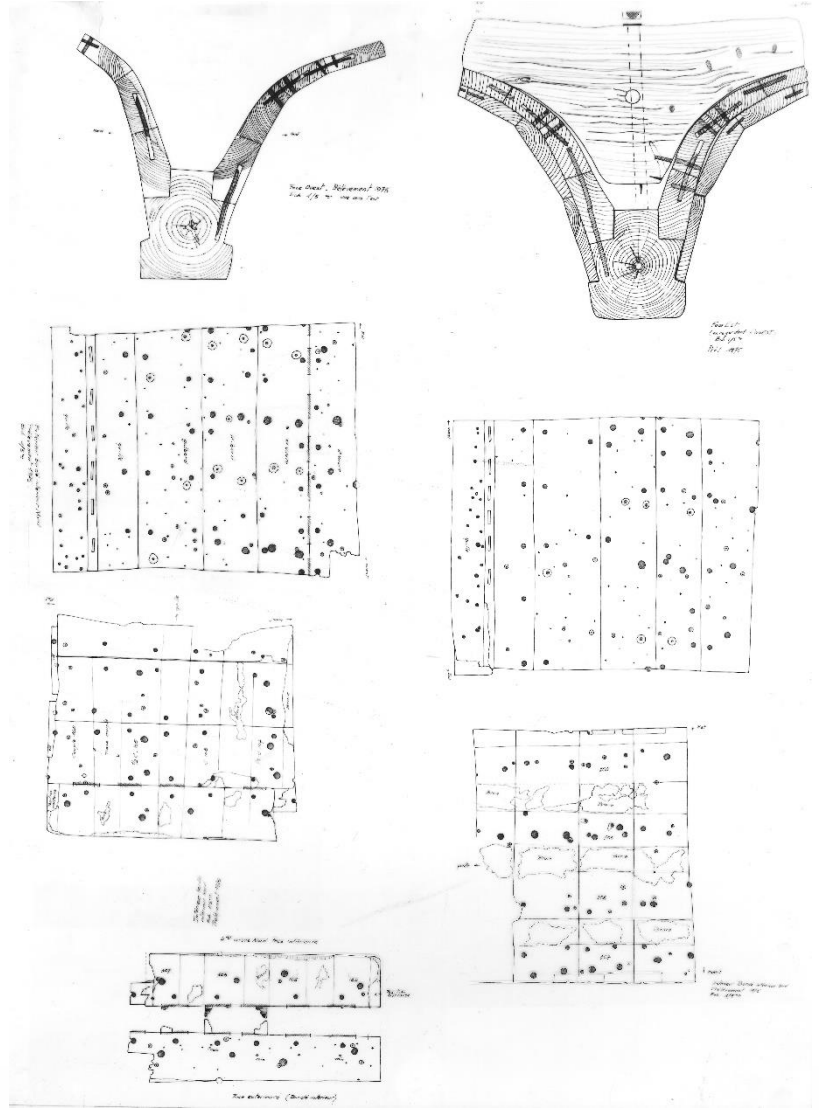
Planche 29



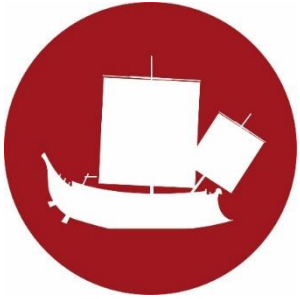
# The Madrague de Giens — A photogrammetry from the past



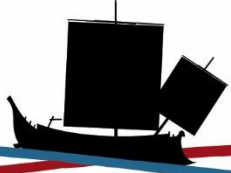
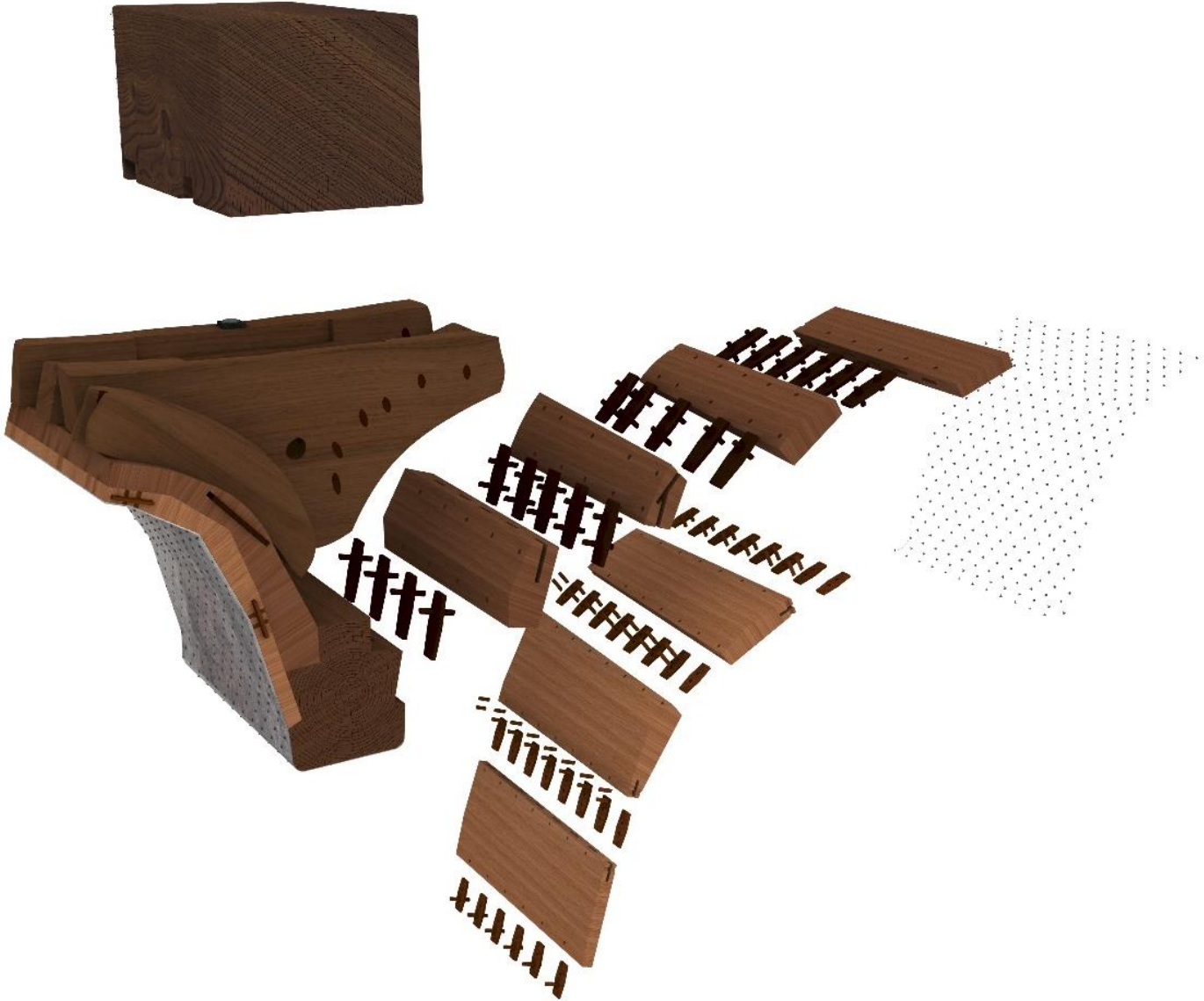
Reconstruction



# The Madrague de Giens A photogrammetry from the past

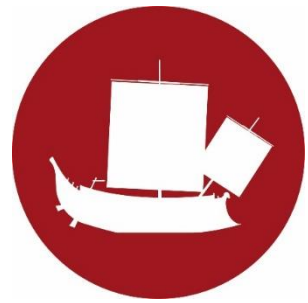


Reconstruction

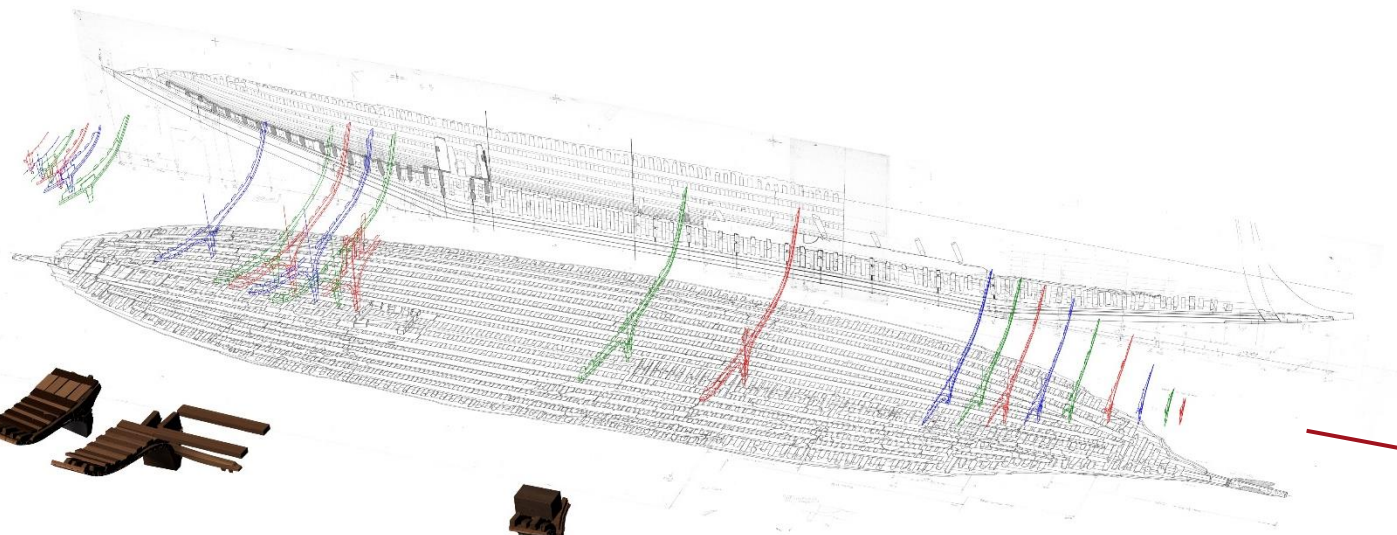




# The Madrague de Giens A photogrammetry from the past



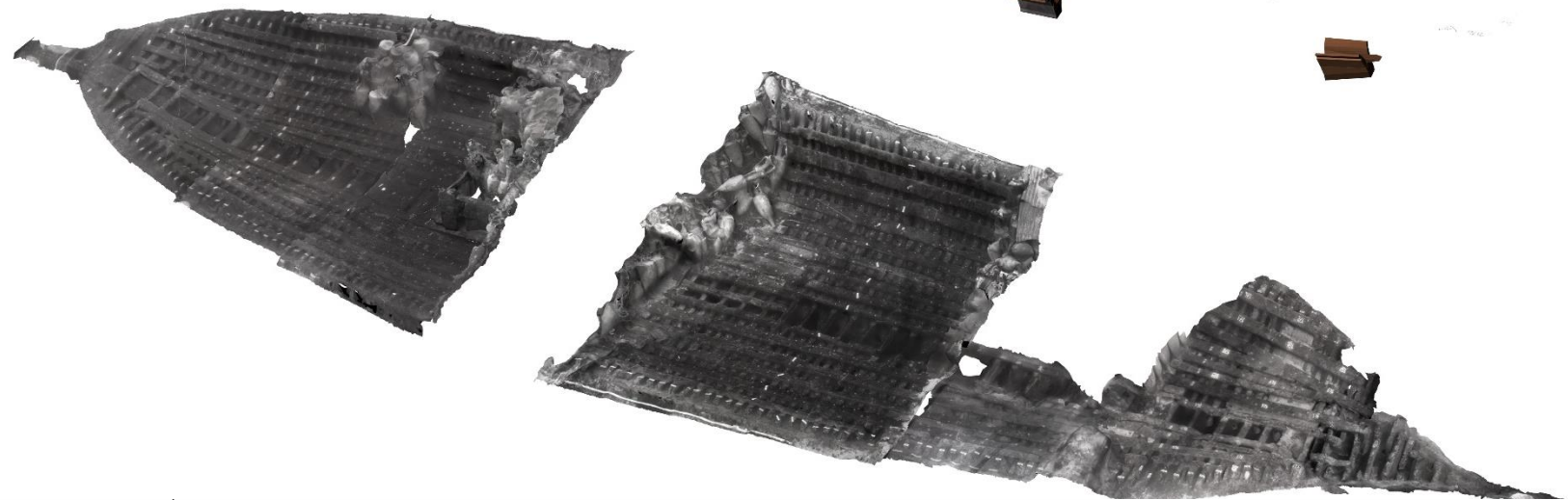
Reconstruction



Original 2D documentation



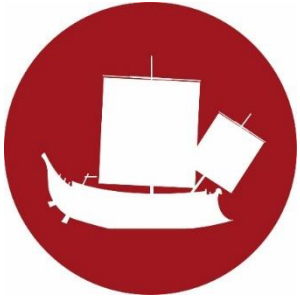
3D of samples



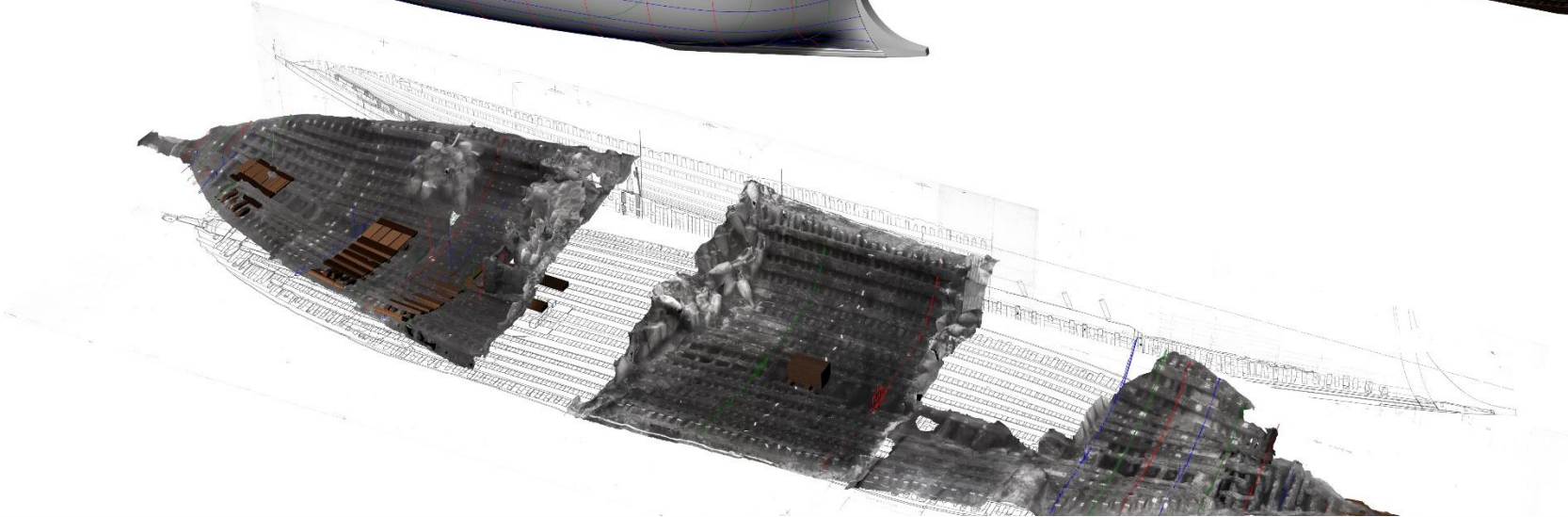
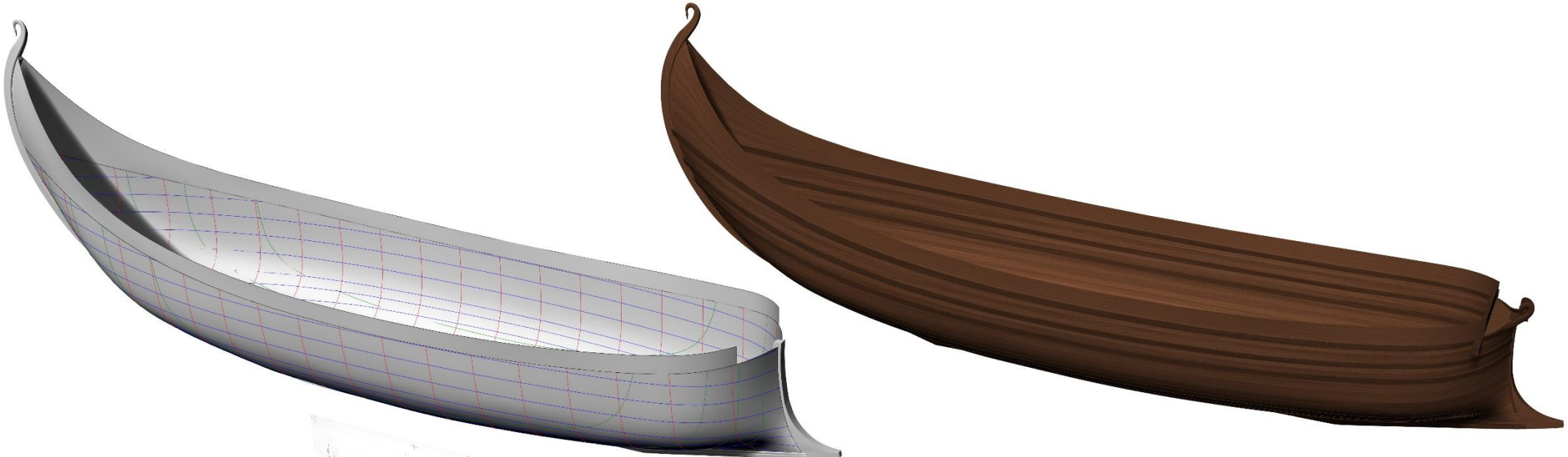
2021 Photogrammetry



# The Madrague de Giens A photogrammetry from the past



Reconstruction





In the Memory of our  
Predecessors:

Patrice Pomey  
1943 - 2021



Antoinette Hesnard  
1948 - 2018

And the indefectible and  
precious support of  
Prf. André Tchernia



# The Madrague de Giens ship

A photogrammetry from the past:  
completing the study of an exceptional roman wreck



Laetitia Cavassa  
Pierre Poveda  
Vincent Dumas  
Ninon Basuau  
&  
Philippe Soubias

Honor Frost arriving at La Madrague de Giens Camp Site  
the 3rd July 1975

