THE DOLIA AND THE SEA-BORNE COMMERCE OF
IMPERIAL ROME

A Thesis
by
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ABSTRACT

The dolia and the Sea-borne Commerce
of Imperial Rome. (August 1985)

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Early in the history of underwater archaeological research the amphora was identified as the container most commonly used by the Romans for sea-borne transport of numerous liquid and solid agricultural products. However, at least in the Western Mediterranean region, another vase, of a much larger size than the amphora, is more and more often recovered from the sea bed. This earthenware vessel, ovoid in shape, with a wide mouth and wide rim, without any handle, measures in many cases as much as 180 cm (almost 6 feet) in height. It has been recognized as the dolium, the vase mentioned by many Latin writers and previously thought by classical archaeologists to have been used only on land for the process and storage of food supplies. Now at least seven shipwrecks, dating between the first century B.C. and the third century A.D., have been confirmed as carrying these huge containers; in three cases, thanks to very good site conditions, as many as 14 dolia could be located on a single Roman merchant ship.

In order to fully understand those underwater finds and their relation to the Roman world, it was necessary to extend the research to a more general survey on the dolium, due to the lack of any major publication on it. An extraordinary number of citations found in Latin literature allowed a definition of its dimensions, shape and common uses with a surprising richness of detail, while an extensive collection of land and underwater archaeological excavation reports not only led to a more precise definition of its physical characteristics.
but also to a detailed analysis of the different types of locations in which dolia were used.

Finally, thanks to all this collected information, it was possible to interpret correctly the dolia found in the sea and to integrate them into a more general discussion. This allowed speculation on the existence, at least during the Roman Empire, of a large organization of food supply, most likely concerned with wine, which used the dolium as principal container not only in places of production, like farm-houses (villa rusticae) and in selling points, like taverns (tabernae) and large town warehouses (horrea), but also in transport facilities as on merchant ships (naves vinariae in the case of wine), and eventually also in temporary storage places like harbor warehouses.
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I wish primarily to thank Dr. Francisco Pallarés Salvador, Director of the Centro Sperimentale di Archeologia Sottomarina (C.S.A.S., Albenga, SV, Liguria, Italy) for awakening in me an interest in dolia and for counseling me in the most appropriate ways of approaching the problems set by this ceramic type.

I also express my appreciation to all the other persons related to Western Mediterranean nautical archaeology, who further discussed with me many aspects of these amazing containers, greatly expanded my knowledge on still unpublished material and helped me in the collection of information on dolia found under water. More specifically my sincere appreciation goes to Dr. Piero A. Gianfrotta, researcher at the Istituto di Topografia antica of the Università degli studi di Roma and Director of the excavation of the shipwreck found off Ladispoli (ROMA, Latium); to Dr. Bernard Liou and Dr. Luc Long, director and conservator of the Direction des Recherches Archéologiques Sous-Marines (D.R.A.S.M., Marseille, Bouches-du-Rhône, Provence-Côte d'Azur, France), who were directly or indirectly related to the excavations of the Cap Bénat (Le Lavandou, Var, Provence-Côte d'Azur), La Garoupe (Antibes, Var, Provence-Côte d'Azur), L'Ile Rousse (Corse), and the Petit Congloué (Marseille, Bouches-du-Rhône, Provence-Côte d'Azur) shipwrecks; and to Dr. Enrico Ciaibatti, Director of the Naupagos (Florence, FI, Tuscany, Italy), who provided precious information about dolia found off the coast of Tuscany.

I am also particularly indebted to all the directors of museums and land excavations, unfortunately too many to be named here, who so benevolently answered my letters and gave me their permission to study the archaeological remains in their possession, as well as the Soprintendenze ai Beni Archeologici of many Italian regions for allowing me to publish the material under their control.

I am especially grateful to Dr. Tiziano Mannoni, Professor of
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I further wish to thank my Committe Chairman, Dr. George F. Bass, along with Committe Members Mr. J. Richard Steffy, Dr. Henry C. Schmidt, and Dr. Donny L. Hamilton for reviewing my whole work and also correcting all the syntactical, grammatical as well as spelling mistakes, which are the result of my still imperfect mastery of the English language.

Finally my special thanks go to Dr. Bianca M. Nappi not only for sharing with me her wide knowledge of ceramic techniques and for helping in the construction of the enclosed maps, but also for her always firm and strong belief in the realization of this thesis, especially at times when I had lost mine.
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CHAPTER I
INTRODUCTION

During the summer of 1981 I had the opportunity to participate under the direction of the Centro Sperimentale di Archeologia Sottomarina (C.S.A.S.) in the underwater excavation of a Roman shipwreck near Diano Marina (IM, Liguria, Italy). The sunken ship, dated to the second half of the first century A.D., was carrying amphorae of the type Dressel 2/4 from Spain, together with fourteen huge dolia. The following year the director of the C.S.A.S., Dr. Francisca Pallarés Salvador, granted me the privilege of studying the dolia from the same shipwreck. This thesis will discuss the results of my research.

The first step taken toward the correct interpretation of those impressive archaeological remains was the search for the information eventually found in Latin literature. Initially a list was made of all the known passages from Latin writers containing the word dolium or one of its declensions. This was accomplished by consulting various Latin reference dictionaries: the old but still irreplaceable Thesaurus Linguae Latinae (TLL) was first used, and then, for the citations from Roman jurists, the Fontium Juris Civilis Romanorum (FICR) together with the Vocabularium Jurisprudentiae Romanae (VJR). Furthermore many concordances, indexes and lexicons to all or single works of Latin authors were consulted, as well as the book by Hilgers (Hilgers 1969), which collects all the literary references from Latin writers on various Roman vessels. This list was found to be of immense value. Even if he omits all the late Latin writers, for the rest of the Roman period his list was found to be exhaustive. However, since the information which could be deduced from all those publications was felt to be much too scanty, every passage was located in its original form.

The style and format of this thesis are those followed by the Società Romana e Produzione Schiavistica
in most cases in the Loeb Series, and studied in relation to the entire work of its Latin author.

For a clear presentation I decided to present a complete catalogue of the literary evidence referring to dolia in a separate appendix (Appendix A), in which each Latin passage is accompanied by an introduction specifically written to better situate in time and space the information contained in that passage.

The next step was the collection of information about dolia that could be acquired from archaeological excavations on land or under water. The search had to be limited, for reasons of time, to Italy, France and Spain; any extra information unintentionally found regarding other places in the Western Mediterranean region, however, also has been recorded. Primarily, an intense bibliographical search was conducted in order to find excavation reports in which dolia were mentioned, described and eventually drawn. This was done by consulting two of the major annual archaeological bibliographies, the Deutsche archäologische Bibliographie (DAB) and the Fasti archeologici (FA); I looked not only for articles or books specifically on pottery, but also for publications on Roman villae rusticae, horrea, port-buildings, shipwrecks, tabernae, necropoleis and theaters in which dolia could eventually be found. The indexes of three of the major excavation journals, the Notizie degli Scavi di Antichità (NS), Gallia, and the Archäologische Anzeiger (AA) were also consulted since all contained direct references to dolia. Furthermore, in order to collect as many dolia bearing stamps as possible, all the published volumes of the Corpus Inscriptionum Latinarum (CIL) were consulted together with their supplements found in both the Ephemerida Ephigraphica (EE) and the Année épigraphique (AE). Obviously the search for information about dolia found in the sea has been more intense than for dolia from land excavations and it has covered all the major underwater excavation journals: the International Journal of Nautical Archaeology and Underwater Exploration (IJNA), the Cahiers d'archéologie subaquatique (CAS), the Archéaeonautica, and the Forma Mariae Antiqui (FMA). The Bollettino d'Arte (BdA), Gallia, and the Archivio Español de Arqueología (AEA), which only periodically publish updates on underwater excavations, were
also consulted.

Besides this bibliographical search, other directions were followed in order to collect as much information as possible about other existing dolia. A form was sent, unfortunately only in Italian territory, to all the museums known to have collected Roman artifacts, requesting information about dolia displayed or stored in their deposits. A personal visit was also made to at least one of each of the well-preserved archaeological land sites in which dolia have been found. These included a typical Campanian *villa rustica* at Boscoreale ("Villa Regina", NA, Campania, Italy), the dock building of the Roman harbor in Marseille (Bouches-du-Rhône, Provence-Côte d'Azur, France), and the *horrea* in the Roman town of Ostia (ROMA, Latium, Italy). With regard to dolia raised from the sea, however, the personal visits were as numerous as possible. The remains of the 3rd century shipwreck of Punta Ala in the Deposit of the Museum at Grosseto (Grosseto, Tuscany, Italy); the remains of the 1st-century A.D. shipwreck found off Ladispoli and deposited at Cerveteri (ROMA, Latium); the remains of the cargoes of the shipwrecks of the so-called "Petit Congloué", and the so-called "Ile Rousse", both deposited in the Fort Saint Jean in Marseille; the remains of the so-called "La Garoupe" shipwreck, in part deposited in the Fort Saint Jean and in part displayed together with the remains of the 10th-century A.D. shipwreck known as "Jarres de Bataiguer" in the Musée d'archéologie et d'histoire in Antibes (Var, Provence-Côte d'Azur), have personally been all examined. Finally, my personal involvement in the last four excavation seasons on the so-called "Diano Marina" shipwreck (IM, Liguria, Italy), which in summer of 1984 reached its seventh campaign, adds a great deal of detailed information about the use of dolia on board a Roman merchant ship.

The main body of information that could be collected from land and sea excavations is presented in this thesis in 4 separate appendices. Appendix B collects all the known dimensions of dolia; Appendix C and Appendix D deal with marks found on dolia or their lids, the first collecting graffiti, the second stamps; while Appendix E summarizes the information on dolia found in quantity in different types of archaeological sites. The rest of the information, too scattered and scarce to
appear in the appendices, is presented in two annotated bibliographical indexes of dolia, the first collecting all the dolia found on land, and the second all the dolia found in the sea.

The general objectives pursued through the search in Latin literature and archaeological excavations were multiple. In fact, the purpose of the search through the works of Latin authors was mainly conceived as an introduction to the subject that would define the dimensions, shape and most common uses of the dolium and analyze all the reported details which were felt to be helpful in the interpretation of the archaeological evidence. The major purposes of the search in archaeological reports, on the other hand, was not only the confirmation of the literary evidence, but also the integration with additional information on its physical characteristics. In the latter case the search was also directed in an effort to construct a general distribution map of dolia, to define their evolution through time, and also to describe in detail the different types of Roman buildings and underwater archaeological sites in which dolia have been found.
CHAPTER II

DOLIA IN LATIN LITERATURE

Preface:

The major sources of information about dolia in the Latin literature are the books on agriculture. Only four completely devoted to rural matters have survived until the present; they are, in chronological order, the De Agri Cultura of Cato the Elder,1 written in the second century B.C., the Rea Rustica of Varro,2 written in the first century B.C., the Rea Rustica of Columella,3 written in the first century A.D., and the De Re Rustica of Palladius4 which was written during the fourth century A.D. A fifth surviving book, the Historia Naturalis of Pliny the Elder,5 written in the first century A.D., dealt with agriculture only in a few chapters; nevertheless, the information that was collected in that part of his monumental work on human knowledge was by no means inferior in quality to the other works on agriculture.

The second major source for the study of dolia is the Digest or Pandects of Justinian, which was published in the fourth century A.D., but indeed was a collection of quotations from earlier works by Roman jurists, from Alfenus, who wrote in the first century B.C., to Rufinus who published his works in the third century A.D.6 Nothing can be more explicit than the great number of legal passages referring to dolia in confirming the strong integration of this type of pottery into Roman life.

Besides these specific books on agriculture and jurisprudence, which are certainly the richest in interesting passages, there is a remarkable quantity of Latin works, on a wide variety of subjects, in which dolia are only occasionally mentioned. They can be Glossae where the word dolium was simply combined with another word or a short sentence in an attempt to explain it, or they can be more informative
books of Roman history in which all the known military facts related to
dolia were narrated, or satirical books in which a dolium played a
major role in the development of the story, or very detailed architec-
tural treatises in which dolia were described in their relation to
different Roman buildings. They can also be pagan books in which dolia
were related to mythology, as well as later Christian religious books
in which dolia were mainly related to miracles.

The collection and the analysis of all those passages from Latin
writers allowed the characterization of the dolium as the largest
vessel of earthenware ever made by the Romans. In close resemblance to
the Greek pithos, it was a round vase, with a wide mouth and apparently
without neck or handles. Depending on its use it could be internally
lined with pitch or wax; when broken it could be repaired with lead
clamps. It could be kept half-buried in the earth or standing above the
ground in cellars, taverns, store-buildings and eventually in theaters.
It could contain liquids, such as wine and oil and their by-products,
but also many different solid foods such as wheat, figs, apples, pears
and pomegranates. It could be used in the process of making salted
meat, vinegar from figs, garum from fishes, or even for preparing
chemicals like white lead and verdigris. Finally, if built slightly
differently for the purpose, it could be used as a cage in which
dormice were fattened.

2 Physical description of dolia:

Dimensions:

Not many Latin writers have been explicit about the dimensions of
the dolium. If we analyze the citations in chronological order we
discover that Cato (Cato r.r. 112,3), who wrote in the beginning of the
second century B.C., spoke about a dolium, used in the preparation of
Coan wine, that held 50 quadrantals or 50 amphorae (approx. 1,313
litres or 346.5 gallons). The same author, elsewhere (Cato r.r. 69,2),
explaining how to steep new dolia used for holding oil, mentioned the
same capacity of 50 quadrantals, but when he wrote about preparing
Greek wine (Cato r.r. 105,1) he mentioned a dolium of only 40 quadran-
tals (approx. 1,050.4 litres or 277.5 gallons). One hundred years later Vitruvius wrote about dolia used in the wine cellar and in the oil-press room (Vitruvius VI, 6, 3), each of 1 culleus or 20 amphorae (approx. 525.2 litres or 138.7 gallons). In the first century A.D. Pliny the Elder (Plin. n.h. 9, 93) referred to dolia of only 15 amphorae (approx. 394 litres or 104.1 gallons). In the same century Columella (Colum. r.r. XII 18, 7) mentioned dolia sesquicullearia or dolia holding one-and-a-half culleis or 30 amphorae (approx. 787.8 litres or 208.1 gallons). Finally Palladius (Pallad. r.r. X 11, 1), the last Roman writer to write on agriculture and who most likely lived in the fourth century A.D., spoke about dolia of two hundred congi or 25 amphorae (approx. 656.5 litres or 173.5 gallons).

According to those quotations it seems clear that in the Roman civilization there were not specific standard dimensions for the do- lium, that it did not show any evident chronological evolution in its size, and that even in the same period of time variations in its capacity were possible. It can be noted, however, that even the smallest capacity, mentioned by Pliny the Elder (Plin. n.h. 9, 93), which is of 15 amphorae, was still an exceptional size for any other Roman earthenware vase.

A general idea of the size of a dolium also could be indirectly deduced from the literary sources. In fact, some Latin passages refer to dolia into which a man could step or even use as his own house. Apuleius (Apul. Met. IX 5, 4; 6, 5; 7, 1-6) in the second century A.D. told a story of a man who entered into a dolium in order to examine it before buying it, while Seneca (Sen. Epist. 90, 14), together with Juvenalis (Juv. 14, 308), Tertullianus (Tert. De pall. 4, 7, 81) and Ausonius (Aus. Ep. 28, 3), between the first and the fourth centuries A.D., all clearly stated that Diogenes, the greek philosopher, actually lived in a dolium.

Materials: clay, lead, gold, and glass:

Too many modern authors have erroneously translated the word dolium as wooden barrel or cask but the literary evidence leaves no doubt that in most cases dolia were clay vessels made in figlinae or clay acto-
ries by *figuli* or potters. During the first century B.C., Vitruvius (Vitr. V 5,8 [116]), in his famous treatise on architecture, when speaking about the bronze vases used for improving the acoustics in theaters, added that in small towns, for economic reasons, the architects could use earthenware dolia (dolia *fictilia*) instead of those bronze vases; even the *Glossa* found at Werden (Gloss. Werth. Gallée 338), dating to the end of the ninth or beginning of the tenth century A.D., still clearly defined the dolium as an earthenware vase (*vas fictile*). Further direct information was presented by Varro (Varro r.r. III 15,2), who testified in the first century B.C. that dolia were made by *figuli*, as did Pliny (Plin. n.h. 39,159) in the following century; even in the second half of the fourth century A.D., Rufinus (Rufin. Greg. Naz. or. I 47,2) was still quoting the proverb: *in dolio discere artem figuli*, meaning that the way in which a dolium was made was good proof of the skill of the potter who made it. Moreover, in two passages of their works, both Columella (Colum. XII 52,17; 56,3) and Pliny (Plin. 3,82; 35,159) clearly said that dolia were made in *figilinae*. Paulus, in the third century A.D., in a passage found in the Digest (Paul. Dig. VIII 3,6 pr), added even more information when he clearly indicated that dolia were manufactured in *figilinae* together with *amphorae* and roof tiles.

Only three cases have been found in the Latin literature where there is a direct mention of a dolium made of a different material than clay. Javolenus (Jav. Dig. XXXIII 7,26,pr.) in the second century A.D. specified that there were dolia made of clay but also of lead which were filled with soil and eventually had flowers planted in them. Saint Ambrose, late in the fourth century A.D., while describing the Holy of Holies of the Old Testament, said that the sacred *manna* was indeed stored inside a golden dolium; and Antoninus Placentinus (Itin. Ant. Plac. rec A 46) during his pilgrimage to the Holy Land, which took place in the sixth century A.D., described Emiza, a town in Syria where he found a dolium made of glass in which the head of John the Baptist was preserved. It is clear that except for the unique mention of a lead dolium from Javolenus' writings, there is no other reference in the pure Roman tradition to dolia made of different material than clay.
since the gold and glass dolia belong to the Jewish and Syrian tradition.

Regarding the mistake that many modern authors have made in translating the word dolium as wooden barrel it must be said that they mainly have based their assumption on the indirect evidence of two cases in Roman history in which rafts were built with dolia: Frontinus (Front. Strat. I 7,1) and Pliny (Plin. n.h. 8,16), both writing in the first century A.D., mentioned that in 250 B.C., during the first Punic War, the Romans, lacking adequate ships, transported the elephants just captured from the Punics across the Sicilian straits by fastening together dolia and covering them with planking; Florus, at the end of the first century, related that in 71 B.C. Spartacus tried to build the same type of raft in order to cross the same straits with the remains of his army of 10,000 revolting slaves. In the latter case the author added that the dolia were bound together with beams by the use of withies, and that the attempt failed. Those are indeed the only literary facts which led to the assumption that the word dolium could be generally translated as "wooden barrel", but in reality those are very weak assumptions compared to the overwhelming evidence that dolia were instead clay vases. A suggestion for a correct interpretation of these passages is that in both cases the Romans and their revolting slaves actually used the earthenware vases, which, well sealed, would be able not only to float but also to support some weight. A last piece of indirect but strong evidence against any incorrect translation can be found in the writings of Juvenalis (Juv. XIV 308). At the end of the first century A.D., he specifically said that the dolium in which the Cynic (Diogenes) was living would never burn, and this certainly implied that it was not made of wood.

Shape and cited parts:

The general appearance of a dolium can be easily deduced from the writings of the Latin authors. Columella (Colum. r.r. XII 44,2) described a method of preserving grapes in which a dolium was first filled at its bottom with boiled-down must and then with cross-pieces of wood so as to form subsequent layers on which earthenware dishes were even-
tually placed. Only if the interior was concave would that proceeding work. On another occasion the same author (Colum. r.r. XII 4,5), talk-
ing about a smaller type of vase used for storing preserves, specified
that it had to be of the same width right down to the bottom, not like
the round dolium. Even Cassiodorus (Cassiod. var. II 39,2) in the
second century A.D. spoke about the concavity of the dolium. Further
information was given by Pliny (Plin. n.h. 14,134) when he defined the
right shape for dolia used to hold wine. It seems that such could not
be too pot-bellied (ventriosa).

An indirect knowledge of the form can also be reached through the
few passages in which the shapes of different natural things were
compared to the shape of a dolium. Manilius (Manil. 1,842) in his
Astronomica, written in the early years of the first century A.D., said
that the shape of comets could be compared to a dolium ejecting flames,
which is the same analogy given by Pliny (Plin. n.h. 2,90). Seneca
(Sen. nat. I 14,1), instead, used the form of the dolium to describe
ball-lightning.

Only a few parts of a dolium are directly mentioned in the Latin
literature and those are the mouth or oris and the lips or labra. In
fact, according to Columella (Colum. r.r. XII 6,1), the dolium used for
collecting the rainwater necessary for the preparation of brine needed
to be patentissimi oris or of a very wide mouth. On the other hand,
according to Pliny (Plin. n.h. 14,134), the ones with wide mouths
(patula dolia) were not suitable for containing wine. Moreover, Cato
(Cato r.r. 26; Cato r.r. 107,1.2) and Columella both mentioned the
labra or lips of the dolium. There is no mention of necks or handles.

Finally there is the evidence regarding the similarity of the
dolium with the Greek pithos. In at least 15 cases the Glossae Latino
Graecae or the Hermeneumata have translated the word dolium with the
Greek word pithos, and only in one case (Gloss. V 497,29.30) has the
translator, or more likely a later inattentive copyist, used the Greek
word ydra.
Lids:

A relatively conspicuous number of references have been found to
the use of lids (opercula) on dolia. In the writings of Cato (Cato r.r.
11,2; 104,2; 112,3), Varro (Varro r.r. I 22,4), Columella (Colum. r.r.
XII 30,1), and Pliny (Plin. n.h. 2,137; 14,135), passages are found
referring to lids used on dolia containing wine, while in Cato (Cato
r.r. 10,4: 13,2) and Gregory the Great (Greg. M. dial. II 29) the
passages refer to lids for dolia containing olive oil. Opercula were
also placed on dolia used for preserving fruits, as mentioned by Colu-
mella (Colum. r.r. XII 44,2). He explained that they were first treated
with pitch, smeared with boiled-down must, then placed on the dolia,
and finally stops up with ashes in order to make the contents of the
dolia airtight. Moreover lids were also used on dolia containing live
animals (Varro r.r. III 15,2) and chemicals (Vitr. VII 12,1). Finally a
very special operculum, mentioned by Livy (Liv. XXXVIII 7,11,12), was
made of iron and used for a very uncommon war-machine.

Lead repairs:

Literary evidence clearly indicates that cracks in dolia were
commonly repaired with lead clamps. The most vague on this particular
subject is Pliny the Elder (Plin. n.h. XVIII 236) who only mentioned
that the repairing of broken dolia was one of the jobs done in mid-
winter, when farmers were not so busy in their fields. The Roman sati-
rist Juvenal (Juven. XIV 308) added a little more information when,
speaking about the house of Diogenes, he affirmed that if it had been
broken, it would be eventually repaired with lead and could continue to
serve its purpose. However, the most explicit among the Latin writers
is Cato (Cato r.r. 39,1-2), who not only said that mending dolia was
preferable when the weather was bad, but also described the entire
procedure. According to this author the broken dolium could be mended
with lead and eventually also hooped with dry oak wood. Then, after its
remaining cracks were filled with a cement made of wax, resin, sulphur
and gypsum, and its interior pitched, the dolium could serve again as a
container for wine. In the same passage Cato finally gave a recipe for
a mixture which could be used to improve the appearance of the mended
dolia by matching the color of the repairs to the natural color of the fired clay.

Pitching and waxing of dolia:

According to what can be deduced from the Latin literature, the dolium, as the amphora, was not intrinsically impermeable to liquids. In fact, all the ancient authors who treated the subject agreed that when it contained wine or must, it had to be internally pitched, and when oil was poured in it, it had to be internally waxed.

Regarding the best time for pitching dolia, Cato (Cato r.r. 23,1 and r.r. 2,3) advised that just any rainy day before the collection of the grapes was favorable, while Pliny (Plin. n.h. 14,134) wrote that the coating had to start just after the rise of the Dog Star. For Columella (Colum. r.r. XII 18,5) the work was normally done at least forty days before the vintage, and by all means it had to be completed fifteen days before their use (Colum. r.r. XI 2,70).

Columella further specified (Colum. r.r. XII 18,5) that two different processes were used in pitching dolia, according to whether they were sunk into the ground or were standing above it. In fact, since the ones that were sunk could not be removed, they were first heated with iron torches so that the old pitch would liquefy and collect at their bottoms, from where it could be easily removed. Then, very hot new pitch was poured in and smeared all over the inner wall by the use of a ladle and a small broom. In cases of dolia standing above ground they were first heated by the sun and then, after having been turned upside-down and laid on three small stones, a fire was placed under them. When the dolia were so hot that a hand could not be placed and kept on them, they were laid down on their sides. Very hot pitch was then poured into them and they were finally rolled on the ground so that the pitch would cover all the inner surfaces. Pliny the Elder (Plin. n.h. 14,134) further expanded the knowledge on the process when he explained that dolia for wine, after having been coated with pitch, should be washed with sea-water or water with salt in it, and then sprinkled with ashes of brushwood or potter's earth and finally rubbed clean and fumigated with myrrh.
Two ancient authors also specified the quantity of pitch which was needed in relation to the capacity of the dolium. Columella (Colum. r.r. XII 18,7) said that 25 Roman pounds (8.17 kg. or approx. 18 pounds) would be enough for a vessel of one oulleus and a half (equal to 30 amphorae, 787.8 litres or 208.11 gallons), while according to Palladius (Pallad. X 11,1) 12 Roman pounds (3.95 kg. or approx. 8 pounds and a half) were enough for a dolium of 200 congi (equal to 25 amphorae, 656.5 litres or 173.4 gallons). The same two authors further explained how to improve the quality of the pitch. Columella (Colum. r.r. XII 18,7) said that it would be best if a fifth part of it was Bruttian, while for Palladius (Pallad. X 11,2) a mixture should be made by adding one Roman pound (329 gr. or 0.7 pounds) of wax (cera) to every nine Roman pounds (2.95 kg or approx. 6 and a half pounds) of pitch. He confirmed that this would improve both the smell and the taste of wine.

Dolia were also pitched when they were used for preserving grapes as stated by Pliny (Plin. n.h. 15,62) and Columella (Colum. r.r. XII 44,2 and Colum. r.r. XII 44,3), in which case, according to Columella the bottom of the dolium was filled with one amphora of boiled-down must. Moreover Cato (Cato r.r. 25) mentioned the fact that dolia were pitched also in case they were filled with grape husks which was commonly preserved as feed for cattle during the winter season.

As in case of dolia treated with pitch, Cato and Columella are the two authors who also more extensively discussed the process by which dolia were coated with wax if they were to be filled with olive oil. Cato (Cato 69,1,2), also quoted by Pliny (Plin. n.h. 15,33), explained that they were first filled for a week with oil dregs (amurca) and then, after being emptied and let dry, were heated by a small fire at a lower temperature than used when coated with pitch. The wax, previously diluted in water, was then poured into them and rubbed against their inner walls. Columella (Colum. r.r. XII 52,15), in the first century A.D., added more information about this practice, as he mentioned that the ancients taught that dolia had to be waxed every six oil-making. However, in the same passage, he shared his doubts with the readers about the usefulness of this process since, as he rightly expressed,
the clay of old vessels would already be saturated with oil and cer-
tainly could not absorb any more wax. He therefore clearly specified
that the process of repetitive waxing was already abandoned in his day
and that the common practice was instead to wash dolia once with di-
luted wax and then to just fumigate them with white wax (alba cera) as
often as needed in order to protect the walls from turning rancid. 15

3 Locations and uses of dolia:

Places where dolia were used:

In the Roman literature, there are four specific buildings mentioned
where dolia were commonly used: the villa rustica or farm-house, where
the agricultural products were produced and eventually aged, the hor-
reum or store-building, where the products were collected, stored, and
sold; the taberna or tavern, which was a particular selling place for
wine; and the theater where dolia were eventually used for acoustic
purposes.

Regarding the villa rustica, the most interesting details are
found in the works of Vitruvius and Varro. The first author (Vitr. V
6,3) from an architectural point of view, and the second (Varro r.r. I
13,7) from an agricultural point of view, both specified that in the
Roman villa rustica, dolia were mainly located in two store rooms: the
cella vinaria or wine-cellar, situated in the north side of the house,
as the wine could not stand too much heat, and the cella olearia or oil
store-room, which instead was placed in the southern quarters of the
house since oil, unlike wine, was affected by cold weather. 16 Even
Pliny (Plin. 14,133) knew the importance of the position of the wine-
cellar in the farm house. In fact he mentioned that the cellae vinariae
or at least their windows had to be constructed facing the north-east
or at least the east. Further information on cellae vinariae was given
by Varro (Varro r.r. I 13,6) as he specified that they had to be
constructed with a slope to a reservoir because often dolia burst from
the fermentation of must. In addition to the references just mentioned,
Cato (Cato r.r. 3,2; 10,4), Ovid (Ovid. fast. 5,269), Apuleius (Apul.
Met. IX 34,2), Scaevola (Scaev. Dig. XXXII 1,93,4) and Ulpian (Ulp.
Dig. XXXIII 6,3,1), between the second century B.C. and the second century A.D., all stated that dolia were used in the *cella vinaria*, which lets us deduce that this practice was fairly common during the Roman civilisation.

As regards dolia in the *cella olearia*, the references are not so precise nor so numerous as in case of dolia in the *cella vinaria*. Only Cato (Cato r.r. 3,2; 13,2) and Vitruvius (Vitr. VI 6,3) mentioned that *dolia olearia* were part of the equipment found in the *cella olearia* of farmhouses. In case of dolia used in *horrea* or in *tavernae* the number of references is even smaller. One author only, Paulus, mentioned their use in *horrea* (Paul. Dig. XVIII 1,76), and the same author in another passage (Paul. Dig. XXXIII 7,13,pr.) said that dolia were also part of the equipment of a tavern. This would be the only reference to its use in Roman taverns, if an indirect mention had not been found in the works of Apuleius. This author (Apul. Met. I 9,3) mentioned that wine was sold directly from dolia by *cauponae*, the Latin term designating the slaves who worked in *tabernae*.

The last two places mentioned by the Latin literature where dolia could be found are private houses and theaters. Apuleius (Apul. Met. IX 6,3), mentioned the presence of a dolium in the corner of a room in the house of a poor man, while the Roman architect Vitruvius (Vitr. V 5,8 [116]) indicated that dolia could be used in theaters, for improving the acoustics in place of more expensive sounding vases made of bronze.

Dolia *defixa, depressa, infissa* and *defossa*:

According to the Latin writers it seems that at least dolia containing wine, in order to protect their contents, were partially or entirely buried in the ground, while, if they were left standing above the ground, they had to be protected by a roof. Columella (Colum. r.r. XII 18,5,6), in the first century A.D., when talking about the treatments with pitch, clearly distinguished the two different types of dolia used for wine, one sunk in the ground and one standing above it, while Pliny (Plin. n.h. 14,133) in the same century added more information as he wrote that in a mild climate wine was stored in
dolia that were entirely or partially buried in the ground or simply stored under a roof. A convincing explanation for the existence of the two different ways for holding wine was given by the same author (Plin. n.h. 14,134), as he specified that dolia sunk in the ground should be used for wine from a weak vintage, while a strong vintage could be safely contained in dolia exposed to the air. It seems that with the passing of time, the wine became even weaker if we believe Macrobius (Macr. Sat. VII 12,15), who in the fifth century A.D. said that the farmer had to protect his wine using both ways at the same time: the dolia for wine had to be kept embedded in the ground and covered by a roof.

In order to describe the dolia sunk in the ground different Latin words have been used. Scaevola (Scaev. Dig. XXXII 1,93,4) in the beginning of the first century B.C. stated that in the cella vinaria there were dolia which were defixia; Ulpian in the second century A.D. (Ulp. Dig. XXXII 6,3,1) called them depressa; while Labeo (Labeo Dig. XIX 1,54,1), at the beginning of the first century A.D., talked about dolia infossa. However, by far the most common word used by Latin writers was defossa. Paulus (Paul. Dig. XVIII 1,76), in fact, mentioned dolia which were defossa in horrea. Florus (Flor. epit. I 13,11) back-dated the use of dolia defossa to the time of the Gallic invasions (390 B.C.), Ulpian (Ulp. Dig. VII 1,15,6; Dig. XXXIII 7,8,1) mentioned them twice in relation to the usufruct of a property, while Capitolinus (Capitolin. Pius 3,5), as late as the first half of the 4th century A.D., documented the fact that dolia defossa could be found in Etruria.

Quantity:

If on one side Alfenus (Alf. Dig. XIX 6,26) gave only a general idea on the subject by mentioning that 100 dolia would be accessory to an estate or fundus, Cato (Cato rr. 11,1) was much more explicit as he stated that for a vineyard of 100 iugera (251,820 m² or approx. 301,100 sq.yds) enough dolia were needed in order to be able to hold five vintages for a total of 800 cullei of wine or 16,000 amphorae (420,160 liters or approx. 92,400 gallons) If we assume that the average capacity of a dolium, as mentioned by the same author in another
passage (Cato r.r. 112,3), was of 50 quadrants (50 amphorae), a wine-producing Roman farm in the second century B.C. would have needed as many as 320 dolia for holding that quantity. Varro was a more reasonable author (Varro r.r. I 22,4) as he quoted Cato for the same amount of dolia, but he also stated that other authors gave a smaller number. However, both authors (Cato r.r. 3,2 and Varro r.r. I 22,4) agreed on the fact that the high number was set so that the farmer had enough storage room to be able not to sell the wine every year but instead could wait until the market price was favorable or, eventually, as only mentioned by Varro (Varro r.r. I 22,4), just so that wine would increase its price by aging.

In case of an olive-oil producing farm, according to Cato (Cato r.r. 10,4) for every 240 iugera \(604.368 \text{ m}^2\) or 722,640 sq.yds.) of olive groves the farmer needed 100 dolia for oil, 10 for holding amurca, but also 10 for holding grape pulp, 10 for wine, and 20 for grain, which combine to a total of 150 dolia. As was for wine, Cato (Cato r.r. 3,2) recommended having plenty of storage room for holding oil until the best selling prices were available.

**Buying and selling dolia:**

Unfortunately the Latin writers gave little information related to the action of buying and selling dolia. If for Cato (Cato r.r 1,5) the purchase of a farm generally entailed the purchase of all dolia found in it, for Alfenus, (Alf. Dig. XIX 1,26) the transaction was not so obvious and had to be specified in the contract. The latter gave as an example a juridical case where the seller stated that in his fundus there were 100 dolia and therefore the purchaser had the right to request that amount.

Regarding the place where dolia could be bought, Cato (Cato r.r. 135,1) wrote that, in his times, the best ones in quality were found at Alba and at Rome. Regarding the price, only Apuleius (Apul. Met. IX 6,3), the second century A.D. writer, in one of his satirical stories, mentioned an old and used dolium, which was first sold for five denarii, in which case the buyer had to pick it up, whereas at the end of the story it was sold for seven, a very good price since, in that
case, the seller had to deliver it personally.

Finally an interesting passage can be mentioned, from the writings of Ulpian (Ulp. Dig. XIX 2,19,1). He stated that dolia for wine could also be rented.

Contents of dolia in general:

According to the literary evidence dolia could contain many different food products, either liquid or solid. Cato, for example, in a single passage (Cato r.r. 10,4) mentioned dolia for wine (dolia vinaria), grape husk (dolia quo vinacia condat), olive oil (dolia olearia), amurca (dolia amuroaria), and for wheat (dolia frumentaria). Because of the overwhelming quantity of references relating to it, however, it seems that the most common use for dolia was to hold wine.\(^{20}\) Moreover it seems that dolia were not very different in their shapes since the same author in another passage (Cato r.r 39,1) stated that any dolium could be used for holding wine if it was carefully mended. The only specification of differences in shapes is the one indicated by Pliny the Elder (Plin. n.h. 14,134), who suggested, as mentioned above,\(^{21}\) that dolia with wide mouth and rounded body were not suitable for wine.

Must and wine:

Of the four fundamental steps for producing wine, trodding the fresh-gathered grapes,\(^{22}\) separating the juice from the dregs by pressing, fermenting the resulting must, and aging the new wine, according to the literary evidence, dolia were commonly used only in the last two. If there is no mention of their use in the process of trodding and pressing the grapes, at least 11 authors\(^{23}\) from the second century B.C. to the fourth century A.D. mentioned dolia containing must. Four of them, among whom is the Emperor Marcus Aurelius, directly testified that the must was actually fermenting in dolia, (Aur.Fronto (rec.Naber) p.67,23; Varro r.r. I 65, Scrib. Larg. 111), while four other Latin authors only referred to the consequences of its fermentation. Ovid mentioned the scum which covered the surface of the liquid in the dolium (Ovid. fast. 5,269), Columella (Colum. r.r. X 431) stated that
the must could eventually overflow the dolia, while Varro (Varro r.r. I 13,6) and Seneca (Sen. epist. 83,16) clearly indicated that the dolia could even burst because of the violence of the fermentation.

Further information regarding the period of the fermentation was given by Cato (Cato r.r. 26) who not only specified that the fermentation lasted for thirty days, but also that during this period the lips of dolia had to be cleaned twice a day of any organic remains, each jar having its own broom in order to prevent the spread of infections.

When the fermentation was over, the dolia were finally covered with their lids, as mentioned by Columella (Colum. r.r. XII 30,1), and sealed, as mentioned by Cato (Cato r.r. 26), so that the aging of the new wine could start.

The total time in which the wine was kept in dolia could vary widely. If for Cato, in the preparation of a special wine (Cato r.r. 113,1), the must was left in dolia only for 55 days before being poured into amphorae, for Columella (Colum. r.r. XII 28,3) the new wine had to be kept in dolia at least until the following spring, and according to Varro (Varro r.r. I 65) it was better for the wine to stay in dolia for a full year. An indirect reference to this subject can also be found in a passage from the work of Cato (Cato r.r. 11,1.2) where he stated that a well-run farm had to have an amount of dolia sufficient for five vintages, implying that the wine was possibly kept in them for a maximum of four years.

Obviously during the aging time the wine inside the sealed dolia had to be attended less often than during its fermentation. Columella in one passage (Colum. r.r. XII 30,1) specified that the wine between the end of the fermentation and the spring equinox had to be attended only every 36 days and after the equinox every 18 days. He also mentioned that in case the wine began to flower it had to be attended more often. Pliny gave further details (Plin. n.h. 14,135) as he specified that dolia holding wine would not be opened at mid-winter except on a fine day and not when a south wind was blowing or at a full moon.

Some very specific details are also known about what had to be done to dolia during this period of aging. According to Pliny (Plin. n.h.
14,135) the dolia were never filled to the rim and the space above the
surface of the wine had to be smeared with raisin wine (passum), boiled
down must (defrutum) mixed with saffron, or eventually with sword-lily
pounded up with boiled must (sapa). He also mentioned that dolia lids
should be treated in the same way. According to Cato (Cato r.r 107,1),
instead, in order to give a good odor and to keep any blemish from the
wine, the rims of dolia had to be coated with a different mix, in which
iris, Campanian melilot and must were part of the recipe. Even Columel-
la (Colum. r.r. XII 30,1) had another opinion on the subject as he
indicated that every time the wine had to be attended in the dolia,
their lips and mouths had to be rubbed with pine-nuts.

Special wines and medications in dolia:
Thanks to the work of Cato, an interesting list of recipes for
special wines, in which dolia were used, has survived until the present
day. In fact in one passage (Cato r.r. 23,2.3.4) he mentioned three
different procedures: one used salt, a Roman pound and a half (0.491
kg. or 1.08 pounds) to the culleus (equivalent to 20 amphorae, 525.2
liters or 139 gallons); one used pulverized resin, three Roman pounds
(0.98 kg. or 2.16 pounds) to the culleus; and one even used marble
dust, one Roman pound (0.328 kg. or 0.72 pounds) to the culleus, which
were eventually poured into the dolium before the must started to
ferment. In another passage (Cato r.r.105,1.2) he mentioned other
sophistications in order to produce a wine similar to the famous Coan
wine. Twenty quadrants of must were first boiled and then poured into
a dolium with one quadrant of brine and one sextarius of seasoning
made of rush and calamus. The resulting wine was then left in the
dolium until the spring and finally poured into amphorae, where it was
left for at least two years.

This prolific author also explained (Cato r.r. 104,1-2) how to
prepare a weak wine which was drunk during the winter season but didn't
last after the summer solstice: 10 quadrants of must, 2 of vinegar, 2
of boiled down must (sapa), and 50 of water were all mixed in a dolium
together with 64 sextarii (35 liters or approx. 9.25 gallons) of old
sea-water. In another passage he (Cato r.r. 113,1) also indicated how
to impart a sweet aroma to the wine by dipping a tile covered with pitch and different aromatic plants into a dolium.

Two other Latin authors also described how to medicate wine if it was turning bad inside dolia. According to Pliny (Plin. n.h. 19,135) when the flavor of the wine in a dolium was getting spoiled by a "cabbage taste" it could be restored to what it was meant to be by plunging in some beet leaves, while for Columella (Colum. r.r. XII 30,1), if any wine was rougher and less good than expected, dregs of good wine were collected, dried and baked into cakes, and finally, after being ground, were put into the wine which had to be cured.

Methods of selling wine from dolia:

The literary evidence not only certified that the wine was commonly sold when it was still in dolia, but also that a certain lapse of time could pass between the stipulation of the selling contract and the actual withdrawal of the wine by the buyer. Gaius, for example (Gaius Dig. XVIII 6,16), treated a legal case in which wine already sold was spoiled before it was removed from the dolia by the purchaser, while Scaevola (Scaev. Dig. XXXIII 7,27,3) mentioned the case of an heir who inherited a farm in which the wine contained in its dolia had been already sold and the buyer had paid only one third of the value. Cato was even more specific on the subject when he mentioned (Cato r.r. 148,1,2) that the wine was commonly sold before the first of January but that the buyer could wait until the next vintage before drawing it. It seems that the law was very strict regarding this last date since according to Ulpian (Ulp. Dig. XVIII 6,1,4), thanks to a very old custom, if the purchaser didn't remove the wine from the dolia before the next vintage, the seller had the right to throw it away.

A very interesting passage is found in the work of Cato (Cato r.r. 154) where he explained the way by which the wine was removed and at the same time measured from dolia by the buyer. Not only did it show that a vase of exactly one culleus was used, but it also proved that for filling it the Romans were using the principle of the syphon. Another less sophisticated method of drawing wine from dolia was mentioned by Varro (Varro, l.l. 5,177), who referred to a countryman
pouring the wine from a dolium one *urna* 27 at the time.

**Other wine containers: cupa, doliolum, utreus, orca:**

Other containers are known to have been used by the Romans for containing wine. The most interesting is the *cupa* or wooden barrel which at a still unknown date completely replaced the dolium in the processing of wine and is still used in many regions of the Mediterranean area. *Cupae* in direct relation to dolia appeared in the Latin literature for the first time in the first century A.D. when Pliny (Flin. n.h. 14,132) clearly stated that they were used for holding wine in the Alp Regions, while in mild climates only dolia were used. With the passing of time the *cupa* must have spread its use since in the second century A.D. Latin authors had started to talk about the use of both containers in the same place. Scaevola (Scaev. Dig. XXXII 93,4) catalogued among the *vasa vinaria* both dolia and *cupae*; Ulpian (Ulp. Dig. XXXIII 6,3,1) said that the wine could stay in dolia, *cupae*, *cupolae*, *utreae*, and *cullei*; and Paulus (Paul. Sent. III 6,37) mentioned both *cupae* and dolia in his list of the implements used on the farm for preserving fruits. It seems, however, that the two containers must have coexisted together for a long time, since even the last writer on agriculture, Palladius (Pall. r.r. I 18,2), still mentioned the use of both in the same wine cellar.

Another earthenware vase related to the dolium and mentioned by Latin writers is the *doliolum*, an obviously similar but smaller container, which according to Columella (Colum. r.r. XII 28,1) contained only 7 *amphorae* of wine and was also used for preserving grapes (Colum r.r. XII 44,3). 28

Other containers for wine mentioned together with dolia were the *utreus* or leather bag, indicated by Ulpian (Ulp. Dig. XXXIII 6,3,1), and the *orca*, a large container similar to a dolium, which, according to Varro (Varro I 13,6), was used in Spain as the fermenting vessel for wine instead of the dolium.
Wine by-products: circumcidaneum, defrutum, passum, lora, sapa, and grapes husks:

Dolia could also contain some by-products of the wine process. According to Cato (Cato 23,3,4) the grapes could be pressed a second time and the outflowing liquid, called circumcidaneum, was divided and added equally to each dolium containing must from the first press. Columella (Colum. r.r. XII 44,2) spoke about dolia partially filled with defrutum or boiled-down must in the conservation of grapes, while Cato (Cato r.r. 23,2-4) gave advice to add one fourth of it to dolia containing must in order to produce a better wine.

Dolia were also used, according to Columella (Colum. r.r. XII 39,1-3), in the making of passum or a kind of raisin-wine which, however, at the end of the process, was preserved in different vases, while Varro (Varro I 54,3) mentioned dolia filled with lora or pressed grape-skins mixed with water, which was a wine substitute given to farm-workers during the winter. Finally, another by-product of the making of wine kept in dolia were the grapes husks which, according to Cato (Cato r.r. 54), were commonly used as feed for oxen throughout the winter season.

Olive oil:

The Latin literature clearly indicates that dolia were also used in the Roman civilization for storing olive oil. In fact Cato (Cato r.r. 13,2), the earliest writer on agriculture, mentioned that dolia olearia could be found in cellae oleariae or oil-cellsars, while Varro (Varro I 61), one hundred years later, indicated that dolia were used for oil; as late as the sixth century A.D., St. Gregory the Great (Greg. M. Dial. II 29) was still referring to dolia containing oil.

The only detailed description of the process of oil making in which dolia were used is found in the writings of Cato (Cato r.r. 66,2). According to this author the first place where the oil still mixed with the lees (amurca) would flow from the press was the lacus, from there the olive oil was carefully drawn out with a shell in order to remove only the clear part, which then was poured into dolia.

As already mentioned the major problem which the ancients had to
face in using clay containers for holding olive oil was the porosity of their walls which would promote rotting as soon as the vessels were emptied. Therefore Columella (Colum. r.r. XII 52,14) recommended cleaning dolia of any remains of lees by a sophisticated treatment, described in full detail, as soon as they were emptied by the merchant.

**Olive oil by-product: amurca:**

One of the most important by-products in the production of olive oil was the amurca or lees. According to Cato (Cato r.r 10,4) an olive grove of 240 jugera (604,368 m² or 722,640 sq.yds.) needed at least as many as 10 dolia for amurca. Varro (Varro I 61) affirmed that a good farmer would keep the amurca in dolia as oil and wine, while Columella (Colum. XII 52,5) further specified that amurca coming from different types of olives had to be kept in different dolia. Besides the many uses of the amurca in agriculture, Cato (Cato r.r. 69,1.2) and Pliny (Plin. n.h. 15,33) both wrote that it was poured into brand new dolia during the process of steeping them.

**Other liquids: vinegar and brine:**

Only one passage has been found in the Latin literature mentioning a dolium containing vinegar, and only the kind of vinegar made from figs. Columella (Colum. r.r. XII 17,1), in fact, explained that figs could be used for making vinegar if they were put in dolia or amphorae and allowed to ferment there. The final product, however, was stored in different types of vessels treated with pitch. Columella (Colum. r.r. XII 6,1) is the only Latin author who also wrote about dolia being used for the preparation of hard brine or muria. According to the author, who described the entire process in detail, a dolium with a wide mouth was positioned in a farm house where it could get the most sun. As in the just mentioned case of making vinegar from figs, at the end of the process the brine was poured into other vessels.

**Solid food: wheat, fruit and vegetables:**

According to the literary evidence dolia were also used for preserving a wide variety of solid foods. Dolia frumentaria, or dolia for
the preservation of wheat, are mentioned by Cato (Cato r.r. 10, 4 and Cato r.r. 11, 2) in the lists of equipment needed in both wine and in olive-oil producing farms. It seems that they did not have to be of a special shape since, according to Julian (Julian Dig. L 16, 206), a dolium for wine could be also commonly used for holding wheat.

Many different types of fruit are also reported to have been preserved in dolia. For grapes (Cato r.r. 143, 3 and Diosc. 5, 4), Scantian (Cato r.r. 143, 3) or Quirinian (Plin. n.h. 15, 50) apples, sorb apples (Plin. n.h. 15, 62), or Tarantine pears (Plin. n.h. 15, 61, 62), the first step mentioned in the process of their preservation was to smear their stalks with pitch. Then, in the case of grapes for example, they could be directly dipped in a pitched dolium filled with must or boiled-down must, as explained by Pliny (Plin. n.h. 14, 17), or they could be put with some of their branches inside a dolium still partially containing wine but without touching the liquid (Plin. n.h. 15, 62). They could also simply rest over subsequent layers of barley bran (Colum. r.r. XII 44, 3), in which case the dolium didn't need to be pitched. A more elaborate method was to put them first into small clay containers, ollae (Colum. r.r. XII 45, 2, Plin. n.h. 14, 16 and Plin. n.h. 16, 55), ulules (Varro I 54, 2), or patulae (Colum. r.r. XII 44, 2), which were then sealed with pitch and put inside a dolium. When ollae or ulules were used, the dolium was filled up with grape husks, while for the patulae a small amount of boiled-down must was first poured into the bottom of the dolium and then the plates were laid on floors constructed with wooden cross-pieces. Obviously, in all cases, the dolium in the end was sealed with a lid and made airtight with plaster as mentioned by Pliny (Plin. n.h. 15, 62), or eventually with ashes, as specified by Columella (Colum. r.r. XII 44, 2).

Pliny (Plin. n.h. 15, 60), quoting Varro, also mentioned a method used for preserving pomegranates by which the fruit was kept in dolia filled with sand, while a more sophisticated method has been described by Columella (Colum. r.r. XII 46, 4), who said that dolia were first half filled with loose earth or river sand, and then the pedicles of the pomegranates were inserted in branches of elder which were fixed in the soil inside the dolia. The same method could also be used for
preserving quinces as described by Columella (Colum. r.r XII 47,1). Another fruit that could be preserved in dolia according to Palladius (Pallad. r.r. IV 10,33) was the fig. It seems that figs were first put into small pots which were left floating in dolia containing wine.

Finally, among vegetables, turnips and navew are the only two which have been mentioned as being preserved in dolia. According to Columella (Colum. r.r. XII 56,3), both vegetables could be just put into a pitched dolium and then covered with mustard and vinegar.

Meat and fish:

Only in one passage from the Latin literature is there mention of dolia being filled with fish. Manilius (Manil. astron. 5,679), in the early first century A.D., affirmed that dolia for wine could also be filled with it in the process of making garum or fish sauce.

According to Cato (Cato r.r. 162.1), dolia were used for making hams and ofellae, another kind of salted pork. In this process, described in full detail, the vases were filled with layers of salt and pork. However, as Cato clearly documented, at the end of the procedure the meat was hung in meat-houses and therefore it was not kept in dolia.

Live animals: dormice and snakes:

A very peculiar practice of Roman times was to keep dormice, which were considered a delicious meat, inside a special dolium, called glirarium, and let grow fat in the dark until they were ready to be eaten. Pliny (Plin. n.h. 8,224) mentioned this custom, while Varro (Varro r.r. III 15,2) reported more information when he also described the way in which these special dolia needed to be made by the figuli or potters. They had to have channels running along their sides and a hollow where walnuts and chestnuts could be placed. In the same passage he indicated that these dolia were kept inside the villa, while in another (Varro, r.r. III 12,2) he stated that he personally saw them in a hunting preserve as far away as Transalpine Gaul.

The only other live animals which have been reported to have been kept inside a dolium are snakes. Pliny (Plin. n.h. 28,30) reported a
dolium full of snakes into which a man was thrown to prove his magic
power against those reptiles.

Chemicals: white lead and verdigris:

Only Vitruvius mentioned the use of dolia as containers in which
inorganic chemical reactions took place. According to this author
(Vitr. VII 12.1), dolia at Rhodes (Greece) were filled with vinegar and
lumps of lead. The vases were then sealed in order that the reaction
could take place and the lead changed into white lead. In the same
passage he also mentioned that this practice could be used for
producing verdigris from copper plates.
CHAPTER III
DOLIA FROM ARCHAEOLOGICAL EXCAVATIONS

Preface:
There have been two major difficulties encountered in the search for information about dolia from archaeological publications. First, assuming that the term "dolium" only designates the vase which is unmistakably defined by the Latin literary evidence, the first serious obstacle in the consultation of excavation reports is the extensive misuse of this word.\textsuperscript{31} Not only in many cases have archaeologists used it referring to what are obviously Roman globular \textit{amphorae},\textsuperscript{32} but it has also become a common practice to call "dolium" a cinerary urn which never exceeds 60 cm (approx. 23 inches) in height, and actually belonged to the Iron Age. The second difficulty in the study of this type of pottery is that in land excavation reports dolia are generally only vaguely described. Due to the lack of interest in this vase, only in a few cases has its profile been published, while in most cases a mention of its stamp, a photograph, or a drawing of its location on the general plan of the site has been the only information recorded.

Despite these evident difficulties, the collected information about dolia found in archaeological excavations largely confirmed and further expanded the knowledge about this class of ceramics already found in the writings of the Latin authors. In fact, thanks to an analysis of their physical characteristics, it appears evident that they were of many different sizes and that in many cases the Romans knew their exact capacities, which were recorded by graffiti, carved after firing on their lips or shoulders. They were more or less globular in shape, with a thickened rim which formed a lip, while they all lacked handles. They could have a flat or rounded bottom, and some had a tringular or semicircular ridge running around the lowest part of their external wall. Very particularly shaped dolia have also been found, which
correspond exactly to the description of the *gliraria*, or the vases used by the Romans for fattening dormice.

Many dolia were sealed by one and sometimes even two lids made of clay, and they were also mended with lead strips, which were usually set with symmetrical lateral tenons along the superficial cracks formed during the process of drying and firing of the clay. In some cases remains of a layer of pitch have also been found still covering their inner walls, while many bore on their lips or shoulders stamps, printed in the soft, unfired clay, that referred to the *figlina* (pottery shop) in which they had been produced, and eventually also defined the name of the potter (slave, freedman or freeman) who manufactured them.

Furthermore, through the analysis of a distribution map of dolia recorded in land archaeological excavations, it became evident that they were used all over the Mediterranean areas of Western Europe, while the comparison of their different shapes proved that they not only showed significant regional variations, such as the presence of the ridge close to the bottom of the dolia from Gaul, but evolution in their forms as well.

Finally, the study of the different locations in which dolia have been excavated allowed the specification that they were mainly used in large numbers in *villae rusticae*, for the production and storage of food supply, in *horrea*, as selling and also temporary storage places, and on board Roman merchant ships, as transport containers, while in a smaller number they could also be found in *tabernae* and in rooms of private town-houses. Dolia have also been found in *termæ* and metal forges, most likely in both cases used as water reservoirs, as well as in theaters, most likely as sounding vases, in necropolises used as tombs, and in special water basins where they provided a perfect place for fish to hide and eventually lay their eggs.

2 Physical description of dolia:

Dimensions and capacities:

As did the literary evidence, the archaeological evidence also proved that the dimensions of dolia could vary widely. Table 1 (p.188-
190) in Appendix B, where all the reported dimensions of dolia have been collected, shows that they have been found ranging from 200 cm in height (approx. 6 ft. 6 inches) down to 75 cm (2 ft. 6 inches), with estimated capacities from as much as 1,820 liters (481.5 gallons or approx. 160 amphorae) to only 212 liters (56 gallons or approx. 8 amphorae), with an average capacity of 1,425 liters (376 gallons or 54 amphorae). It can be noticed that a considerable number of dolia with known dimensions exceeded by far the greatest capacity mentioned by any Latin writers, which was of only 50 amphorae (1,313 liters or 346.5 gallons).

Indirect evidence related to the dimensions of dolia has been found in the graffiti specifying their capacities, in many cases incised by the Romans on their lips or shoulders. Appendix C (p. 193-199) collects all the known graffiti and gives, when possible, their transcription in liters and gallons.

The interpretation of the most representative group of these graffiti, already discussed by many archaeologists, has not been a very difficult task, since in most cases, where the total volume of the vase could be sufficiently estimated, it was evident that the unit of measurement of the largest number carved in the fired clay could not be anything else but the amphora.

The discovery that the main number corresponded to amphorae allowed the further specification that the "S" that in many cases was also incised just after it referred to the fact that the dolium could contain an extra half of an amphora or a semis, while the number to the further right of the graffito most likely referred to sextarii or the forty-eighth fraction of one amphora.

In one case another small number has been also found incised before the total number of amphorae, and it has been suggested that it had nothing to do with the capacity of the dolium, but rather was an annotation used in numbering it. To this last type of graffiti used for group-numbering have also been associated all other numbers, usually never exceeding 20, which have been found alone as graffiti on dolia, and of which no known unit of measure could be found.

According to the graffiti the capacity of dolia varies between 97.5
amphorae (2,560 liters or approx. 677 gallons) and 14 amphorae (367 liters or approx. 97 gallons) with the average capacity of approximately 40 amphorae (1,055.6 liters or 278.5 gallons), which is lower than the one calculated from the known dimensions of dolia.

Two other units of measure are proved to have been used in graffiti specifying the capacity of dolia. Those are the urna, corresponding to 1/2 of an amphora, which has been identified in only 3 examples, and the modius, which was a typical unit of measure for solids corresponding to 1/3 of an amphora. Unfortunately, another unit of measure found in three cases and abbreviated by a pm could not be identified.

Description of the dolium:

The Roman dolium is one of the earthenware containers which falls under the category of the instrumentum domesticum, or the vases of domestic use, the forms of which were mostly reduced to their essentials in order to be as effective as possible for the purposes they served. In the case of the dolium this essentiality is strongly respected; in fact, the only ornaments that can be found on dolia are stamps defining their origin.

To start the description from its lip, which seems to be the most important feature for the identification of the different variations, it can be observed that the lip could be horizontal and completely flat at the top (Figure 6a, p.264) or sloping slightly downwards toward the outside (Figure 1, p.259). Its inner and outer edges could or could not be bevelled (Figure 2, p.260), and in many cases the outer edge of the lip formed a vertical fascia directly attached to the shoulder (Figure 2, p.260) or set above a convex (Figure 5, p.263) or concave return (Figure 7, p.265). In some cases the concave return was so pronounced that it has been called a very short neck (Figure 6c, p.264). In a few cases the outer edge has been found made of two ridges, semicircular in section (Figure 6b, p.264).

In all cases the shoulder curved out to the point of greatest diameter, which was reached between two-thirds and half of the total height.
The body below the shoulder contracted gradually, in some cases without noticeable curvature, to a flat bottom which was approximately of the same size as the mouth (Figure 5, p.263 and Figure 8, p.265), or one third of the maximum body diameter. In other cases, however, from a point approximately 20 cm (approx. 8 inches) above ground the vase tapered to a stumpfoot with flat bottom ⁴⁴ (Figure 2, p.260 and Figure 3, p.261), while in other cases the bottom was actually rounded ⁴⁵ (Figure 1, p.259).

In some cases a large ridge, triangular or semicircular in section, was noticed running around the lowest part of the vase, approximately 10 cm (approx. 4 inches) from its flat bottom (Figure 46, p.291 and Figure 48, p.292).

It can be mentioned that in confirmation of the literary evidence the dolium lacked any handle, and that in a few cases a very peculiar form has been found which corresponds to the description of the glirarium, as the one shown in Figure 8 (p.265), which was used by the Romans for fattening dormice and usually was a relatively small vase with holes along its wall; it had a clay channel on the inside, as well as special hollows communicating through larger holes and located at both sides of its wall. ⁴⁶

Lids, and lead reinforcements:

In many archaeological excavations lids belonging to dolia, and also made of clay, have been found. ⁴⁷ Generally they are of a round flat shape, with rounded edges, and they all have in the center a massive semicircular handle of rounded cross-section as the ones shown in Figure 10 (p.267) from Francolise ("Posto", CE, Campania), Figure 5 (p.263) from Boscoreale "Pisanella: V. De Prisco" (NA, Campania), Figure 11 (p.267) from the so-called "La Garoupe" shipwreck (Antibes, Var, France), and Figure 12 (p.268) from the shipwreck found off Diano Marina (IM, Liguria). ⁴⁸

Common on this type of flat lid are the shallow grooves drawn by the finger of the potter in the soft clay; these grooves may radiate from the handle, as in the lid found at Francolise ("Posto", CE, Campania), or wind on the upper surface as on the lids recovered from
the shipwrecks of "La Garoupe" (Antibes, Var, Provence-Côte d'Azur), "Ladispoli" (ROMA, Latium), "Ile Rousse" (Corse, France) and "Diano Marina" (IM, Liguria).

In at least two villae rusticae from the Vesuvian region, the so-called "Villa Regina" and the "Pisanella: V. De Prisco", both located in Boscoreale, over this first lid a second one has also been found. The latter had a concave circular shape and was laid over the first one by means of three vertical protrusions as shown in Figure 5 (p.263), as well as in Figure 40 (p.288). It is very likely that its Latin name was tectarium. In fact, Cato (Cato, r.r. 11,2), in cataloguing the implements needed in a wine-producing farm, mentioned both the *opercula doliorum et tectaria priya*. The fact that it has been found as a second lid on dolia partially buried in the ground in unroofed cellae vinariae would perfectly explain its etymology, since it seems that its use was to protect, like a roof (tectum), the sealed dolia from the agents of weather.

Finally it must be mentioned that at Sorrento (NA, Campania), a dolium has been found with a cover made of a simple flat round stone.

In many cases it has been reported that the dolia found had cracks mended in antiquity by the use of lead strips.\(^5\) As shown in Figure 13 (p.268) and Figure 34 (p.285) this type of reinforcement was made by a strip approximately one centimeter (0.4 inches) in section that was set along the crack and provided with lateral symmetrical tenons of a characteristic shape like a "double swallow-tail". The strips could be as long as the entire side of a dolium and could eventually form branches.

It is interesting to note that commonly the strips and the "double-swallow-tail" tenons were hammered and left furrowed, and that in some cases it has been reported that the strips were actually melted inside the cracks.\(^5\) In one case, the fragments of dolia from the "Ile Rousse" shipwreck (Ile Rousse, Corse, France), it has also been reported that they have been found on the inside wall of the dolia.\(^5\)

As has been clearly demonstrated,\(^5\) this type of lead strip and tenons was not used in order to mend dolia broken during their use, but rather only to reinforce them in the areas where only superficial
fissures had been formed by different tensions inside the clay during the process of drying and firing the vase. In fact, in all the fragments of dolia walls where the lead reinforcement could be seen in cross-section, it has never been reported that the lead and the cracks penetrated over one third of the total thickness of the wall.

Pitched dolia:

Thanks to rare conditions favorable to its preservation, in some dolia found under the ashes of Vesuvius as in some others recovered from the sea bed, 55 pitch has been found still covering their inner walls. In the case of the pitch found in a Roman dollium from the so-called "Punta Ala" shipwreck (Castiglione della Pescaia, GR, Tuscany), a pollen analysis of the fossil resin done by Mr. D. Aroba suggested that the botanical origin of the resin was the Pinus Pinaster and/or the Pinus Halepensis, restricting the area of origin of the resin to the coastal areas of the Central and Western Mediterranean region.

During the same analysis, the discovery of a relatively high percentage (2.9%) of pollen from the Vitis Vitifera (vine), together with the finding of grape seeds confirmed the literary evidence that pitched dolia were used for holding wine products, and in this particular case most likely wine.

Stamps:

Without doubt the most commonly reported features of dolia are their stamps impressed in the soft, unfired clay. In fact, an extensive collection of them has been published in many books and articles devoted to epigraphical studies; 56 however, the interest limited to the stamp itself has unfortunately prevented most of these publications from mentioning other important archaeological details on those dolia.

Appendix D shows all the stamps which could be collected and which are found both on dolia or on their lids.

The stamps on dolia are usually impressed on their lips but sometimes also on their shoulders. They are mainly rectangular, as shown in Figure 14 (p.269), but they have been found also in planta pedis, as shown in Figure 15 (p.270). In many cases they constitute a written
part with some ornaments around it, which normally are separate stamps.

In the following paragraphs stamps will be analyzed by groups according to the number of persons mentioned and their relative responsibilities in the work of clay. In fact, the study of the stamps in many cases allows us to distinguish the officinator, slave, freedman or freeman, who actually manufactured the dolium, the dominus who was the master of the slave and in some cases also the owner of the fígína, or pottery, and eventually the name of the fígína where those people were working.

The first group is the most simple to interpret and it shows first the trianomina (prenomen, nomen, cognomen) in the genitive, with the prenomen abbreviated, of the master and/or owner of the fígína followed by a simple name in the nominative and by SER(vus) FEC(it), S(ervus) F(ecit) or just FEC(it), clearly meaning that this second name is that of the slave-officinator who actually worked the clay. 57 One of the most explicit examples is the stamp: D(e) F(ígínae) C.CLUENTI/ AMPLIATI/ CORINTHUS S(ervus) F(ecit), which shows that the master C(aius) Cluentus Ampliatus of the slave Corinthus was also the owner of the fígína where his slave worked.

Two subgroups can be added to this first group according to the fact that the name of the master appears only as a bis nomen. In subgroup one, as in the stamp PETRONIAE GALLAE/ APOLLONIUS SER.FEC., the prenomen is not mentioned, while the nomen and cognomen of the master/owner are fully written. 58 In subgroup two, as in the stamp ST.MARCI/ TRIFERNA F., his prenomen is shown abbreviated, the nomen appears in full, and the cognomen is completely omitted. 59

The second group bears the name of two persons, one in the genitive, the other in the nominative followed by FEC(it) or F(ecit) as in the first group. The main difference, however, is the fact that the officinator is shown with his trianomina, meaning that he was a freeman (by birth or by manumission). 60 In this case no example of subgroups have been found.

The common characteristic of the last two groups is the fact that they indicate the name of only one person. The third group is the one which shows the trianomina, with only the prenomen abbreviated, in the
genitive, and therefore refers to the master and/or owner of the *figlia*. Only in one case, DE FIGLINIS/ D. LABERI SATURNINI, it is clear that D. Laberius Saturninus was actually the owner of the *figlia*, while in case of the stamp Q. VALERI CAONIS/ EX FIGLIN(is) STRABO(nias) the owner of the *figlia* seems to have been Strabo and therefore we can only speculate that Q. Valerius Caonius was a supervisor in the same *figlia*. Two subgroups can be added to this third group according to the fact that the name is indicated only by the *nomen* and the *cognomen* fully mentioned, subgroup one, or by the *prenomen* abbreviated and the *nomen* written in full which would be considered subgroup two.

The fourth group indicates only a *trianomina* in the nominative, with the *prenomen* abbreviated, and followed by FEC(it) or F(ecit). In this case the person mentioned in the stamp is the *officinatar* and the fact that he possesses the whole *trianomina* lets us easily deduce that he was a *libertus* or a freeman. The stamp C.CAERELLIIUS C.L./ MEGISTUS FECIT (Caius Caerellius, Caius Libertus, Megistus fecit), as an example, showed the typical full name of a Roman *libertus*. In this case also a subgroup can be formed collecting all the stamps where the *officinatar*, in the nominative, is indicated by its *prenomen* abbreviated and its *nomen* fully written.

Another interesting observation regarding the stamps found on dolia or their lids is the relation between their stamps and those found on other works of clay. In many cases the same stamps have been found on other ceramic products such as sarcophagi, bricks, mortaria, and arcae, as well as on dolia lids. The examples are numerous; many of them have been collected in Appendix D in the section reserved for the parallels of each stamp.

Finally we can mention the families of potters of which more than one dolium has been found carrying their stamps, and these are the Antonii (2 examples), the Appuleii (5 examples), the Calpetani (6 examples), the Cluenti (6 examples), the Corneli (8 examples), the Domitii (11 examples), the Flavii (2 examples), the Fulvii (7 examples), the Gavii (3 examples), the Iulii (2 examples), the Licini (4 examples), the Luccellii (4 examples), the Lurii (3 examples), the Marcii (7 exam-
Dolles, the Obini (2 examples), the Paccii (2 examples), the Petronii (8 examples), the Piranii (6 examples), the Pomponii (3 examples), the Rufenii (3 examples), the Rusti (3 examples), the Sabidi (3 examples), the Tossii (12 examples), and the Vibii (9 examples).

**Distribution and evolution of dolia:**

One of the goals sought through the search in archaeological reports was to define and analyze the different shapes of dolia in order to reach a definition of their various types and to understand their evolution of forms in the Roman world. However, due to the lack of publications in which they have been sufficiently described or drawn, only some general observations can be presented without a further search.

Primarily a map has been drawn without any distinction of types or chronology, which therefore only corresponds to the maximum diffusion of dolia in the Western Roman world (Figure 61 in pocket). Five major areas clearly appear in which dolia have been found in considerable numbers. Three of them are in Italy, in the Campanian region around Vesuvius, in part of Latium and Umbria, which correspond to the geographical basin of the Tiber river, and in a wide area in the Padana plain located south of the Po river. Another area is situated in France, stretching along its Mediterranean coast from the Italian border to the Rhône river and following it upstream as far as Lyon, while the last one is located in Spain, where a high concentration of dolia has been found in what at the present time are the Spanish provinces of Tarraconense, Barcelona and Lerida, which coincide with the southeastern part of the Roman Tarraconensis Province.

As regards the Italian territory, even before the conquest of the whole Peninsula by the Romans, dolia could be found at least in its southernmost areas. It has been reported, for example, that a dolium, or better said a pithos, since it was located in the Magna Grecia region, has been found embedded in the ground in a house dated before the 4th century B.C. at Locri (RC, Calabria), while in the same southern side of Italy at least four shipwrecks, all dating to the 5th century B.C., have also been found carrying those vases. One was exca-
vated off the coast of Brindisi (Savelletri, BR, Apulia), another off Campomarino (the so-called "Madonnina A", TR, Apulia), and the last two close to Siracuse, in Sicily, (the so-called "Stentinello" (SR) shipwreck and the "Relitto B del Porto Grande" (SR)). In the case of the "Savelletri" shipwreck the profile of a fragment of its dolia is known and is shown in Figure 6a (p.264).

Inside the Roman territory, from Republican times only a few dolia have been reported to have been found, the earliest recorded being the one from a well at Artena (ROMA, Latium) in which it had been thrown together with what have been recognized as sacred objects dated to the end of the 3rd or beginning of the 2nd century B.C. A villa rustica located in the Padana plain and dating to the 2nd century B.C. at Cognento di Modena (MO, Emilia Romagna) has also been recorded with dolia, while the Museo Provinciale Campano at Capua (CE, Campania) possesses 9 of these vases dated to the 2nd-1st century B.C.

More precisely dated is the dolium found in Phase I (120-80 B.C.) of the villa rustica excavated by M. A. Cotton at Francolise ("Posto", CE, Campania) of which a drawing has been published (Figure 1, p.259). To this type of vase, with triangular lip sloping toward the outside and rounded bottom, also belong the 10 dolia found at Pollena Trocchia (NA, Campania) and the one found in Rome in Via Cornelia (Rome suburbio) of which no precise date has been published. 69

With the advent of the Empire the total number of dolia recorded in the Italian territory really explodes. It can be said that the majority of them belong to this period.

The earliest known example might be the one found in the villa rustica built in the last decade of the 1st century B.C. at Russi (RA, Emilia Romagna), while for the 1st century A.D. the most precisely dated, besides those found in many villae rusticae around Vesuvius which were destroyed in A.D. 79 (Domicella [AV]; Boscorecase [NA]; Boscoreale [NA]; Gragnano [NA]; Ercolano [NA]; as well as Pompeii [NA]; Scafati [SA] and S. Sebastiano al Vesuvio [NA]), are those from the shipwrecks located off Antibes ("La Garoupe", Var, Alpes-Maritimes), and Diano Marina (IM, Liguria). The date of the first half of the 1st century A.D. for the first mentioned and the second half for the second
correspond to their termini ante quos.

In the cases of the dolia from the two shipwrecks, as well as the one from a villa rustica in Boscoreale "Pisanella: V. De Prisco" (NA, Campania) their profiles are known (Figure 2, p.260 through Figure 5, p. 263). Compared to the dolium of an earlier date found at Francolise, the most noticeable evolution in shape is the appearance of a vertical fascia on their lips. Furthermore, the doliola found on board the two shipwrecks can be easily recognized as belonging to an identical type with a flat part of the lip which further slopes toward the outside to a vertical fascia above a short return and the presence of a sort of stump-foot with flat bottom.

The same type of foot is also found on the bigger dolia from both shipwrecks, but their lips belong to two different types. In the case of the dolium from the Diano Marina shipwreck, the lip is similar to the one on the doliola, but the vertical fascia is larger, while in the case of the dolium from the so-called "La Garoupe" shipwreck, the same fascia is actually directly attached, therefore without any return, to the shoulder of the vase.

The dolia from the same century from the Pompeii region, as the one from the just mentioned villa located in Boscoreale (Pisanella: V. De Prisco) (Figure 5, p.263), as also the ones found in the other villa in Boscoreale ("Villa Regina", NA, Campania) (Figure 39, p.288), are slightly different mainly by the fact that the concave return below the fascia is more pronounced and they do not have a stump-foot.

To the same type as the huge dolia from the so-called "La Garoupe" shipwreck also belong the dolia from the other shipwreck found off Marseille ("Petit Congloué", Bouches-du-Rhône, Provence) (Figure 55, p.296), while those recovered from the sea in front of the port in Civitavecchia (ROMA) (Figure 53 and Figure 54, p.295) are very similar to the dolia found on the Diano marina shipwreck.

Dolia dated to the 1st century A.D. have also been found at Camerino ("Parrocchia di Periti, MC, Marche), and at Villasimius (CA, Sardinia), the last one dated by its stamp to the Flavian Age (A.D. 69–96), as well as the dolium excavated in Rome (suburbio, "Via A. Nelli"), which had the typical form of a glirarium (Figure 8, p.265) and
was dated to the middle of the same century.

Belonging to the 2nd century are two dolia found in Sardinia, one dated to the Trajanic Age (A.D. 98-117) (Nora, CA, Sardegna) by its stamp, and the other from Elmas (CA, Sardegna). To the first half of the same century are also dated those found in large numbers in Ostia, more precisely in the so-called "Magazzino dei doli" (Reg. III ins. XIV,3), which was built in A.D. 128-129, in the so-called "Magazzino annonario" (Reg. V ins. XI,5), which was instead built, according to the stamps on its masonry bricks, between A.D. 117 and 138, and the so-called "Horrea dei Mensores" (along the Tiber), also dated to the Hadrianic period (A.D. 117-138). As shown in Figure 42 (p.289), the dolia from Ostia belong to two different types, one with a large flat lip and the other with a lip partially flat and partially sloping toward the outside. Their common characteristic, however, is a pronounced return below the vertical fascia which in some cases looks almost like a neck\textsuperscript{71} (Figure 43, p.290).

To the type of dolia with flat top also belongs the one found in Rome on the "Monteverde"\textsuperscript{72} (suburbio), and the one found in the theater in Nora\textsuperscript{73} (CA, Sardinia), which have not been dated in their archaeological reports.

Regarding the 3rd century only one dolium has been found with a precise date, that being the one from the "Punta Ala" shipwreck (Castiglione della Pescaia), which is dated before the second quarter of the same century. Even if the cargo was mainly of African amphorae, an analysis of the clay of the dolium unmistakably proved its Italian origin. The most evident variation in this dolium (Figure 56, p.296) is the double ridge which replaced the vertical fascia of its lip.

This type can be correlated to the other fragments of dolia found under water in the area of the Cap Creus (Cadaqués, Costa Brava, Spain) of which a drawing is given in Figure 6b (p.264).

To this century, but without any available description, belong also the dolia used as tombs at Collazzone (PG, Umbria). A \textit{terminus ante quem} for the same century also has been found for the dolia excavated in Bolsena in the house of Labelius Gallus (VT, Latium).
Only a few dolia have been reported belonging to the last two centuries before the division of the Roman Empire and its subsequent end in the Western Mediterranean. For the 4th century they have been found at Gubbio (PG, Umbria), in small rooms of town houses, in a building at Castel Finardo (AN, Marche), in a villa rustica at Fiumana (FO, Emilia Romagna), and at S. Sebastiano del Tronto, all sites occupied from the 1st century A.D. and abandoned in the 4th century A.D., while for the 5th century A.D. only a villa rustica excavated at Castel Giubileo (ROMA) has been found, which had been occupied from the Late Republican period all the way to around A.D. 400-450, when it was destroyed by fire. The profile of a lip of a dolium from this last mentioned villa rustica is shown in Figure 6e (p.264). It has an extremely square section with a wide flat top attached to the vertical fascia by a sharp right angle.

Regarding French territory the information recorded is even less than in the case of Italy, but nevertheless it can be said that dolia were already known before the Roman conquest of the Gauls and that all which are described show the common characteristic of a triangular lip with flat top and a very peculiar small ridge, triangular or semicircular in section, located close to the flat bottom.

For example, the dolia found in the Gallic oppidum of Entrémont (Aix-en Provence, Bouches-du-Rhônes, Provence) which was destroyed in 125-124 B.C. by the Romans, as well as those found in the oppidum of Taradeau (Var, Provence) which was occupied until the Reign of Augustus, and the ones of Roquevaire (Alpes-Maritimes, Provence), all have been described as having a triangular lip and a ridge close to their bottoms.

Among other oppida destroyed by Romans in which dolia have been reported among other finds, but without further specification, are the ones in Bouc-Bel-Air (Bouches-du-Rhône, Provence), destroyed in 129 B.C., and the one at Elne (Pyrenée Orientale, Languedoc-Roussillon) which more likely was inhabited by Iberians rather than Gauls from the 2nd century B.C. to the Reign of Augustus.

Another oppidum in which dolia have been found, occupied from the 4th century B.C. until the 1st century A.D., is the one excavated at
Narbonne ("Montlaurès", Aude, Languedoc-Roussillon), as well as the one at Nages-et-Solorgues ("Oppidum de Castels", Gard, Languedoc-Roussillon), which was inhabited since 230 B.C. and was abandoned in A.D. 10.

Under the Roman occupation, as already mentioned, the dolia in France did not change their fundamental features which distinguished them from dolia ofItalic origin. In fact the 32 dolia found in the Musée des Docks at Marseille (Bouches-du-Rhône) as well as the 16 found in a similar building at Lyon (Rhône, Rhône-Alpes) (both buildings having been used from the Reign of Nero [A.D. 54–68] until the Reign of Adrian [A.D. 117–138] when they were abandoned), show the same flat top, triangular lip and small ridge close to the flat bottom as the earlier examples (Figure 45, p.291 and Figure 46, p.291).

Contemporary with these last mentioned dolia, but without published descriptions, are those found at Yzeure ("Saint Bonet", Allier, Auvergne), in the wall of a pottery kiln used between the 1st and the 2nd centuries A.D., and the one from the villa excavated at Haussy (Nord, France), which was occupied from the middle of the 1st century A.D. to the middle of the 2nd century. Of a later date are the dolia found at Feurs (Loire, Rhône-Alpes), which are dated to the 2nd century A.D., as well as the one excavated at Margny (Ardenne, Champagne-Ardenne) which was found together with Roman pottery dated to the end of the 2nd–beginning of the 3rd century A.D. A dolium with a sure terminus post quem is the one found in the Gallo-roman villa of Luc-en-Dios (Drome, Alpes Maritimes) which was built in the 2nd century A.D.

From the 3rd century can be mentioned the cellar containing dolia which has been excavated at Malataverne (Drome, Rhône-Alpes), built in the middle of the century and destroyed before its end, as well as the villa found at Peymeinade (Alpes maritimes, Provence-Côte d'Azur) which, with certitude, used dolia from the end of the 2nd century A.D. until the end of the 3rd century. More vague dating can be given to a dolium found in a termae complex at Aix-en-Dios (Drome, Rhône-Alpes) which functioned from the 1st to the 3rd century A.D., and the one found in the villa at Fox-Amphoux (Var, Provence), which instead was occupied from the 1st century B.C. until the 3rd A.D.

Finally, also belonging to the 4th century A.D., are the dolia
found in the *villa* excavated at Aubargne (Bouches-du-Rhône, Provence),
which was occupied from the 2nd to the 4th century A.D.

Regarding the Iberian peninsula it must be mentioned that an
impressive number of dolia have been reported, but only in very few
cases have further specifications been added to the simple mention of
their discoveries.

From Republican times a dolium was excavated in a kiln, dated to
the Late Republican Period, at Castellterçol (Barcelona, Cataluña),
while two other kilns containing wasters of dolia, one at Caldas de
Monbruc (Barcelona, Cataluña) and the other at San Martín Sarroca
(Barcelona, Cataluña) have extended their production from the 1st
century A.D. to the 2nd and the 3rd centuries respectively.

Other dolia from precisely dated sites are those found in the *villa
rustica* in Tiana (Sentromà, Barcelona, Cataluña), which substituted
underground silos around A.D. 100–130 and were destroyed together with
the *villa* in A.D. 150–170. From the photographs of the excavation
(Duran 1970, Lamina II) it can be seen that they had a large flat top
and a small neck similar to contemporaneous dolia found in Ostia (La-
tium).

To the 3rd century A.D. belongs the dolium found at Vila Nova de
Pozoñã ("Numao", Norte Interior, Portugal), while a date *post quem* has
been confirmed for some dolia found in a *villa rustica* rebuilt at the
end of the 3rd - beginning of the 4th century A.D., just after the
Alemán Invasion, and located at Pachs ("Rectoría", Barcelona, Cata-
luña). A dolium found at Pollensa (Mallorca, Baleares) is also dated to
the 3rd or eventually the 4th century A.D.

Finally, regarding the 4th century, a *terminus ante quem* was found
for 3 *villae rusticae*, all occupied from the 1st century A.D., which
were located respectively at Arenys-de-Mar (Barcelona, Cataluña), at
Villarrubia (Corduba, Andaluçia) and at Vilafranca de Paredes (Barcelo-
na, Cataluña), while the 5th century was the date of the destruction of
a *villa rustica* occupied from the 2nd century A.D. located at Aytera
("Els Vilans", Lerida, Cataluña).
3 Locations and uses of dolia

Dolia in the villa rustica, general:

All over the Western Mediterranean region, partea rusticae, or industrial areas of Roman villae, have been excavated in which dolia or fragments of them have been found. The best preserved examples are the villae rusticae located in the Campanian region, which were destroyed by the Vesuvian eruption of A.D. 79. In fact, thanks to the sudden suppression of any human activity and the strong conservation properties of the ashes of the volcano, in many cases the remains of the contents of the dolia could still be found during their excavation almost 1,900 years after the fatal eruption.

The information which could be collected from these villae, integrated with that from the other villae of the Roman world, allow the clear specification that dolia were commonly used in large quantities in cellae vinariae (wine-cellars), in a smaller number also in the cellae oleariae (oil cellars), and in a few other elements in many other locations of Roman villae, as under a roofed passage, under the portico of an internal court, in a room, or in the wine as well as in the oil pressing-rooms.74

The analysis of the size of the villae and the total volume of food supplies which could be stored in their dolia allow their division into two basically different types: small villae which were mainly oriented toward production for personal consumption and which therefore served only the owner of the property, and the much larger villae which instead were definitely exporting their production and therefore were part of a larger system of exploitation of the territory (latifundium) and had also somehow to be related to a commercial organization. A very good example of this last group is the villa rustica found at Villarrubia (Corduba, Andalucia) in Spain, which had a small harbor on the river Guadalquivir, not too far from a wide area covered with fragments of dolia. In this case there is no doubt about a relation between the villa and a far-reaching commerce.
Dolia in the cella vinaria:

In many villae rusticae an unroofed rectangular court has been found containing a large number of dolia defossa.

The location of this court in the west or northwest side of the house, the presence of openings pierced in the walls in order to increase the circulation of air, and in many cases the presence of a press (torcular) for wine in the same building have been considered sufficient information to recognize it as the cella vinaria mentioned in the Latin literature and therefore to define its dolia as dolia vinaria. A confirmation of this belief came from the villa rustica "La Pisanella: V. De Prisco" excavated in Boscoreale (NA, Campania), where most of the dolia defossa located in the cella vinaria were found to be pitched inside, some still containing at their bottoms remains of wine or wine dregs.

The disposition of the dolia defossa in the cellae vinariae could vary widely from one villa to another. In fact they could be simply arranged in parallel lines close to each other as has been found in a small villa rustica excavated not long ago in Boscoreale ("Villa Regina", NA, Campania) (Figure 37, p.287), or they were set in double lines, of four dolia each, separated by a corridor, as has been found in the just mentioned and extremely well preserved villa "Pisanella: Vincenzo de Prisco" (Boscoreale, NA, Campania) (Figure 16, p.271) or in double lines of five dolia each, as in the partially excavated cella of the villa "Contrada Messigno" at Gragnano (NA, Campania) (Figure 18, p.273). They could also be set in a long single line against one or more walls of the cella as has been found in the two just mentioned villae and in the less well preserved "Villa di Contrada Caritâ" in Gragnano (NA, Campania) (Figure 17, p.272). Eventually a central passage was also left perpendicular to the double-lines in order to facilitate access to the vessels, as has been recognized in the villa "Pisanella: Vincenzo de Prisco."

The total number of dolia defossa contained in a cella vinaria, which certainly was related to the extension of the vineyard, and therefore of the type of estate, could vary between 18, as found in the relatively small "Villa Regina" in Boscoreale (NA, Campania), and 72 as
found in the villa "Pisanella: V. De Prisco" (Boscoreale, Campania). Another example of a large estate has been found also as far as Spain at Sabadell "La Salud" (Barcelona, Cataloña)77 (Figure 21, p.276), where the cella contained 68 dolia. If we assume that the average volume of a dolium was 1,100 liters (291 gallons), an approximate calculation suggests that the small cella vinaria found in Boscoreale ("Villa Regina") could collect around 20,000 liters (approx. 5,300 gallons) of wine, the one found in Spain 75,000 liters (19,850 gallons), while the largest one, excavated in Boscoreale ("Pisanella: V. De prisco"), could reach a total capacity of well over 79,000 liters (almost 21,000 gallons). It is clear that in both cases of the villae found in Spain ("La Salud") and in Boscoreale ("Pisanella: V. De Prisco") the production of wine was not limited to personal consumption but rather was strongly oriented toward trade.

An interesting observation about the dolia found in cellae vinariae are the two different techniques used to embed the dolia. In some cases, as in the "Villa Regina" in Boscoreale (Figure 37, p.287), the ancient proprietor excavated the original rough soil in order to set the dolia deep in the ground, but in many other cases, as in the villa "Pisanella: V. De Prisco" and in the one excavated at S.Sebastiano al Vesuvio (NA, Campania) (Figure 22, p.277 and Figure 23, p.277) the dolia were just set on the ground and then the spaces left between them filled with earth, resulting in the ground of the cella being at a higher level than that of the surrounding rooms.

Another detail found in the villa rustica "La Pisanella: V. De Prisco" (NA, Campania) worth mentioning is its very sophisticated but effective system for transferring the must from the pressing-room (torcularium) to the fermenting vessels in the cella vinaria. In fact if in other villae rusticae, like the one excavated in S.Sebastiano al Vesuvio (NA, Campania), thanks to the natural slope of the mountain, the floor of the torcularium was located as much as 3 meters (9.8 feet) higher than the nearby floor of the cella vinaria, which made it easy to let the must run into its dolia defossa, in the villa rustica "La Pisanella: V. De Prisco" the proprietor found an ingenious solution to the problems that the floor of the torcularium was at a lower level
than the mouth of the dolia in the *cella vinaria*, and that the two areas were separated by a corridor.

Over the *lacus* (a shallow rectangular cistern, where the pressed grape-juice collected because of the artificial slope of the floor of the *torcularium*), a niche was opened in the wall which contained a clay vase. At the bottom of this vase a short pipe ran through the wall and ended as a bronze lion's head in the nearby corridor. In the opposite wall of the same corridor, at a slightly lower level than the first lion's head, a small rectangular window was opened, which led to one corner of the *cella vinaria*. At a further lower level and all along a wall contiguous to the one with the window, a channel of masonry, protected by a narrow roof, ran about three feet above the ground of the *cella*. In relation to every line of dolia *defossa* another short pipe, ending once more in a lion's head, emerged from the bottom of the channel. In order to let the system work, during the vintage season, the must had only to be raised with a bucket from the *lacus* to the niche. Then, probably by the simple use of a temporary wooden gutter or lead pipe, it easily ran through the corridor and through the window to the masonry channel, from which, by another system of wooden gutters or lead pipes of different lengths, it could safely reach the single dolia.

**Dolia in the *cella olearia***:

The parameters which have been used in order to define a *cella olearia* are not so conclusive as the ones used in the case of a *cella vinaria*. Usually the fact that the dolia were not embedded in the ground, that they were located under a roof, in a warm side of the house, and eventually that a *torcularium* for oil could be found in the house, has allowed many archaeologists to believe that those dolia were *dolia olearia* and to define the area where they were located as *cella olearia*. In many cases, however, the parameters have not been so clear as wished and doubts have been raised regarding the correct interpretation of the archaeological finds.

In the *villa rustica* "Pisanella: V. De Prisco" (Boscoreale, NA, Campania), for example, 5 dolia have been found standing against the
wall of a roofed passageway located in the southern part of the house and very close to the oil pressing room. Thus the area containing them has been rightly defined as *cella olearia*, but in the same villa 6 other dolia have also been found standing against a wall in the *cella vinaria*, not embedded in the ground and protected from the rain only by a balcony of the second floor, yet they still contained remains of olive oil or oil dregs (*amurca*). In this case it is difficult to identify this portion of the *cella vinaria* as another *cella olearia*. Maybe the interpretation closest to reality is the one proposed by Pasqui, he suggested that the 5 dolia inside the house were used for the clearest olive oil from the first pressing (*prima unta preli*), and therefore the area where they were located should be called *cella olearia*, while the ones located in the *cella vinaria* probably contained only oil of a lower quality, possibly of the second pressing, which was not completely separated from the oil-dregs, or even were only filled with oil-dregs (*amurca*) in which case they could be called *dolia amurcaria*.

Finally, in conclusion to this section on dolia found in *cellae oleariae*, it must be stressed that there has not yet been found a Roman villa with such an impressive number of dolia which with certitude contained olive oil, as to confirm their use in a large-scale production of this commodity.

**Dolia in other locations of the villa rustica:**

Dolia have also been found in other rooms of *villae rusticae* besides *cellae*, one of the most interesting being the pressing room (*torcularium*) for wine. The common characteristics of the dolia found in it are their complete burial in the floor, so that their lips were level with the ground, and their unvarying location in front of the *torcular* (press) with the floor sloping at an angle toward them, in order to collect the juice flowing from the press.

In the *villa rustica* "Pisanella: V. De Prisco", where the large *torcularium* for wine contained 2 presses, as shown in Figure 16 (p.271), 3 dolia of this type have been found. Two were located in front of the first press, and only one was embedded in front of the
second press, where a shallow cistern (lacus) took the place of the second dolium. Curiously, this cistern could also be filled from the first press by means of a lead pipe which was placed under the floor.

The other archaeological excavations in which dolia have been found embedded up to their lips in torcularia are, with the exception of the "Villa dei Misteri" in Pompei (NA, Campania), all located in Boscoreale (NA, Campania) and are the villae rusticæ "M. Livius Marcellus", "Pisanella: N. Popidius Florus" (Figure 20, p.275) and "Contrada Giuliana: Ippolito Zurlo". The dolium found in the torcularium of the villa "Pisanella: N. Popidius Florus" (Boscoreale, NA) was located relatively far from the torcular, but nevertheless it could be filled with the pressed juices through a lead pipe which ran underground from the end of the sloping floor to the dolium itself.

This type of embedded dolium has also been found in torcularia for oil, where their use is better understood. In fact we know from the Latin authors that the oil had to be separated from the lees as soon as it flowed from the press, and it seems that these dolia could be used very efficiently for that purpose. Unfortunately, as in the case of the dolia in cellae oleariae, few examples are known of dolia found in torcularia for oil, and one of them is in the villa "Pisanella: V. De Prisco" (Boscoreale, NA) \(^{82}\) (Figure 16, p.271).

Dolia have also been found in other sections of Roman villas but because of their small number they all seem to have been used only for the internal consumption of the house.

For example they have been found in small numbers under porticos, as in Scafati, "Contrada Crapolla" (Napoli, Campania), where 4 dolia were found standing in a row under the eastern portico close to the praefurnium, or in the villa of Laberius Gallus excavated in Bolsena (VT, Latium), in which 2 dolia stood in the southern wall of the peristylium.

In one case, in the villa rusticæ of P. Popidius Florus excavated in Boscoreale ("Pisanella", NA), 3 free-standing dolia were found in the same room where a mola manuaria (mortar for grinding grain) was found, leading to the deduction that they were used as dolia frumentaria (Figure 20, p.275).
Finally it can be mentioned that 2 dolia only slightly embedded in the ground have also been found in the *cella vinaria* of the *villa rustica* "La Pisanella: V. De Prisco", which certainly were not used for holding wine since one still contained remains of wheat, and the other of millet.

**Dolia in horrea, general:**

Dolia have also been found in other large unroofed constructions, similar to *cellae*, located inside the city walls of Roman towns and therefore recognized as *horrea*, or the typical Roman commercial storage-buildings. The best preserved examples have been found in the excavations of Ostia (ROMA, Latium), Rome, Marseille (Bouche-du Rhône, Provence-Côte d'Azur, France) and Lyon (Rhône, France). Among them, two types have been distinguished: those located in the highly populated parts of the towns, which were huge storage places that also served as selling centers, and those that were parts of the port buildings and therefore more likely were used only for temporary storage.

**Dolia in town horrea:**

Examples of this type have been excavated in Ostia in three locations, and are still visible to the present day. The smallest *horreum* is the so-called "Caseggiato dei dolii" (Reg. I ins. IV 5), which was built during the Severian period (A.D. 193-235) and is located immediately below the modern Museum. It still contains 35 dolia embedded in the ground up to their shoulders (Figure 41, p.290). Another construction of approximately the same size is the so-called "Magazzino dei dolii" (Reg. III ins. XIV 3), which was built around A.D. 128-129, and was located next to the house of Annius. Today it contains only 21 dolia, embedded in the ground up to their shoulders, but it clearly had enough space to accommodate at least 36 of them. By far the most impressive construction containing dolia, which was found in Ostia, is the so-called "Magazzino annonario" (Reg. V ins. XI 5), which dates to the Hadrianic period (A.D. 117-138) and is located south of the *Decumanus Maximus* beside the "Horrea dell'Artemide". Inside its open-sky court it still contains over one-hundred dolia, most of them fragmentary, but if
we fill all the evident gaps on the excavation plan, the total number would reach more than 126 (Figure 24, p. 278). In Rome, besides the *horrea* along the Tiber which most likely belong to the second type, i.e. the harbor *horrea*, only one *horreum* has been reported to have been excavated containing dolia. It was located in the "Orti Massimi" (Reg. V) on the Esquilino hill and included inside its walls at least 32 dolia.

As in case of those found in the *cellae vinariae*, the dolia *defossa* in *town-horrea* have been found embedded in the ground in two different ways. In the so-called "Caseggiato dei dolii," for example, it can be clearly seen that the rough ground has been dug up in order to insert dolia, while in the "Magazzino dei dolii" soil has been added in order to raise the floor to the level of the shoulders of the dolia.

Sizes of *town-horrea* could vary widely, and so did their total capacities. The total volume of the dolia from the *horreum* close to the Museum, the so-called "Caseggiato dei dolii", can be easily estimated if we take into consideration the graffiti incised on their lips specifying their capacities. In fact they ranged from a minimum of 28 1/2 *amphorae* (748 liters or 198 gallons) to a maximum of 47 *amphorae* (1,234 liters or 326 gallons), with the average capacity of about 40 *amphorae* (1,050 liters or 278 gallons). The total capacity of this *horreum* can therefore be estimated at 1,400 *amphorae* or approximately 36,800 liters (9,700 gallons). If we further assume that the average size of the dolia located in the other *horrea* was about the same, we can calculate that the total capacity of the "Magazzino dei dolii" was of 1,440 *amphorae* or approximately 37,800 liters (just over 10,000 gallons), while the "Magazzino annonario" would have held an incredible total volume of 5,040 *amphorae* which is equivalent to 132,350 liters (35,000 gallons). In comparison the *horreum* in Rome would have been considered among the small ones with its total capacity of only 1,280 *amphorae* or 33,610 liters (8,900 gallons).

**Dolia in harbor horrea:**

The second type of *horrea* which has been found containing dolia is the one which was part of the port buildings.
In Ostia, in a *cella* which was excavated in the late eighteenth century along the Tiber bank, at least 22 dolia were found embedded in an area which corresponded approximately to one fourth of the total space available in the court. Its walls had been built during the Hadrianic period (A.D. 117-138) and partially reconstructed at least three times after the first half of the same century.

In Rome (Reg. XIV "Alla Farnesina") a building also built in the 2nd century A.D. was excavated on the right bank of the Tiber near the Aurelian walls (A.D. 270-275). Along a portico of this wide-open space 5 unbroken dolia together with fragments of many others were found over a black-and-white mosaic pavement. The total number of dolia contained in this court is unknown, but according by its size (100m X 10m) and the number of fragments it seems that it could have held at least the same number as the so-called "Magazzino annonario" in Ostia, i.e. more than 100 vases.

In Marseille (Bouches-du-Rhône, Provence-Côte d'Azur) at least 32 dolia embedded up to their shoulders were found in a roofed building, which was located in Roman times approximately 15 meters (15 feet) from the shore. It was built during the Reign of Nero (A.D. 54-68) and destroyed by fire in the first half of the 4th century. One of its walls had openings to increase air circulation.

Finally, at Lyon (Rhône, Rhône-Alpes) a building very similar to the one found in Marseille was excavated; containing at least 16 embedded dolia. It was located on the bank of the Saône river, and, most likely, this construction had also been built under the reign of Nero, but with certainty it was abandoned under Hadrian (A.D. 117-138) because of a flood and a subsequent fire.

The total capacity of these port-building *horrea* can easily be estimated. It is quite considerable. In fact, assuming that the average capacity of the dolia found in the *horrea* along the Tiber bank in Ostia was of 33 *amphorae* (866 liters or 230 gallons), as can be deduced from the graffiti incised on their lips, and that this warehouse held 66 dolia, its total capacity can be calculated to have been about 2,178 *amphorae* or 57,200 liters (approx. 15,130 gallons). In the case of the *horrea* in Marseille the total capacity would have been more than
52,000 liters (1,980 amphorae or 13,750 gallons) as can be calculated from the known average dimensions of its dolia, while the port building in Lyon would have reached a possible storage volume of over 23,000 liters (875 amphorae or approx. 6,084 gallons).

**Dolia on merchant ships:**

One of the most striking evidences of the use of dolia in the commerce of food supplies is their presence on board Roman merchant ships. Six shipwrecks in which a considerable number of dolia have been found have been identified: the so-called "Petit Congloué" (Marseille, Bouches-du-Rhône, Provence, France), dated to the 1st century A.D. and with a total number of 16 dolia, the so-called "Diano Marina" (IM, Liguria, Italy), with only 15 dolia and 2 doliola, the so-called "La-dispoli" (ROMA, Latium), the remains of which were very scattered and fragmentary, but nevertheless allowed the recognition at least 7 dolia belonging to the Roman ship, and the so-called "Ile Rousse" (Corse, France) and the so-called "Grand Ribaud D" (Porquerolles, Var, Provence-Côte d'Azur), both of which were extremely fragmentary and therefore their total number of dolia was not recorded. Nevertheless, by the size of the sites it seems that the last two Roman ships were not inferior in their dimensions and supposed quantity of dolia to the ship sunk off Ladispoli (ROMA, Latium). Finally there is the shipwreck of the so-called "La Garoupe" (Antibes, Var, Provence-Côte d'Azur), which was also very scattered and showed evidence of only more than 4 dolia and some doliola. Besides these shipwrecks, all dating to the first century A.D., two other shipwrecks have been partially excavated on which only a few dolia were found: these are the so-called "Cap Bénat" (Le Lavandou, Var, Provence-Côte d'Azur, France) dated to the 1st century B.C. and carrying at least 2 dolia together with amphorae Dressel 1/C, and the so-called "Punta Ala" (Castiglione della Pescaia, GR, Tuscany), of which only the fore part of the ancient ship was found, in which at least 2 fragmentary dolia were located. The ship dates to the 3rd century A.D..

Also belonging to Roman time are the dolia and amphorae found on
underwater sites which, due to the minimal information recorded in their publications, are impossible to date or to be confirmed as parts of sunken ships. These are located off Figuera da Foz (Lusitania, Beira Litoral, Portugal), off Cadaqués (Costa Brava, Spain), and off the Giamnutri island (GR, Tuscany, Italy).

Among all these finds only the dolia from the "Diano Marina" and the "Petit Congloué" shipwrecks, thanks to their relatively deep underwater locations, were sufficiently protected from disturbances, both physical and human, to allow a detailed study of their positions on board Roman merchant ships.

In fact the dolia from the "Diano Marina" shipwreck were found to be basically of two different shapes which corresponded to two different positions on board the ship, as can be easily recognized in Figure 29 (p.282). Four long, almost cylindrical dolia were located in a line along the keel of the ship, while ten shorter, almost rounded dolia were divided into two lines and laid at the sides of the central dolia. This type of disposition seems to be directly related to the structure of the ship and most likely implied that the 14 labra of the dolia were all lying at an even level.

In the "Petit Congloué" shipwreck the dolia are unfortunately all silted up to their shoulder and it is still impossible to distinguish their different shapes; however, their disposition clearly shows the same pattern of three lines parallel to the keel as in the "Diano Marina" shipwreck and allows us further to specify that the vases in each line were actually scaled compared to the ones in the contiguous line.

In the case of the shipwreck found off the coast of Ladispoli, the relative position of the dolia on the merchant ship could not be defined any more, but from the recovered remains it appeared that they were also of two different shapes, round and cylindrical (Figure 57, p.297), while the evidence reported in the description of the "La Garoupe", which also distinguished two types of dolia, unfortunately only differentiated between dolia and doliola.

It also can be mentioned that even the sporadic recovery of single dolia from the sea without precise provenances basically show two
different shapes: cylindrical or rounded (see Figure 53 and Figure 54, p.295).

Regarding the total capacity of the dolia on a Roman merchant ship, only in case of the "Diano Marina" shipwreck is it possible to reach an estimated value. In fact the capacity of two dolia raised from the sea bed, one of each type, has been calculated as approximately 1,200 liters (317 gallons) or 45.5 amphorae for the cylindrical and 3,100 liters (820 gallons) or 118 amphorae for the more rounded. If we assume that all its four central cylindrical dolia were of approximately the same size, as can be estimated by looking at the general plan of the excavation, the total capacity for the central cylindrical dolia would have been 4,800 liters (approx. 1,270 gallons), while with the same assumption for the more rounded dolia, their capacity would have reached 31,000 liters (approx. 8,200 gallons), giving a total capacity of the dolia on board as 35,800 liters (1,363 amphorae or approx. 9,500 gallons).

Among the details that have been found worth mentioning, the most striking is the one related to the stamps which have been found on the shoulders of some of the dolia. Fragments of two different dolia have been raised from the shipwreck of "La Garoupe" (Var), one bearing the stamp C.PIRANUS/GERDO FEC(it) and the other C.PIRANUS/SOTERICUS together with C.PIRANUS FELIX FEC(it). On another dolium, but this time from the "Petit Congloué" (Bouches-du-Rhônes) shipwreck, the same stamp C.PIRANUS/FELIX FEC(it) was also found but together with another mark, C.PIRANUS/PHILOMUSUS F(ecit). The latter, C.PIRANUS/PHILOMUSUS F(ecit), appeared on a stamp found on the shoulder of one of the dolia from the "Diano Marina" (Liguria) shipwreck, which was also stamped with C.PIRANUS/PRIMUS FE(ecit). Incredible to say, the stamp C.PIRANUS/PRIMUS F(ecit) was also found on the shoulder of a fragment of a dolium raised from the shipwreck of "Ile Rousse" (Corse), this time together with another potter's name L.LICINIUS/FORTUNAT(us) F(ecit). It seems as if one at a time, starting with Caious Piranus Felix, a new potter of the same family worked for a while with his master and then took his place and worked with a new apprentice until the intervention of Lucius Licinius Fortunatus. If this assumption is correct, it could be very
important in establishing a precise relative chronology of those dolia.

Beyond any speculation, it is certain that dolia of four out of six shipwrecks found in the Western Mediterranean and dated to the first century A.D. have been apparently made by the same family of potters, the Pirani, who seem to have specialized in this type of huge clay container for the overseas transport of goods, and of whom, unfortunately, no other information can be found in Latin epigraphy.

Further information about the construction of those dolia comes from the mineral-petrographical analysis of their clays that was performed by Dr. T. Mannoni on the fragments of dolia from the "Ladispoli", "Petit Congloue", and "Diano Marina" shipwrecks. The results showed clearly that they had been fabricated with clay from the volcanic region of Tyrrenian Italy.

Dolia in tabernae town-houses, thermae, forges, necropolises, theaters, and water basins:

Dolia have also been found in many Roman tabernae facing the streets of Roman towns like Pompeii, Herculaneum and Ostia, as well as in rooms of town-houses as in Gubbio (PG, Umbria), and, in single specimens, in Roman thermae, as in France at Aix-en-Dios (Drome, Rhône-Alpes) or in Orvieto (TR, Umbria), as well as in buildings which by the quantity of metal waste have been recognized as metal forges. One example of the last mentioned building has been excavated at Nice-Cimiez (Alpes Maritimes, Provence-Côte d'Azur). In both thermae and forges it seems likely that they were used as water reservoirs.

In Alba (CN, Piemonte), Pollenzo (CN, Piemonte), Collazzone (PG, Umbria), and Ameria (TR, Umbria), dolia have been found in Roman necropolises used as tombs with poor finds, while in Nora (CA, Sardinia) they have been found in a Roman theater where they are recognized as the sounding vases mentioned by the literary evidence.

Finally, in Rome suburbio "Monteverde" dolia were found set in the vertical walls of a water basin (see Figure 28, p.281), where most likely were used as hiding places for the fishes kept in the basin.
CHAPTER IV
CONCLUSIONS

Physical description:

The physical analysis made in the previous chapters has proven that dolia used on board Roman merchant ships were not substantially different from those found on land and used for many different purposes. More specifically, they showed the same types of lead repairs, and in some cases remains of pitch have been found still covering parts of their inner walls, as it also has been found in the *dolia vinaria* found under Vesuvian ashes in the Campanian region.

*Opercula*, or first lids of a rounded shape with central semicircular handles, were also of the same shape as those found covering the dolia on land, but no *tectaria* or second lids of concave shape have been reported from Roman shipwrecks.

Furthermore, the origin of at least one of the dolia from each of five shipwrecks ("Ladispoli", "Ile Rousse", "La Garoupe", "Diano Marina", "Le Petit Congloué"), all dated to the 1st century A.D., has been determined by a mineral-petrological analysis to have been manufactured in the volcanic region of Central Italy, i.e. in an area which includes Tuscany, Latium and Campania. The fact that they also bore stamps of potters from the same family, the Pirani, strongly suggested that they actually came from the same *figlina*, which evidently specialized in the construction of these huge containers related to overseas trade.

Use on board Roman merchant ships:

It seems that dolia were made in a shape that allowed them to fit perfectly inside a ship in order to leave minimal empty space. The central row was composed of the highest cylindrical dolia, while the two other lines, laid on both sides of the central one, were composed of shorter and more rounded vases. Unfortunately, this theoretical
reconstruction of their disposition on board Roman ships still lacks evidence of where and how space was left between all of them in order to accommodate the central mast of the ship.

In two cases ("Diano Marina" and "Le Petit Congloué" shipwrecks) it could also be unmistakably proven that fore and aft of the area containing the dolia, amphorae filled the spaces left on the merchant ship, which most likely corresponded to its bow and stern.

The very tight disposition of the dolia has led to the deduction that these containers were never removed from their places on board ship and that when they carried wine, it had to be poured in and out at the ports-of-call. This speculation was further supported by the fact that all the dolia found on Roman port buildings were embedded in the ground, and therefore were also irremovable.

**History of their use on board merchant ships:**

A brief and fragmentary history of the use of dolia or similar clay containers on board ships in the Western Mediterranean should start with the evidence of their use in the 5th century B.C., long before the Romans expanded to form an Empire. In fact four Greek merchant ships, all dated to the same century, have been found carrying fragments of pithoi, the Greek equivalent of the Roman dolia. They all sank in the Magna Gracia region, and all actually carried cargoes of Corinthian and Corecyrian amphorae, which indicates that they were coming from the Eastern Mediterranean region ("La Madonnina A", Campomarino, Taranto, Puglia; "Stentinello", Siracusa, Sicily; and the "Relitto B del Porto Grande", Siracusa, Sicily).

Until the 1st century B.C., and more specifically with the discovery of the so-called "Cap Bénat" (Le Lavandou, Var, Provence-Côte d'Azur, France) shipwreck, there is no other evidence of the use of dolia for overseas voyages. This ship was carrying, together with a cargo of amphorae Dressel 1/C, at least 2 dolia, which, by their form and the analysis of their clay, have been recognized as having been manufactured somewhere in the southern region of France.

It is only in the 1st century A.D. that there is an explosion in the use of dolia in great quantities on board Roman merchant ships.
Three of the analyzed shipwrecks ("La Garoupe", "Ladispoli", "Grand Ribaud D"), carrying amphorae Dressel 2/4 of Italic origin (defined by clay analysis), were dated to the early 1st century A.D., when historically the Italian wines were still exported in great quantities to the provinces, while the three other shipwrecks ("Diano Marina", "Le Petit Congloué", and "L'Ile Rousse"), which were carrying amphorae Dressel 2/4 of a Tarraconensis origin, were instead dated to the second half of the same century, when the provinces, Spain for example, started to export their goods toward Rome and central Italy. Only in one of these last mentioned shipwrecks, the so-called "Le Petit Congloué", did the finds among the cargo of Gallic amphorae allow us to deduce the existence of a triangular commerce.

In the 3rd century, a ship sunk in the harbor of Punta Ala (GR, Tuscany) was still carrying at least two dolia as containers for its cargo.

The latest dolia found on board ships are from the so-called "Agay" and "Bataiguer" shipwrecks which have been dated to the 9th-10th century A.D. In both shipwrecks, however, due to the impressive quantity of other, unused coarse pottery, it has been suggested that they were most likely part of a cargo of brand new ceramics, and were not, therefore, permanent fixtures on the ships.

**Contents of dolia on board merchant ships:**

The question of the contents of these dolia on board Roman merchant ships still awaits a definitive answer, but the evidence strongly suggests that at least the dolia found in the six shipwrecks dated to the 1st century A.D. and the one of the 3rd century A.D. ("Punta Ala") were carrying wine. In fact at least in four, the "Ile Rousse", the "Diano Marina", the "Ladispoli", and the "Punta Ala" shipwrecks, it has been reported that remains of a layer of pitch has been found still covering the inner-wall of their dolia, which, according to the Latin authors, was used mainly in case they were holding wine or wine products. The pollen analysis, made on a sample of resin from a dolium from the "Punta Ala" shipwreck, not only showed a high percentage of pollen from the *Vitis Vitifera* or vine plant, but it also provided some
remains of grape seeds.

Further evidence relies on the fact that all six shipwrecks were also carrying as cargo a conspicuous amount of amphorae Dressel 2/4, which were the typical wine amphorae of the period. It seems that only the ship sunk close to the "Le Petit Congloué" (Marseille, Bouches du Rhône) was carrying a mixed cargo of amphorae, since besides the Dressel 2/4, at least 15 Gallic amphorae (a number which defined them as part of the cargo), have been raised from the bottom of the sea. However, in this case also, the type of amphora is commonly known to contain wine.

The two assumptions so far expressed, one that the dolia were carrying wine, and the other that they were irremovable, could be used to fully understand a so far unexplained Latin passage found in the Digest but written by Paulus (Paul. Dig. XLVII 2,21,pr) in the 3rd century A.D., which speaks about naves vinaria in quae vinum effuditur, or about ships for wine in which the wine was poured. In this case everything would fit perfectly and this passage would prove that the ships carrying dolia were specifically built for transporting only wine.

**Roman organisation of food supply based on dolia:**

Perhaps one of the most interesting results of the search for information on dolia is the fact that they have been found in considerable quantities in every step of a system of food supply which was related to the overseas trade.

In fact the archaeological evidence confirms the existence of a commercial organization which would buy a certain food commodity, most likely wine, stored in dolia in a villa rustica located close to the sea or to a navigable river, like one of the many villae rusticae in the Roman province of Spain, fill with it the dolia on board their own ship, and sail to a far harbor, like Ostia, where other dolia would be waiting in the port building to be filled. In a second step the same commodity may have been further transported to other dolia in other horrea located closer to possible buyers, as in the center of Ostia itself or even up the river to Rome, from where it could be directly
sold to people, or to other minor selling centers, like tabernae, where it would be once more stored in dolia until its final consumption. All the archaeological and literary evidence support this vision. In the house of Annius in Ostia, as a last example, a direct relation has been found between a small private horreum (32 dolia were embedded in a court of the house), a sailing ship loaded with dolia (depicted on a relief on its front facade), and a merchant named Annius (an inscription OMNIA FELICITA ANNI can be read between the just mentioned relief and another depicting a man standing between the same vases embedded in the ground), who supposedly was the owner of both.
NOTES

(notes to p.5)

(1) Marcus Porcius Cato Censorius was born in 234 B.C. at Tusculum (Frascati). He spent his youth on his father's farm near Reate (Sabeine), where he first developed his interest in agriculture, and in later years he became the owner of great extentions of plantations worked by slaves. His treatise on agriculture appears in the manuscripts under the name of De Agri Cultura, but in the earlier printed editions as De Re Rustica.

(2) Marcus Terentius Varro was born in Reate (Sabine) in 116 B.C. As in the case of Cato the Elder, his work on agriculture was based on first-hand experience since we know that he owned an estate at Casinum. As he clearly mentioned at the beginning of the book (Varro r.r. I 1,1), he started writing his Res Rustica in his eightieth year as a manual addressed to his wife who had just purchased a farm.

(3) Lucius Junius Moderatus Columella was born, sometime during the early years of the first century A.D., at Gades, in the Roman Province of Betica (Spain), where his father had large agricultural possessions. His writings on rural matters therefore most likely reflect the common practices in that very rich and agriculturally active Province.

(4) Nothing is known about the life of Rutilius Taurus Aemilianus Palladius besides what can be deduced from his writings. He lived between the end of the third century A.D. and the first decades of the sixth century A.D. However, his work most commonly is dated to the fourth century A.D.

(5) Gaius Plinius Secundus Maior, was born at Novum Comum (Como) in A.D. 23 and died, as is well known, in the Vesuvian eruption of the year A.D. 79. Even if not directly involved in agricultural matters, his scientific curiosity led him to extensive research in the field.

(6) Specifically, the authors mentioning dòlia in the Digest are:
Alfenus (Alfenus Varus), who lived in the first century B.C. (he was 
Consul Suffectus in 39 B.C.); Labeo (Marcus Antistius Labeo), who lived 
between 54 B.C. and A.D. 17; Proculus, a jurist of the early Roman 
Empire (first century A.D.); Javenus (or Javolenus Priscus), who wrote 
around A.D. 100; Pomponius (Sextus Pomponius) and Marcellus (Marcellus 
ULpius), who both lived and wrote in the second century A.D.; Julianus 
(Salvius Julianus), a great jurist of the time of Hadrian (A.D. 117-
138); Gaius, who published his works between A.D. 130 and 180; Macrina-
nus (Lucius Volusius Macrianus), who lived in the second century A.D. 
and was the teacher of law for the Emperor Marcus Aurelius (A.D. 161-
180); Scaevola (Quintus Cervidius Scaevola), who also lived in the 
second century A.D. and was a jurist and counselor of Emperor Marcus 
Aurelius (A.D. 161-180); Ulpian, who wrote under Caracalla (A.D. 211-
217); Paulus (Julius Paulus), who worked around A.D. 200 (he was exiled 
by the Emperor Elagabalus, A.D. 218-222); and finally Rufinus (Licin-
nius Rufinus), a famous jurist under Alexandrus Severus (A.D. 222-235).

(7) Passages referring to the military use of dolia have been found 
throughout the history of the Roman army. Livy, for example, (Liv. 
XXXVIII 7.11.12.13) mentioned that a dolium was used in 189 B.C. by the 
people of Ambracia, in Greece, for constructing a very curious device 
which produced smoke and allowed them to avoid the Roman attack from an 
underground tunnel. Pliny (Plin. h.n. 8.16) and Frontinus (Frontin. 
Strat. I 7.1) mentioned the fact that in 252 B.C. the Romans used dolia 
in constructing rafts for carrying the captured Carthaginian elephants 
across the Messina straits and both authors (Front. Strat. III 14,2 and 
Livy. XXIII 19,8) also narrated that in 216 B.C., during the Second 
Punic war, in order to supply provisions to Casilinus, a town besieged 
by Hannibal, the Romans filled dolia with wheat and sent them down the 
stream of the river so that the besieged could further stand the siege. 
According to Florus (Flor. epit. III 20,13), in 71 B.C. Spartacus and 
the revolting slaves tried, this time unsuccessfully, to construct, 
using dolia, the same type of raft built by the Romans 200 years 
earlier in order to cross the same straits. Finally, in A.D. 360 as 
referred to by Ammianus (Amm. XX 11.10), during the siege of Bezabde
(notes to p.6)

(Persia) dolia were used as common weapons and thrown by the besieged from above the town-walls onto the Constantinian troops below.

(8) The mention of dolia in religious writings before and after the change in belief which took place with the advent of Christianity is another element confirming the long span of their use in the Roman civilization. In fact we know that for pagans the Danaiden (Hor. carm. III 11,26; Tib. I 3,79; Prop. II 1,67; Phaedr. app. 5,11; Hyg. fab. 168 31,22.) were forced by punishment to forever throw water into a broken dolium, that the famous Pandora vase (Porph. Hor.o. I 3,29) was actually a dolium, and also that the sudden appearance of dolia could predict the fortune of Emperors, as happened to Antoninus Pius (Capitolin. Pius 3,5). In Christianity the dolium not only became the container of the Manna in the Holy of Holies (Ambr. Epist. 4,4), but also the vase filled with boiling oil in which martyrs like St. John (Hier. adv. Iovin. I,26 p.280 Vall.) were thrown, and a container which could be filled up with oil by a miracle (Greg. Dial. II 29).

(9) It must be remembered that the units of measure for liquids in Roman times were based on weight and not on volume as is too often assumed. In fact the volume corresponding to the same amount of quadrans or amphorae could vary drastically according to the density of the liquid measured. A quadrans of wine for example was defined in the Republic by the Silian law as the weight of 80 librae or 26,196 grams (almost 58 pounds) of wine. Certainly 80 librae of wine treated with plaster, which was not an uncommon practice among the Romans, would correspond to a smaller volume than 80 librae of untreated wine. From the beginning of the Empire the old name of quadrans was replaced by the Greek term amphora and thanks to an inscription on the "Congius Farnese", dated to the VI consulate of Vespasianus (A.D. 75) it could be deduced that the amphora had still the same capacity or, better said, the same weight as the quadrans of the Lex Silia. However, since we are used to thinking in terms of volume, for an easy understanding of the references the quadrans and the amphora are translated into 26.26 liters or 6.94 gallons, which is an average volume found between an amphora of oil and one of wine (cf. DS, VII p.796).
(notes to p.7 through 18)

(10) The culeus or culleus was originally a big leather sack normally used for the transport of wine or other liquids and became a unit of measure for liquids corresponding to 20 amphorae (approx. 525.2 liters or 138.75 gallons) (cf. DS I,2nd, p.1579).

(11) One consius was equal to one eighth of an amphora (approx. 3.28 liters or 0.867 gallons) (cf. DS II p.1444).

(12) According to the Latin literature, the second largest earthenware vase for the Romans was the seria, a container similar to the dolium but with vertical walls (Colum. r.r. XII 4.5) and of a capacity of only 7 amphorae.

(13) Gloss. II, 54,42,46; 407,49; 500,11; 526,3; 543,41; Gloss. III, 24,4; 153,39; 270,52; 326,29; 339,59; 366,51; 369,11; 446,40; 572,42.

(14) The Bruttii were a population living in the southernmost region of the Italian peninsula, corresponding approximately to modern Calabria.

(15) The rotting of the olive oil which soaked into the clay walls of empty earthenware vases was always a major problem for the Romans. In Rome, for example, an entire hill, the Monte Testaccio, was formed by layers of sherds of oil amphorae, which were thrown there daily and covered by quick-lime in order to prevent any rotting.

(16) Olive oil, kept in rooms with low temperature, can easily loose its fluidity and become turbid.

(17) The acoustic properties of dolia have been described by both Seneca (Sen. nat. VI 19,2) and Pliny (Plin. n.h. 11,270).

(18) Fundus was a juridical term generally referring to an estate including both the land and the buildings found in it (cf. DS 2,II p.1366).

(19) An iugerum represented the area that two oxen could plough in a day of work. More precisely it was also defined as a rectangle of 240 X 120 Roman feet (equal to 2,518 m² or 3,011 sq. yds.)

(20) The total number of passages from the Latin literature in which dolia are unmistakably mentioned as containing wine are 53. Fourteen more referred to dolia containing must, while 11 referred to
olive oil, and only 3 to oil-dregs *(amurca)*.

(21) See p.7

(22) Trodding the grapes was done either by the feet, as mentioned by Cato (Cato r.r. 112,2), Varro (Varro I 54,2) and Pliny (Plin. h.n. XIV 119), or eventually by hand (Cato r.r. 112,2).

(23) Specifically, the Latin authors who unmistakably mentioned dolia holding wine are: Cato (Cato r.r. 23,3,4; 104,1), Varro (Varro I 16,6; 65), Propertius (Prop. III 17,17), Columella (Colum. X,43), Tibullus (Tib. II 5,85), Seneca (Sen. epist. 83,16), Juvenal (Juv. 9,58), Fronto (Aur.Fronto 67,23), Palladius (Pallad. III 25,26), and one of the Minor poets (Aetna 267).

(24) Cato in this same passage (Cato r.r. 26) also indicated that it was also the best time for separating the lees from the wine in case it had been left in during fermentation.

(25) If the so-called "flower" sinks to the bottom it ruins its flavor (Colum. r.r. XI 30,1).

(26) The *sextarius* was defined as one sixth of a *congius* (see note 11). In theory it was the forty-eighth of the cubic Roman foot (=538.892 mm³), but by the Silian Law it was equal to the volume of any liquid weighing 543 gr (19.15 ounces), so that in case of wine it was equal to approximately 539 ml. (cf. DS VII, p.1286).

(27) The *urna* was a container normally used for drawing and keeping water. As a special vase with a fixed capacity it would be equivalent to 4 *conii* or 1/2 *amphora* (equal to 13.13 litres or 3.47 gallons (cf. DS: IX, p.604).

(28) Varro (Varro 5,157), Livy (Liv. V 40.8) and Festus (Festus 69,8) all mentioned the famous *doliola* buried in Rome in a place close to the Cloaca Maxima, which were used at the time of the Gallic invasions (390 B.C.) for hiding many sacred objects.

(29) *Lacus* was a general term used by the Romans to refer to basins of different depths (cf. DS 3,IIind, p.904).


(31) Cf. Callender 1965, p.1, where he states that, despite the high frequency with which "dolia" have been recorded, they have never
(notes to p.28 through 30)
actually been found in Britain.

(32) Spanish oil amphorae, also known as amphorae Dressel 20, for example, are of a very rounded shape, but by their size and the fact that they have 2 small handles, they should be easily recognized as not being dolia.

(33) Any smaller vase resembling a dolium in its shape was disregarded since it would not have been part of this class of ceramics. See Chapter II, p.22 in section: Other wine containers, where it is specified that the literary evidence clearly indicated that a dolium of 7 amphorae would be called dolium.

(34) It seems that because of the technical problems encountered in their manufacture, huge earthenware vessels could be manufactured only to an approximate volume and, therefore, their exact capacities were subsequently incised in the fired clay.


(36) The fact that this number was followed in many cases by an "S" or a semia excludes the possibility that it referred to a simple numbering of dolia, while the fact that in most cases the dolia were embedded in the ground also excludes the possibility that it was a measurement of weight (cf. Carcopino 1909, p.363).

(37) A confirmation of this belief is the fact that the highest number found referring to sextarii is 22 (see graffito G53 in Table 3, p.194), which excludes by its size many other fractions of the amphora and strongly confirms the range of numbers which could be found (in fact 24 sextarii would disappear and become an extra semia).

(38) See graffito G9 in Table 1 of Appendix C (p.193).

(39) In the case of graffiti G81. through G89. recorded in Table 3 of Appendix C (p.195), it is difficult to distinguish which number refers to the total capacity and which instead has been incised for numbering the vases, since the approximate volume of those dolia is unknown. Only in two cases (G84 and G86) has the unit of measure been mentioned, and therefore the number can be positively identified as referring to the capacity of the vase.
(notes to p.31 through 33)

(40) See Table 4 (p.197), graffito G90 through G92 in Appendix C.

(41) See Table 5 (p.197), graffito G93 through G98 in Appendix C.

(42) See Table 6 (p.198), graffito G99 through G101 in Appendix C.

(43) As can be deduced from Table 1 (p.188–190) in Appendix B, where, when possible, the ratios between the total height and the height of the maximum diameter has been calculated.

(44) It must be remembered here that the foot had to carry all the weight of the vase only in case the dolium was standing, without any support, above ground.

(45) In which case, most likely, the dolium was embedded in the ground.

(46) Figure 8 (p.265) shows an example which was found in Rome (suburbius "Via A. Nelli") and is dated to the half of the first century A.D.. The other two recorded are the one found in Pompeii ("unspecified", NA, Campania) and at Villa Potenza (MC, Marche).

(47) A simple mention of the finding of lids belonging to dolia has been reported at Cogorno di Modena (MO, Emilia Romagna), Roma Reg. V ("Orti Massimi"), Roma Reg. V ("Piazza V. Emanuele"), Bari (BA, Puglia), and Haussy (Nord, France), while the mention of lids of a general rounded shape has been recorded at Cepagatti (PE, Abruzzi), Piedimonte Matese (CE, Abruzzi), S. Sebastiano al Vesuvio (NA, Campania), Roma Reg. XIV ("Alla Farnesina"), Marseille (Bouches-du-Rhône, Provence, France), and Badalona (Barcelona, Cataluña, Spain). In some other cases, as in Roma Reg. V ("Orti Massimi"), Roma Reg. XIV ("Alla Farnesina"), Gragnano ("Messigno" and "Contrada Carità", NA, Campania), Pollena Troochia (NA, Campania), S. Sebastiano al Vesuvio (NA, Campania), Scafati ("Crapolla", SA, Campania), Panzano (MO, Emilia Romagna), and Marseille (Bouches-du-Rhône, Provence, France), they have been mentioned only in relation to their stamps.

(48) The same type of lid also has been reported as found at Gragnano ("Contrada Carità", CE, Campania).

(49) Vidi.


(51) Lead strips have been reported on dolia from land excavations
(notes to p.32 through 35)
in Aix-en-Provence "Entrâmont" (Bouches-du-Rhône, Provence, France),
Balaguer "Hostal Nou" (Lerida, Cataluña, Spain), Campagnatico (GR, Tuscany), Castel Giubileo (ROMA, Lazio), Crocetta "Mariana region" (Corse, France), Fiumana (FO, Emilia Romagna), Galeata (FO, Emilia Romagna), Gragnano "Contrada Carità" (NA, Campania), Lyon (Rhône, Rhône-Alpes, France), Marino (ROMA, Lazio), Marseille "Docks Romaines" (Bouches-du-Rhône, Provence, France), Nora (CA, Sardinia), Olmeta di Tuda "Santa Maria de Rosolo" (Corse, France), Ostia Reg. I Ins. IV,5 "Caseggiato dei Dolii" (ROMA), Pachs "Cal Cuch" (Barcelona, Cataluña, Spain), Roma suburbio "Via Cornelio", Roma suburbio "Via Nomentana", Roma "Villa Crocetta", Rosignano Solvay (GR, Tuscany), Valegio (BR, Puglie), while lead strips have been reported from the following underwater sites: Diano Marina (IM, Liguria), Ile Rousse (Corse, France), Populonia "Golfo di Baratti" (GR, Tuscany), Porto Cervo (SS, Sardinia).

(52) One of the doliola recovered from the Diano Marina shipwreck had its lip completely mended to the body by a lead strip with the typical "double swallow-tail" tenons; it could be seen clearly that the lead of the strip had actually been melted in the fissure.

(53) Cf. Léquemant 1972, p.5. Obviously the mouth of the dolia had to be big enough to let somebody work from the inside of the jar.


(55) Remains of resin inside dolia have been reported in land excavations at Boscoreale "Pisanella: V. De Prisco" (NA, Campania), Musigno (SA, Campania) (16 dolia), and Trabartico (Braganca, Norte Interior, Portugal), as well as underwater excavations off Diano Marina (IM, Liguria), Ladispoli (ROMA, Lazio; personal communication from Mr.P. Gianfrotta), Ile Rousse (Corse, France), Castiglione della Pescaia "Punta Ala: Portiociolo" (GR, Tuscany), Populonia "Baratti Golf" (GR, Tuscany; vidi in Albenga).

(56) For example the "Instrumentum Domesticum" of the CIL, the AE, and the EE.

(57) The following stamps belong to the first group (the name of
(notes to p.35)

the master can be on one or two lines, the sequence of the words in the line reserved for the name of the slave can be varied, and the line which bears the name of the slave may also be separated and stamped in another place on the dolium): A.APULEI/HILARIONIS///FIRMUS FEC. S8;
D(e) F(iglinae) C.CLUENTI/AMPLIATI///CORINTHUS S.F. S32; C.CORNELI
FELI/CALAI FECIT S39; C.CORNELI FELI/CIMBER FEC. S40; T.FLAVI PYRAMI/
ADIUTOR SER FEC. S65; L.PETRONI FUSCI/FECIT FAUSTUS SER.///FAUSTUS
FEC. S127; (2)L.RUBRI FELICIS/(1)FAVENTINUS SER.FEC. S148; L.RUFENI
PROCU[.]I/COGITATUS SER.F[.EC.] S150; L.RUFEN[I] PROCU/L SER.FEC.
S149; T.SABIDI PARRASI///HETERUS FE. S155; C.SABIDI/CERTI/RESTITUTUS
SER.FEC. S156; Q.TOSSI INGENUI/CIMBER FEC. S177; C.VIBI DONATI/FLORUS
SER.FEC. S188; C.VIBI DONATI/FORTUNATUS SER.FEC. S189; C.VIBI DONATI/
PRISCUS SER.FEC. S190.

The following are imperfect stamps which can nevertheless belong to
the first group: C.MINUCI C.F.PEDIANI/FEC.FORTUNATI SER. S114; (2) C.
CAL(petani).FA(v)ORIS/(1)VENUSTUS S24; (2)CN.DOMITI AGATHOBULI/
(1)APRILIS S49; (2)CN.DOM.TULL/(1)[PR]IMIGEN S55; (2)L.MESCIN(i)
FLACC(i)/(1)ANTHUS FEC. S111; ...(PET)RONI LEONIS/APOLLONIUS SER.F.
S132; ...(PE)TRON(iae) GALLAE/CRES(h)ens SER.F. S129; M.PETRON(I)
VETERAN(I)/LEO SER.FECIT S132; Q.TOSSI IUSTI/ PRIMIT(ivus) SER.F. S178;
FELIX C.VIBI/FAVENTIN S191; C.TITIENI C.F(lli) FLORI///REPENTINUS F.
S169; C.MINUCI C.F(lli) PEDANI/ F. FORTUNATI SER S114.

(58) The following stamps belong to the first sub-group of the
first group: FAUSTI/LIGDAMI/SERATUS SER.FEC. S95; ]GEMINI/[A]POLLI-
NARIS/[I]UCUNDUS S.F. S80; PETRONIAE GALLAE/APOLLONIUS SER.FEC. S128.

Imperfect stamps which can nevertheless belong to the first sub-
group of the first group: GENIALIS RASIN[ ]/ PONTICI(us) SER.F. S81.

(59) The following stamps belong to the second sub-group of the
first group: PHILEROS/ M.FULVI SER. S69; DIAGISA M.FULVI S.F. S67;
ST.MARCI/TRIFERNA F. S109; AUCTUS/SERTORI P.SER. S162.

Imperfect stamps which can nevertheless belong to the second sub-
group of the first group: PHILEROS/ M.FULVI /// S70; DIONISIUS/[S]/ FULVI
M.S. S68.

(60) The following stamps belong to the second group: C.FIDICLANI
(notes to p.35 through 36)
PRIMI/ L.POMPONIUS/ CRESCE S FEC S62; C.IULI RUFI/ L.ARISTAEUS/ RES- 
TITUTUS FF S84.

The following are imperfect stamps which nevertheless can belong to 
the third sub-group of the second group: L.RUSTI A.F.M./ L.CALPURNIUS 
EROS F S152.

(61) The following stamps belong to the third group: C.ANTENI/RUFI 
S2; A.APPULEI/HILARIONIS S6; A.APPULEI/QUIETI S10; C.ARRUNTI CHITI S11; 
L.AUTRONI/XANTHI S13; C.BELLICI/ZMARAGDI S16; M.CAENI/SALVITTONIS S18; 
C.CALPETANI/IANUARI S25 AND S26; C.CALPETANI/RUFI S27; C.CLUENTI/ 
AMPLIATI S33-S35; T.COCCEI/FORTUNATI S37; C.COELI POTITI S38; C.DOMATI/ 
TROPHIMI S54; CN.DOMITI/CLEMENTIS S50; CN.DOMITI AMANDI/VALEAT QUI 
FECIT S48; Q.FABRICI FELICI S61; M.FURI/VINDICIS S73; P.GAVI/SECUNDI 
S79; D.LABERI SATURNINI/(1)DE FIGLINIS S89; L.LAELI/IUCUNDI S90; 
M.LICINI/CRISPIONIS S92; M.LUCEI/QUARTONIS S98 AND S99; C.MILASI 
CUPITI S114; C.NAEVI/VITALIS/// C.N.V.///C.N. S116; M.PETRONI CELERI 
/// Q.PETRONI QUIETI S126; L.PETRONI FUSCI S131; Q.PETRONI QUIETI /// 
M.PETRONI CELERI S126; M.PACCI HILARI S124; A.PLAUTI EUTACTI S141; 
Q.TOSSI/CIMBRI S174; Q.TOSSI/CLARI S175; Q.TOSSI INCENI S177; Q.VALERI 
CAONIS/EX FIGLIN.STRABO(nianis) S185; T.VEITTI/FUSCI S187; C.VIBI 
CRESCENTIS/C.VIBI FORTUNATI S192; C.VIBI FORTUNATI/C.VIBI CRESCENTIS 
S192; M.VIBI/LIBERALIS S194.

Imperfect stamps which can nevertheless belong to the third group: 
C.CORNELI FELI(cis) S42; M.LUCEI/QUARTONIS///AVKIOU S97; L.ARRU(nti) 
CHITI S11; M.BAI P(?)/ S14; C.CALPETAN(i)/IANUARI S25; L.CORNELI 
RUFION(i) (UF in ligature) S43-S46; CN.DOMITI CHRYSEO S51; CN.DOM(i- 
ti)/ SALVATAR(is) (AL.ATA in ligature) S52; M.FULVI ANTIOC(i) S66; 
(2)D.LABERI A.P.M.//(1) DE FIGLINI S88; STATI MARC[I]/LUCIFERI S106; 
L.[MES]CINI FLACC[EX FIGLIN] MARC(ianis) S112; SEX.OBINI SALVI(tto- 
nis) S120; L.OCTAVI/ SAT(urnini?) S123; M.PACCI SEC(undi) S125; L. 

(62) The following stamps belong to the first sub-group of the 
third group: ANTEROTIS/ GALLICI S3; LAURINI/ PINNIAES S135.

Imperfect stamps which can nevertheless belong to the first sub-
group of the third group: MYRTILI/[L]UCILL...S115; LIBERA(lis)/RUTI-
(notes to p.36)

LI(ae) S91; F1IRMIA[N]I/[F]AVORIS S63; PHILERON(is)/CATONIS S133.

(63) The following stamps belong to the second sub-group of the third group: Q.MAEILI S103; L.SAGINI S158; L.VIBLENII S198.

Imperfect stamps which can nevertheless belong to the second sub-group of the third group: ST.MARCI ST.F. S108; C.MARCI L.F. S104.

(64) The following stamps are of the fourth group: M.ALFIS/SECUNDUS FEC. S1; C.CORNELIUS/FELIX FEC. S41; C.PIRIANUS/FELIX FEC. S138; Q.TOSIIUS/PRISCUS FEC. S180; Q.TOSIIUS/PRISCUS F. S180; Q.TOSIIUS/PROCULUS F. S182.

Imperfect stamps which can nevertheless belong to the same group:
L.C[A]ECILIUS/PROCULUS FEC. S17; C.CAERELLIIUS C.L./MEGISTUS FECIT S19;
L.CALFURNIUS EROS F. S29; L.CALFURNIUS EROS S28; M.GALICIUS/ DIOPHantu(s) F. S75; T.GAVELIUS FEST(us fecit) S76; L.GAVIUS/STABILIO S77;
L.LURIUS/PRIMIT(ivus fecit) S101; L.LURIUS/VERECUND(us) FEC. S102;
C.VIBIUS/ FORTUNAT(us) FEC. S193.

(65) The following stamps belong to the first sub-group of group four: C.CO[SCO]NIUS S47; L.TETIUS S166; C.VOIIISIUS S199 AND S200.

Imperfect stamps which can nevertheless belong to this group:
(2)C.VEIANUS/ (1) A III S186; L.FABIUS L.F. S60; T.SILIUS T.F. S163;
P.POMP P.F. FECIT S145; L.IUNIO CN.F. S86; M.IUNIO T.[l.] S87.

(66) The interrelation between stamps on bricks and dolia is so close that in many cases the same stamp has been used. Bloch, for example mentioned the stamps XV 2417 = XV 1106b, XV 2433 = XV 1097f, XV 2434 = XV 1105, XV 2443 = XV 1161, XV 2446 = XV 1358, XV 2456 = XV 1242a, XV 2471 = XV 1305, XV 2496 = XV 1017 (cf. PBS, p.122).

A further confirmation is the fact that in the same kiln archaeologists have found wasters of dolia, tiles, antefixes, and amphorae, like in the Late Republican kiln excavated at Castellgercol (Barcelona, Cataluña, Spain).

(67) A deeper search of Latin Epigraphy than the one made for this thesis would dramatically increase the number of parallels. The close relation between bricks and dolia would also indirectly allow one to study better the people involved in the production of the latter, since brick stamps have been already the object of many important prosopogra-
(notes to p.36 through 46)

phical studies. It would therefore be possible in many cases to gain more information than that found on the stamp itself, and also reach a precise date for the stamp and, therefore, also for the dolium bearing it.

(68) Which would imply a study of unpublished material which is behind the scope of this thesis.

(69) These assumptions are based on published photographs (for Pollena Trocchia, cf. NS 1932, p.312, Fig.4, while for Roma "Via Cornelia" cf. Romanelli 1933, p.247, fig.4 = Ballardini 1964, p.16, fig.8.).

(70) The use of the information found in stamps on dolia to date the dolia seems very promising. In fact, it would eliminate the problem, already mentioned by some archaeologists (cf. CIL XV, p.33), of the fact that these vases were eventually used for a long time, maybe for even more than a century, and therefore they might actually be of different date than the artifacts found around them during their excavation.

(71) For the dolia found in the so-called "Horrea del Mensores" which can not be seen anymore, cf. the photo reported in Ballardini 1964, p.15, fig.7)

(72) Cf. NS 1924, p.58, fig.7, and NS 1924, p.59, fig.8.

(73) Cf. Pesce 1965, p.365, fig.4.

(74) It must be mentioned that in a large number of aspects the literary texts on this subject are strikingly confirmed by the archaeological evidence.

(75) See the plans of the different Roman villae rusticae shown in Figures 16 (p.271) through 23 (p.277).

(76) Vidi.

(77) Other cellae vinariae, only partially excavated, in which dolia have been found in considerable numbers were located in the following villae rusticae: Gragnano "Contrada Messigno" (NA, Campania) (35 dolia defossa), Gragnano "Contrada Caritã" (NA, Campania) (11 dolia defossa), Scafati "Contrada Spinelli: Fondo G. Matroni" (A, Campania) (10 dolia defossa), Pollena Trocchia (NA, Campania) (more than 10 dolia defossa), Boscoreale "Pisanella: N. Popidius Florus" (7 dolia defossa),
(notes to p.46 through 54)
and S. Sebastiano al Vesuvio (NA, Campania) (7 dolia defossa).

(78) The *torcular* for oil, in principle, is the same as the one for
wine, even if in many cases where both have been found it is smaller.
Nevertheless, it can be easily distinguished from the one for wine by
the presence in the room of an olive-crusher (*trapeum*).

(79) The only other archaeological excavation in which oil remains
have been reported inside a dolium is the one of the Roman villa at
Vila Real (Bragança, Norte Interior, Portugal).

(80) Pasqui 1876, p.484.

(81) However it must be mentioned that the quantity of olive oil
produced per unit of cultivated area is always less that the quantity
of wine which can be produced from the same area, and therefore the
total number of dolia eventually used in an estate oriented toward the
production of oil is always less than in a similar estate producing
wine.

(82) For an unknown reason the vase in the "La Pisanella: V. de
Prisco" was divided into two parts by a partition in its middle.

(83) Thanks to the interest in dolia found under water, the amount
of information collected by archaeologists is much greater than in most
cases for the same vases found on land.

(84) Furthermore, in many places in the Western Mediterranean sea,
single dolia have been raised without any known archaeological context
(see the Annotated Bibliographical Index of dolia found in the sea).

(85) They are lying respectively at a depth of 40m (131 feet) for
the so-called "Diano Marina" shipwreck (IM, Liguria) and of 60m (197
feet) for the so-called "Le Petit Congloué" (Marseille, Bouches du
Rhône, Provence-Côte Azur).

(86) In this case the number of dolia in the central line are 5,
one more than that found on the so-called "Diano Marina" (IM, Liguria).

(87) One cylindrical dolium recovered from the shipwreck located
off Ladispoli (ROMA, Latium) is deposited in the Museum in Cerveteri
(ROMA, Latium).

(88) Fiori (Fiori 1972, p.37) catalogued the fragments of dolia
recovered from the so-called "La Garoupe" shipwreck (Antibes, Var,
(notes to p. 54 through 56)
Provence-Côte d'Azur) in two types, one approximately 165cm in height and the other of only 100cm, which more likely was a doliolum.

(89) One dolium from the central line was raised in 1974.
(90) Two dolia from the lateral line were raised in 1984.
(91) The presence of marne allows us to further locate the origin of the clay in an area close to the coast, which most likely also is the location of the figlina were the Pirani were working.
(92) In Ostia only a fragment of a lip of a dolium has been found in the theater.
ANOTATED BIBLIOGRAPHICAL INDEX OF CITED LATIN LITERATURE


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see Minor Latin Poets.

Alfenus Varus
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Ambrosius Mediolanensis Episcopus, Sanctus

Ammianus, Marcellinus

Apuleius, Lucius Madaurenus

Arnobius, Afer

Aurelius Imperator, Marcus
see Fronto, Marcus Cornelius.

Ausonius, Decimus Magnus

Capitolinus, Iulius
see Scriptores Historiae Augustae.

Cassiodorus Senator, Flavius Magnus Aurelius
(L) J.P. Migne, Magni Aurelii Cassiodorii Senatoris Opera Omnia,

Cato Censorius, Marcius Porcius

Charisius, Flavius Sosipater

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see Paulus, Iulius.

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Gregorius Nazianzenus
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Gregorius Turonensis, Santus (Saint Gregory, Bishop of Tours)

Horatius, Flaccus, Quintus

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Livius Patavinus, Titus (Livy)


Lucretius, Carus, Titus


Macrobius, Ambrosius Aurelius Theodosius


Maecianus, Lucius Volsius

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  J.W. Mackail (Pervigilium Veneris), Catullus Tibullus and Pervigi-
Ulpianus
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    (LE) F. Granger, Vitruvius: On Architecture, 2 vols., Loeb Classi-
The locations found in this bibliography have been arranged first by nation (Italy, France, Spain, Portugal, Algeria and Tunisia), then within a single country by region and province (in alphabetical order). In case of Herculaneum, Pompeii, and Rome a further subdivision has been made according to their Regions and Insulae (Herculaneum following A. Mauri, Ercole. I nuovi scavi (1927-1958), Rome 1958, Pompeii according to H. Eschebach, "Die städtebauliche Entwicklung des antiken Pompeji", Römische Mitteilungen, suppl. 17, Heidelberg 1970, while Rome has been divided according to the known Augustean division into 14 Regions). In many cases a further specification written between quotation marks has been added in an effort to further locate the origin of the archaeological remains, while the place of their probable deposit has been written between square brackets. Furthermore, the bibliographical references for dolia published in the various volumes of the Corpus Inscriptionum Latinarum mention only the volume in capital Roman numbers and the number of the stamp found in it.

Explanation of abbreviations: PlE: Plan of excavation, FiD: Figure of dolium, FiL: Figure of lid belonging to a dolium, FiR: Figure of the lead reinforcement, FiS: Figure of stamp found on the dolium or its lid, PhE: Photograph of excavation showing at least one dolium, PhD: Photograph of dolium, PhL: Photograph of the lid belonging to a dolium, PhR: Photograph of the lead reinforcement, PhS: Photograph of stamp on the dolium or its lid, PhG: Photograph of graffito on the dolium).
------------------------------Italy

----------Abruzzi

L'Aquila (AQ)
1. Amiternum: dolium with stamp S212. IX 6082/12.
2. Capestrano: 4 doli, one with graffito G95. IX 6082/112.
3. Castronovo "La Chiruccia": dolium with graffito G90. XI 6691/35b.

Chieti (CH)
5. Villamagna: dolium with known dimensions D66 [Museo Archeologico Nazionale dell'Abruzzo, Chieti: N.Inv. RCGE 27046]). Unpublished; Personal communication by Mrs. Sandra Gatti of the Museo Archeologico Nazionale dell'Abruzzo.

Pescara (PE)
7. Cepagatti: 2 doli with known dimensions D60 and lid of dolium with known dimensions D88 [Museo Archeologico Nazionale dello Abruzzo, Chieti, N.inv.RCGE 10012/13 and 27047]. Unpublished; Personal communication by Mrs. Sandra Gatti of the same Museum.

----------Calabria

Cosenza (CS)

Reggio Calabria (RC)
urbana", FA 9, 1956, n.4999.

--------Campania

Avellino (AV)

11. Domicella: fragments of 3 dolia defossa in a unroofed cella vinaria of a villa destroyed in A.D. 79; one of them had the stamp S83. Della Corte 1929b (FiS: Della Corte 1929b, p.202, fig.3) (FiS: see Figure 14c, p.269).

Caserta (CE)

12. Capua: 9 dolia dated to the 2nd-1st century B.C. with known dimensions D59, D62, D67, D71, D72, D75, D78, D79, D81 and a fragment of a lip of a dolium with stamp S220 [Museo Provinciale Campano: Nro inv. of the fragment with stamp 742]. The dolium with stamp was published in Patroni 1897, p.171, n. 1324; The other dolia are unpublished; Personal communication by Dr. Francesco Garofano Venosta.

13. Francolise "Posto": villa rustica with an unbroken dolium in the West of and contemporary with the platform built in Phase I (from 100 B.C. to 80 B.C.) and fragments of 5 other dolia with same rim of triangular section; Rim of a dolium with known dimensions D50 and stamp S231. Triangular rim of a dolium with known dimensions D32 and two oil-separating dolia in the oil pressing room of Phase II (Pre-Augustean); The villa was occupied ca. 100 B.C. and subsequently twice enlarged. M.A. Cotton, "Excavations by the Institute of Fine Arts of New York University and the British School at Rome", FA 18/19 (1963-64), n. 7372; M.A. Cotton et al., "La villa di Posto", NS 1965, p.247-252; P. von Blanckenhagen et al., "Two Roman villas at Francolise, prov. Caserta. Interim report on excavations, 1962-64", BSR XXXIII (1965), p.55-69; Cotton 1979 (FiD: Cotton 1979, p.189; FiL: Cotton 1979, p.192; PhD: Plate VII; PLE: Cotton 1965, p.249, fig.6 and p.251, fig.7) (FiD: see Figure 1, p.259; FiL: see Figure 10, p.267).


Napoli (NA)

15. Boscoreale, "Contrada Giuliana: I. Zurlo": *villa rustica* destroyed in 79 A.D. with 4 dolia embedded in the *cella vinaria* which had openings in the West wall, 4 dolia in the South ala of a portico (one of them still containing grape seeds), two dolia with graffiti, one with G107, the other with G124, and one dolium embedded up to the rim in the *tornicularium* for wine. Sogliano 1897 (PhE: Sogliano 1897, p.392, fig.1; PhE: Sogliano 1897, p.399, fig.8).


Boscoreale "M. Livius Marcellus": 6 dolia from a partially excavated *villa rustica*: 2 freestanding in the *apotheca*, one of them with graffito G75; 3 freestanding under a portico and one embedded up to its rim in the *tornicularium*. M. Della Corte, "Boscoreale - Parziale scavo della Villa rustica 'M. Livi Marcelli'", NS 1929, p.178-188. (PhE: Della Corte 1929, p.178, fig.1).

Boscoreale "Pisanella: V. De Frisco": *villa rustica* destroyed in A.D. 79, with dolia, one with known dimensions D53, and many with stamp S164 and S120; Some had graffiti G87-G89 (See Appendix E: *Villas Rusticae* for more details) [Some dolia are deposited in the Museum near the Forum in Pompeii. Pasqui 1876 (PhD: see Figure 5, p.263; PhE: see Figure 16, p.271 and Figure 22, p.277).

Boscoreale "Pisanella: N. Popidius Florus": *villa rustica* with dolia destroyed in A.D. 79 (See Appendix E: *Villas Rusticae* for more details). Della Corte 1921 (PhE: Della Corte 1921, p.443, fig.12) (PhE: see Figure 20, p.275).

Boscoreale "Villa Regina": dolia in a *cella vinaria* of a *villa rustica* destroyed in A.D. 79 (See Appendix E: *Villas Rusticae* for more details). S. De Caro, "Milano espone Pompei", Atlante, Agosto 1982, p.78-83 (PhE: S.De Caro 1982, p.82) (PhE: see Figure 37, p.287; PhL: see Figure 38, p.287, Figure 39, p.288 and Figure 40, p.288).

16. Boscostrcase "Via Cavour": 3 dolia *defossa* in a partially excavated *cella vinaria* of a *villa rustica* destroyed in A.D. 79, one of them with stamp S15. Della Corte 1929a (PhS: Della Corte 1929a, p.189) (PhS: see Figure 14b, p.269).

17. Gragnano "Contrada Carità": dolia, one with known dimensions D57, one with stamp S141, and one with graffito G1 in a *cella vinaria*, as well as others with lead repairs in the inner-court of a *villa rustica* destroyed in A.D. 79 and their lids with semi-circular handles (See Appendix E: *Villas Rusticae* for more details). Della Corte 1923b (PhE: Della Corte 1923b, p.276, fig.3) (PhE: see Figure 17, p.272).

Gragnano "Contrada Messigno": 37 dolia and a lid of a dolium with stamp S141 from a *cella vinaria* of a *villa rustica* destroyed in 79 A.D. (See Appendix E: *Villas Rusticae* for more details). Della Corte 1923a (PhE: Della Corte 1923a, p.272, fig.1) (PhE: see Figure 18, p.273).
Gragnano "Villa A": deposit of dolia in a villa rustica with torcularium destroyed in A.D. 79. Soprano 1963-64.

Gragnano "Villa B": 2 dolia, one with stamp S6 and the other with stamp S99 from a room-deposit of a villa rustica with torcularium built in Republican times and destroyed in A.D. 79. Soprano 1963-64.


Herculaneum Insula Or. I.2: fragment of a dolium with graffito G118. IV 10870.

Herculaneum Insula V.16: dolium with graffito G81 found in a house. IV 10869.

19. Napoli: fragments of dolia with stamps (a) S8 and (b) S46 [Museo Archeologico]. (a) X 8047/3b; (b) X8047/8d; X 8047/7b, 12.


22. Pollena Trochlea: at least 10 dolia, some with stamp S96 or S208, and their lids, some with stamps S205 or S134, from a cella vinaria only partially excavated [one, unbroken, is placed in the Palazzo del Comune]. M. Della Corte, "Trochlea (Napoli) - Scoper- te di antichita nel territorio del comune", NS 1925, p.415; Della Corte 1932 (PhD: Della Corte 1932, p.312, fig.4; PLE: Della Corte 1932, p.312, fig.3).


Pompeii Reg. I ins. II n.1: dolium with stamp S216 from the mensa of a taberna. X 8047/1c.

Pompeii Reg. I ins. III n.2: dolium with stamp S35 from a taberna. X 8047/6c.


Pompeii Reg. II ins. V "Foro Boario": 10 dolia with known dimensions D58 embedded in dirt floor in a wine making establishment related to a vineyard within the same city block. W.F. Jashemski, "Excavations in the 'Foro Boario' at Pompeii: A preliminary
Pompeii Reg. VI ins. II n.5: dolium with stamp S195 from the taberna of the House of Sallustius. X 8047/19c.

Pompeii Reg. VI ins. VII tab.n.9: dolium with stamp S9. X 8047/3a.

Pompeii Reg. VI ins. XIV n.36: dolium with stamp S44 from the mensa of a tavern. X 8047/8b; Mau 1878, p.192.

Pompeii Reg. VI ins. XIV n.36: dolium with stamp S97 in the mensa of a tavern. X 8047/10; Mau 1878, p.191.

Pompeii Reg. VII ins. II n.32/33: dolium with stamp S214 from the mensa of a tavern. X 8047/1a.

Pompeii Reg. VII ins. II n.48: 2 doli, one with stamp (a) S117 and the other with S158, both found in the inner garden of the house of D. Caprarius Primus. (a) X 8047/11b; (a) Fiorelli 1873, p.90; (b) X 8047/16.


Pompeii Reg. VII ins. VII n.19: dolium with stamp S32. X 8047/7; Fiorelli 1875, p.249.


Pompeii Reg. VII ins. XII n.9: 2 vases similar to doli, both with stamp S12 from a tavern. X 8047/5.

Pompeii Reg. VII ins. XV n.15: dolium with stamp S3. X 8047/2

Pompeii Reg. IX ins. II n.7: dolium with stamp S237 from a private house. X 8047/21.


Pompeii "Deposito": fragment of a dolium with stamp S45. X 8047/8c.

Pompeii "Casa del Granduca": 2 doli with the same stamp S194. X 8047/19a.b.

Pompeii "Villa dei Misteri": dolia, one embedded up to its lip in the torcularium and others from the cella vinaria of the pars rustica not yet completely excavated. A. Maiuri. La villa dei Misteri. Rome 1947.


Pompeii "Aedibus Statuari": 4 doli with stamp S34. X 8047/6b.

Pompeii "unspecified": dolium with stamp S33. X 8047/6a.


27. S. Sebastiano al Vesuvio: 7 dolia, 3 unbroken with known dimensions D22, and their round lids with handles together with other fragments of lids for dolia, 2 of them with stamp S100 and S196 from a cella vinaria of a villa rustica destroyed in A.D. 79 but also reused afterward in its highest levels [property of the "Chierici della Madre di Dio] (See Appendix E: Villae Rusticae for more details). Cerulli Irelli 1965 (PLe: Cerulli Irelli 1965, p. 163, fig. 2; PhE: Cerulli Irelli 1965, p. 173, fig. 15 and p. 176, fig. 18) (PLe: see Figure 23, p. 277).

28. Sorrento "Via Reginaldo Giuliani": 4 dolia, 2 with known dimensions, D44 and D54, and one covered with a lid made of stone in a storeroom of a Roman villa. Rocco 1953, p. 192-194. (PLe: Rocco 1953, p. 192, fig. 1; PhE: NS 1953, p. 193, fig. 2).

Salerno (SA)


30. Musigno: 16 dolia with internal remains of pitch coating and many with stamps (a) S10, (b) S124, (c) S98, (d) S168 and graffiti (e) G22, (f) G28, (g) G99, (h) G100. [all transferred to Pompeii Reg. VII ins. 4 n. 11 et 14]. (a) X 8047/4; (b) X 8047/13; (c) X 8047/0a-c; (d) X 8047/18a-b; (e)-(f) X 8047/10a; (g) X 8047/18a; (h) X 8047/18b; (a-d) De Guidobaldi 1859.

31. Scafati "Contrada Crapolla": dolia from the portico of a villa rustica destroyed in A.D. 79 and only partially excavated. Lids of dolia with stamps S4 and S5. Della Corte 1923d.

Scafati "Contrada S. Abbondio": wide cella vinaria with dolia defossa, 3 of them with the same stamp S197 and one with stamp S184 [3 dolia with stamp have been transferred to Pompeii]. Della Corte 1922.


Scafati "Contrada Spinelli: fondo G. Matrone": dolia from a villa rustica destroyed in A.D. 79 (See Appendix E: Villae Rusticae for
more details). Della Corte 1923c (PLI: Della Corte 1923c, p.281, fig.5) (PLI: see Figure 19, p.274).

--------Emilia Romagna.

Bologna (BO)

32. Bazzano: fragment of a dolium with graffito G7 found in a well. XI 6691/35h; T. Casini, "Bazzano", NS 1878, p.305-310; Bortolotti 1875, p.69, n.133.


Bologna "Scavi Benacci": fragments of a dolium with graffito G17 found together with fragments of other doli in a rustic building. XI 6691/35f.

Bologna "Università": dolium with graffito G96 [University]. XI 6691/35l.

Bologna surroundings: dolium with stamp S31 [ev. located in Modena]. XI 6691/7.


34. San Giovanni in Persiceto: fragment of a dolium with a graffito G16 [Museum in Bologna]. XI 6691/35g; Bortolotti 1875, p.71, n.133bis.

Forlì (FO)


37. Galeata: dolia with lead repairs [Civic Museum]. Personal communication by Dr. Luciana Prati.
38. Mendola "Podere Casetta": 5 dolia embedded in a conglomerated bank, 2 of them directly communicating through a hole, from the court of a villa [Museum A. Santarelli, Forlì]. M.G. Maioli in G. Zaccaria, Storia di Mendola e del suo territorio, vol. 2, Mendola 1980, p. 342; Personal communication by Dr. Luciana Prati.


Modena (MO)


42. Cognento di Modena: fragment of a dolium with stamp S144 [Civic Museum, Modena, Fr.n. 73]. XI 6691/19b = I 2350b.

43. Gorzano: dolium with stamp S161. XI 6691/20; Coppi 1871, p. 56, n. 75; Bortolotti 1875, p. 67, n. 130 (F1S: Coppi 1871, tab. III, 3).

Gorzano: dolium with stamp S186. XI 6691/25; Coppi 1871, p. 4; Bortolotti 1875, p. 67, n. 131. (F1S: Coppi 1871, tab. XXXVI, 3).

Gorzano: fragments of dolia with graffiti (a) G97, (b) G113, (c) G123, (d) G120, (e) G121 [Civic Museum, Modena]. (a) XI 6691/35k; (b) XI 6691/35a; (c) XI 6691/35o; (d) XI 6691/35p; (e) XI 6691/35q; Coppi 1871, p. 4 (b, c, d), and p. 5 (a, e); Bortolotti 1875, p. 37, n. 135 (b); p. 66, n. 128 (a); p. 83 n. 136 (e); p. 85, n. 137 (d), and p. 87, n. 139 (c) (F1S: Coppi 1871, tab. XXXVI, 1(a) and 2(e); tab. XXXVII, 1(d), 2(b) and 3(c)).

44. Levizzano "S. Michele": dolium with stamp S118 [Civic Museum, Modena]. XI 6691/15; Bortolotti 1875, p. 67, n. 129.

Levizzano: dolium with graffiti G20. XI 6691/35e2; Bortolotti 1875, p. 71, n. 134.

45. Modena "Civic Museum": fragments of dolia with stamps (a) S76 and (b) S226 [Civic Museum, Modena]. (a) XI 6691/34; (b) XI 6691/29; (b) Bortolotti 1875, p. 56, n. 123.

Modena "Villa Collegara, fondo Scartazza": fragment of a dolium (a) with stamp S227 and another (b) with graffiti G18 [Civic Museum, Modena]. (a) XI 6691/30a; (b) Bortolotti 1875, p. 86, n. 138.

Modena surroundings: dolium with graffiti G119. XI 6691/35s; Bortolotti 1875, p. 88, n. 140.

46. Panzano: fragment of the lid of a dolium with stamp S228 [Civico Museum, Modena]. XI 6691/33; Bortolotti 1875, p. 63, n. 126.

47. Savignano: fragment of a dolium with stamp S166. XI 6691/21; Crespellani 1877, p. 300.
Savignano: dolium with graffito G93. XI 6691/35h.

Parma (PR)


Piacenza (PC)
50. Manzano: dolium with known dimensions D2 and stamp S63. XV 2421.
51. Piacenza prima porta: 2 dolia, one with graffito (a) G78 and the other with graffito (b) G109. (a) XI 6691/35a; (b) XI 6691/35c.

Ravenna (RA)

--------Latium

Latina (LT)

Rome (ROMA)
55. Anguillara Sabazia: among fragments of dolia from unspecified locations a lip with stamp S74 from the hydrothermal establishment of the Acqua Claudia. The building is dated to the middle of the 1st century B.C. and was used until the 4th-5th century A.D. Vighi 1940.
56. Artena: fragment of a dolium from a well of the end of the 3rd to the beginning of 2nd century B.C. L. Quilici, "Artena (Roma) - Saggi di scavo alla Civita", NS 1974, p.56-87 (FiD: Quilici 1974, p.82, fig.33, n.31).
57. Boville, lat. Bovillae: dolium with stamp S82. XV 2449.
58. Castel Giubileo: dolium defossum in a storage room and fragments of many others, some with lead repairs, in a rustic building occupied from the Late Republic to its destruction by fire in A.D. 400-450. Quilici 1976 (FiD: Quilici 1976, p.302, fig.43; FiC: Quilici 1976, p.308, fig.49) (FiD: see Figure 6, p.264).


60. Cesano "Monte S.Andrea": dolium with stamp S198. XI 8114/11.


64. Manziana, "Fondo Rabbai": fragment of a dolium with stamp S219 and known dimensions D36. XI 6691/31; Fiorelli 1883.

65. Marino, lat. Castrimoenium, "Villa di Q. Voconio Pollione": 2 freestanding dolia, one (a) with stamp S126, the other (b) with graffito G46 and lead repairs from the west side of the peristyle of a villa rustica built in the last years of the Republic or the beginning of the Empire, and partially destroyed in the 2nd century A.D. Nevertheless it survived until the end of the Empire. (a) XV 2478 = XIV 4093/4; (b) XV 2525; (a)+(b) Lanciani 1884. (PL: Lanciani 1884 Tav.XIV-XIX).

Marino, lat. Castrimoenium, "Fondo Messer Paoli": dolium with stamp S180. XV 2506; Marocco 1833-37, 7, p.46.

Marino, lat. Castrimoenium, "Terreno Lugari": dolia half-embedded in the ground from an unidentified building. R. Lanciani: "La Villa Castrimeniese di Q. Voconio Pollione", BCAR, 1884, p.147.

66. Narni: dolium with stamp S85. XI 6691/13; Erolf 1858, p.249.

Narni "Contrada Campo d'Isola": dolium with stamp S88) from a building dated to the Roman Imperial time. XI 8114/3 = RBs 510; Giglioli 1914.

67. Ostia Reg. I ins. IV.5, "Caseggiato dei doli": 35 dolia, some with stamps (a) S81 and (b) S210 and graffiti (c) G21, (d) G27 (2 dolia), (e) G29, (f) G32, (g) G33, (h) G34, (i) G35, (j) G36, (m) G37, (n) G40 (3 dolia), (o) G41, (p) G42 (2 dolia), (q) G44, (r) G54, (s) G58, (t) G65, (u) G67, (v) G72, (w) G76 (See Appendix E: Horrea for more details). (a) Gatti 1903; (b) XV 2449; (c) XIV 5310/1x; (d) XIV 5310/1v,w; (e) XIV 5310/1u; (f) XIV 5310/1t; (g) XIV 5310/1s; (h) XIV 5310/1r; (i) XIV 5310/1q; (l) XIV 5310/1p; (m) XIV 5310/10; (n) XIV 5310/1m,n; (o) XIV 5310/1k; (p) XIV 5310/1h.i; (q) XIV 5310/1g; (r) XIV 5310/1f; (s) XIV 5310/1e; (t) XIV 5310/1d; (u) XIV 5310/1c; (v) XIV 5310/1b; (w) XIV 5310/1a; (a) and (b) Calza 1959, p.131; (a) and (b) Meiggs 1960, p.335 (PhD: see Figure 34, p.285 and Figure 42, p.289; PhE: see Figure 31, p.284 and Figure 32, p.284; PhE: see Figure 41, p.289).
Ostia Reg. III ins. XIV.3 "Magazzino dei doli": 21 doli, some with stamps (a) S13, (b) S17, (c) S84, (d) S147, (e) S151, (f) S192 and (g) S193 [in situ] (See Appendix E: Horrea for more details). (a) RBS 470; (b) RBS 471; (c) RBS 509; (d) RBS 537; (e) RBS 539; (f) RBS 565; (g) RBS 564; (a)-(g) Calza 1959, p.131; (a)-(g) Meiggs 1960, p.366 (Fid: see Figure 6, p.264; PhS: see Figure 36, p.286).

Ostia Reg. IV ins. VII.4 "Caupona di Alexander": dolium embedded in the ground of a tavern; unpublished (PhD: see Figure 44, p.290).


Ostia Reg. V ins. XI.5 "Magazzino annonario": more than 100 doli, one with graffito 050 (See Appendix E: Horrea for more details). Calza 1959, p.131; Meiggs 1960, p.335; XV 2527/q (P1E: see Figure 24, p.278; PhD: see Figure 43, p.290).

Ostia along the Tiber "Magazzino near the Horrea dei mensores": at least 22 doli, many with graffiti (a) G23, (b) G49, (c) G61, (d) G64 on two doli, (e) G68, (f) G69, (g) G80, (h) G112, (i) G114 from an horrea located along the Tiber, (a) XIV 5310/2k; (b) XIV 5310/2r; (c) XIV 5310/2h; (d) XIV 5310/2f; (e) XIV 5310/2e; (f) XIV 5310/2d; (g) XIV 5310/2c; Carcopino 1909 (PhE: Carcopino 1909, Plan. XX,XXI) (PhE: Maison Andersen, photo n.389 of its catalogue. Cf. Carcopino 1909, p.360) (P1E: see Figure 25, p.279).

Ostia surroundings: dolium with stamp S147. XV 2488 = XIV 4093,6; Lanciani 1885a, p.77.

Ostia "Museum": dolium with stamp S102 [Museum]. XV 2459.

Ostia "Fondo la Torretta": dolium with stamp S73. XV 2447/b.

Ostia "Prope thermas": dolia with stamps (a) S72, (b) S122, (c) S127, (d) S169 and (e) S182 found together with graffiti (f) G48, (g) O52, (h) O55, (i) G56, (l) G59, (m) G60, (n) G62, (o) G63, (p) G66, (q) G71, (r) 073, (s) G105. (a) XV 2447/a; (b) XV 2475; (c) XV 2479 = XIV 4093,3; (d) XV 2500a = XIV 4093,7; (e) XV 2507; (f) XV 2527/p = XIV 4093/2; (g) XV 2527/a; (h) XV 2527/c; (i) XV 2527/g (l) XV 2527/h; (m) XV 2527/s; (n) XV 2527/f; (o) XV 2527/g; (p) XV 2527/e; (q) XV 2527/d; (r) XV 2527/b; (s) XV 2527/w = XIV 4093/10.

Ostia "Theater": fragment of a dolium with graffito G106 from the postacena of the theater. XV 2527/t; R. Fiorelli, "Ostia", NS 1881, p.116-120.

68. Piano della Roma: dolium with graffito G5. IX 6082/113.

69. Rignano Flaminio: 4 dolia with stamps (a) S39, (b) S105, (c) S190, and (d) S229. (a) XI 6691/9 = RBS 479; (b) XI 6691/1; (c) XI 6691/26 = RBS 563; (d) XI 6691/32.
Rome Reg. IV "Via Cavour": fragment of a dolium with stamp S150 [Antiquarium Comunale]. XV 2487 = RBS 540; Gatti 1889.

Rome Reg. V Esquilino "Orti Massimi": 32 dolia in 4 lines of 8 dolia each, with known dimensions D55, and many with stamps (a) S28, (b) S41, (c) S54, (d) S66, (e) S67, (f) S71, and (g) S90, found together with their lids, some with stamps (h) S58 and (i) S109 from a town horreum [14 are deposited in the Tabularium on the Campidoglio]. (a) XV 2490/b2; (b) XV 2430; (c) XV 2432; (d) XV 2443; (e) XV 2445; (f) XV 2444; (g) XV 2455; (h) XV 2496; (i) XV 2467; Lanciani 1874.

Rome Reg. V Esquilino "Piazza Vittorio Emanuele II": dolium with known dimensions D69, stamp S92 and with lid, used as a tomb [Museo Capitolino]. XV 2457.

Rome Reg. V Esquilino "unspecified": dolia with stamps (a) S106, (b) S114, (c) S159, and (d) S170 [Tabularium]. (a) XV 2463; (b) XV 2472; (c) XV 2494; (d) XV 2500b.

Rome Reg. VI Quirinale "Orto del noviziato dei Gesuiti": dolium with graffito G128 from a pottery kiln. XV 2533; Gatti 1887; R. Fiorelli, "Roma, Reg. VI", NS 1887, p.234.

Rome Reg. VI "Orti Sallustiani": dolium with graffito G116. XV 2527/ff.

Rome Reg. VI "Via Nazionale": 3 dolia with known dimensions D46, one of them with a stamp S112 from a store-room [the dolium with stamp has been exported to the USA]. XV 2469.

Rome Reg. VII "Via del Tritone": fragment of a dolium with stamp S152 found in a wall. XV 2489; Lanciani 1885b.

Rome Reg. VIII "Sterri": fragment of the dolium with stamp S107: Barnabei 1892.

Rome Reg. X "Arco di Costantino": 9 dolia embedded in the ground, one with stamp S62 from a wide horreum [Tabularium]. XV 2441.

Rome Reg. XIII Aventino "Chiesa di S. Sabina": fragment of a dolium with graffito G86 and tituli picti. XV 2523.

Rome Reg. XIII "Via Mastro Giorgio angolo Via Vanvitelli": dolium with stamp S65 and known dimensions D17. RBS 506; Gatti 1893.

Rome Reg. XIV "Alla Farnesina: Riva destra del Tevere": dolia with known dimensions D38 freestanding on a black and white mosaic floor and fragments of others, many with stamps (a) S18, (b) S61 (c) S177, and graffiti (d)G47, (e) G53, (f) G74, (g) G115, found together with lids with known dimensions D84 and stamps (h) S48, (i) S49, (l) S51 on two lids, (m) S91, (n) S70, (o) S113, and (p) S185 from the porticoes of the Cella vinaria Nuova and Arrunziana (See Appendix E: Horrea for more details). (a) XV 2419/1; (b) XV 2437; (c) XV 2504; (d) XV 2527/r; (e) XV 2527/n; (f) XV 2527/o; (g) XV 2527/ee; (h) XV 2433; (i) XV 2417; (l) XV 2434/1-2 (m) XV
2456; (n) XV 2446; (o) XV 2471; (e) and (i) Lanciani 1878; (n) Lanciani 1879, p.15; (p) XV 2508; (a-p) Lanciani 1880, p.127-137 and p.140-142.

Rome suburbio "Area del Policlinico": fragment of a dolium with stamp S53 from surface collection. XV 117a = RBS 503; Persichetti 1893.

Rome suburbio "Cimitero Callisto": dolium with stamp S188. XV 2511.

Rome suburbio "Colle S.Agata": fragment of a dolium with stamp S181, found together with 2 other dolia defossa with known dimensions D33. Caprino 1954.

Rome suburbio "Monteverde": 10 dolia with known dimensions D37, many with the same stamp S20, horizontally located in a vivarium. Mancini 1924 (PhD: Mancini 1924, p.58, fig.7, and p.59, fig.8; PlE: Mancini 1924, p.57, fig.6) (PlE: see Figure 28, p.281).

Rome suburbio "Via A. Nelli": gliquidium with known dimensions D83 from a cunicolo found together with 6 amphorae dated to the middle of the 1st century A.D. [Museo Nazionale Romano]. E. Lissi Caronna, "Roma - Piccolo deposito di anfore in Via Alessandro Nelli", NS 1968, p.10-15, figs. (PhD: NS 1968 p.15, fig.9; FiD: NS 1968 p.15, fig.8) (FiD: see Figure 8, p.265).

Rome suburbio "Via Appia Antica": fragment of a dolium with stamp S59 from a pit found in a sepulchral chamber. RBS 504; Ghislanzoni 1912.

Rome suburbio "Via Appia Antica": dolium with graffiti G13, G25, G30. XV 2527/dd/v/u.

Rome suburbio "Via Aurelia: Villa York": dolium with stamp S89. XV 2453.

Rome suburbio "Via Cornelia: Tenuta Casalotto": 9 dolia with known dimensions D27 embedded and fragment of others, one with graffiti G8 from a roofed store-room. Lead repairs. Romanelli 1933; Ballardini 1964, p.16. (PhE: Romanelli 1933, p.247, fig.4 = Ballardini 1964, p.16, fig.8; PlE: Romanelli 1933, p.247, fig.3) (PlE: see Figure 26, p.280).

Rome suburbio "Via Flaminia: Prima Porta": dolium with graffiti G77 and G110. XV 2527 a/gg.

Rome suburbio "Via S.Gregorio, Via dei Cerchi": dolium with stamp (a) S25 and graffiti (b) G108 [Repos. urb.]. (a) XV 2424; (b) XV 2527/Y.

Rome suburbio "Via S.Gregorio": dolium with stamps S155 [Tabularium]. XV 2492.

Rome suburbio "Via Latina": dolium with graffiti G111. XV 2527/hi.

Rome suburbio "Via Nomentana": dolium (a) with known dimensions D41, stamp S153 and lead repairs, found together with fragments of others, 2 (b) with stamp S104, from a building dated to the first half of the 2nd century A.D. (a) RBS 541; (b) RBS 513; (a)
+ (b) Stefani 1924. (PhS: Stefani 1924, p.64, fig.2 (b) and fig.3 (a)) (FIS: see Figure 14d-e, p.269).

Rome suburbio "Via Ostiense: fondo la Valchetta": dolium with graffito G57. XV 2527/m.

Rome suburbio "Via Portuense: Riva destra del Tevere": 2 dolia of almost spherical shape but with one side flat in an area 35cm in diameter, one (a) with stamp S22, the other (b) with stamp S24. (b) RBs 474; (a) + (b) Gatti 1896.

Rome suburbio "Via Prenestina: fondo Benzone": dolium with graffito G79) from a Roman building. XV 2524.

Rome suburbio "Via Solférino": dolium with stamp S47. XV 2515.

Rome "Alveo Tevere": dolia with stamps (a) S42, (b) S80, (c) S87, (d) S108, (e) S111, (f) S156, and (g) S163 found in the Tiber or along its banks [part in the Terme di Diocleziano and part in the repos. urb.]. (a) XV 2431; (b) XV 2448; (c) XV 2452 = XIV 4093,2; (d) XV 2466; (e) XV 2470; (f) XV 2491; (g) XV 2495); Gatti 1887, p.130.

Rome "Antiquarium Comunale": dolia with stamps S101 and S121 [Antiquarium Comunale]. RBs 512, 536.

Rome "Depositi urbani": dolium with stamp S174 of unknown origin [Depositi urbani]. XV 2502; Lanciani 1881, p.252.

Rome "Emporio": dolium with stamp S115. XV 2473.


Rome "Museo dell' Instituto di Archeologia": dolium with stamp S16 [Museo Instituto di Archeologia]. XV 2418.

Rome "Museo di Villa Giulia": dolia [Museo di Villa Giulia]. Personal communication by Dr. P. Pelagatti, Soprintendente archeologico for Etruria Meridionale.

Rome "Museo Kircheriano": dolia with stamps (a) S157 and (b) S.160 [Museum Kircheriano]. (a) XV 2493, (b) XV 2501. (a) AI 1878 p.155.

Rome "Musei Lateraniani": dolia with stamps (a) S129 and (b) S173 [Musei Lateraniani]. (a) XV 2481; (b) XV 2501.

Rome "Museo Tabularium": dolia with stamps (a) S56 (2 dolia), and S171 (2 dolia) [Tabularium]. (a) XV 2485; (b) XV 2499.

Rome "Villa Albani": 2 dolia with known dimensions D61, one with graffito G84 deposited in the gardens of the "Villa Albani". Marini 1884, p.407 n.9 = XV 2524; Morcelli-Fea-Visconti, Villa Albani, Rome 1869, p.82, n.527-528 and p.93, n.28.

Rome "Villa Carpinea": dolia with graffiti G38 and G39 deposited in the gardens of the "Villa Carpinea". (a) XV 2521; (b) XV 2527/s; (a+b) Fabretti 1867, p.517, n.259; (b) Marini 1884, p.407 n.8.
Rome "Villa Ludovisia": dolia with graffiti (a) G19, (b) G15, (c) G14, (d) G11, (e) G12 on the same dolium bearing G11, (f) G10, (g) G103 deposited in the gardens of the "Villa Ludovisia". (a) XV 2527x; (b) XV 2527z; (c) XV 2527aa; (d) XV 2527bb; (e) XV 2527bb; (f) XV 2527cc; (g) XV 2527ii.

Rome "Villa Pamfili": dolia, one with stamp (a) S30 and graffito (b) G9 deposited in the gardens of the Villa Pamfili. (a) XV 2490b3 = Marini 1884, p.407, n.10; (b) XV 2526

Rome "Villa Peretta": doli with stamp S29 deposited in the garden of the "Villa Peretta". XV 2490a = Marini 1884, 406n.2; Fabretti 1867.

Rome surroundings "Paludi pontine": dolium with stamp S132. XV 2480 = Marini 1884, 420n.97.

Rome unspecified "Dresden": dolium with stamp S1 [Museum in Dresden, n.275]: XV 2416/1.

Rome unspecified "La Vertice": dolium with stamp S50. RBS 502.

Rome unspecified: dolia with stamps (a) S95 and (b) S135. (a) XV 2438; (b) X 8047/9.


72. Valmontone: fragment of a dolium with stamp S178. XV 2505; Marini 1884, 406, n.3.

Viterbo (VT)

73. Bolsena, lat. Volsinium, "House of Laberius Gallus": fragments of dolia, one with stamps S79, found at the end of the peristyle in an internal court of a house located inside the town walls and destroyed by fire around A.D. 270. XI 6691/17 = RBS 535; Stevenson 1882a; Stevenson 1882b. (PhE: Stevenson 1882a, Tav.S, fig.2)

Bolsena, lat. Volsinium, "Mercatello": fragment of a dolium with stamp S55 [Museum in Florence]. XI 8115 =RBS 496; Gabrieli 1906.

Bolsena, lat. Volsinium, "Madonna dei cacciatori": fragment of a dolium with stamp S27 found with other material of the 2nd-3rd century A.D. [Museo Archeologico in Florence]. XI 8114/1; Gabrieli 1903.

74. Mugnano: dolium with stamp S133. XI 6691/18.

75. Tarquinius surroundings: dolium with stamp S85 [Museum]. I 2349 = XI 6691/12a.


Viterbo "Museo municipale": doli with stamp (a) S40 and (b) S60 [Museo municipale]. (a) XI 8114/2 = RBS 480; (b) XI 6691/10 =
RBS 505.

Viterbo surroundings: dolium with stamp S175. XI 6691/23 = RBS 556.

77. Vitorchiano, "Contrada Poggio Purgatorio": dolia with stamps (a) S230, (b) S146, (c) S232, (d) S165, (e) S179, (f) S233 among the remains of a building [Collection Rossi-Anselmini, Viterbo]. (a) XI 8114/4; (b) XI 8114/5; (c) XI 8114/6; (d) XI 8114/7; (e) XI 8114/8; (f) XI 8114/9.

--------Lombardy

Milano (MI)

78. Cesano "on the S. Andrea mountain": dolium with stamp S198. XI 8114/11.

--------Marche

Ancona (AN)


81. Fano "on the right bank of the Metauro river": dolium with graffito G91 [Municipio, Fano]. XI 6691/351.

Ascoli Piceno (AP)

82. Falerone: dolium with known dimensions D49 [Civic Museum]. Personal communication by the Director of the Museum.

83. S. Benedetto del Tronto: dolium defossil found in undefined buildings remains occupied from the Republican time to the 4th century A.D. L. Mercando, "S. Benedetto del Tronto (Ascoli Piceno)", NS 1979, p.166-179. (PhE: Mercando 1979, p.167, fig.79 and p.169, fig.82; PlE: Mercando 1979, p.167, fig.77).


Macerata (MC)

85. Camerino "Parrocchia di Perito": fragments of dolia, one with stamp S77 from surface collection and dated by Dressel to the begin-
ning of the 1st century A.D. or little before (cf. Pigorini 1897, p.99). XI 6691/11a; Pigorini 1897. (PhS: Pigorini 1897, p.98, fig.1) (FiS: see Figure 14a, 269).

Camerino: fragments of 3 dolia [Pinacoteca of the Museum, Camerino. Personal communication by Dr. G. Boccanera, Director of the Museum.

86. Fioraco "Vocabolo Casarine od Ovaie": dolium with known dimensions D45 [Garden of the "Villa degli Uncini" in Sant'Angelo di Castelraimondo]. Personal communication by Dr. Giacomo Bocanera, Director of the Museum, Camerino; T. Mataloni, Prolaqueum, Camerino 1957, p.67-70.

87. Villa Potenza "Sara Sorda": glirarium from a building of many rooms located along a road and occupied from the 2nd century B.C. to the 2nd century A.D. and later reused in the 4th century, L. Mercando, "Villa Potenza (Macerata) - Rinvenimenti in proprietà A.G.I.P.", NS 1971, p.402-423. (PhD: Mercando 1971, p.403, fig.3 and p.404, fig.4)

-------- Piemonte

Cuneo (CN)

88. Alba: 11 doliola, one with known dimensions D76, and 9 of them used as cinerary urns [Civico Museo Archeologico di Alba (Nro Inv. 255-262, and 327-329)]. Personal communication by the Director of the Museum.


Torino (TO)

90. Pino Torinese: 2 almost identical dolia, with known dimensions (a) D39 and (b) D40 of unknown origin, one (a) deposited in the gardens of the "Villa La Commenda" in Pino Torinese and the other (b) in the Museum Martini in Torino. (a) and (b) R. Ghivarello, "Una lapide e alcuni frammenti epigrafici romani a Pino Torinese", Bollettino Società Piemontese di Archeologia e Belle Arti, n.s., xiv-xv, 1960-61, p.137-140, figg. 1-3. (a) S. Curto, "A proposito di un dolio in cotto", Bollettino Società Piemontese di Archeologia e Belle Arti, n.s., xvi-xvii, 1962-3, p.139-140; (b) O. Spinola, Il Museo di Storia dell'Enologia e Pessone, Torino, 1961. (PhD: Spinola 1961, p.12)
--------Puglie

Bari (BA)


Brindisi (BR)

92. Brindisi "Via Tor Pisana": dolium with known dimensions D82 [Museo Provinciale di Brindisi, Sala De Leo, Nro Inv. 260. Personal communication by Dr. Benita Sciarra; F.G. Lopoto, "Ceramica arcaica di Via Tor Pisana a Brindisi, Atti della società di Magna Gracia, Rome 1964, p. 111-127.

Brindisi "Via Marco Pacuvio": dolium with known dimensions D52 [Museo Provinciale di Brindisi, Atrio Museo, Nro Inv. 1315]. Personal communication by Dr. Benita Sciarra, Director of the Museum.

93. Torchiarolo: dolium [Municipio]. Personal communication by Dr. Benita Sciarra.

94. Valesio: dolium with known dimensions D64 and with lead repairs deposited in the Museo Provinciale di Brindisi, N. inv. 1315bis. Personal communication by Dr. Benita Sciarra.

Foggia (FG)

95. Vieste "Chiesa di S. Maria di Merino": many dolia embedded in the ground of a villa rustica abandoned in the 1st century A.D. N. Degreassi, "Vieste", FA 11, n. 4815. (FID.: FA 11, fig. 109)

--------Sardinia

Cagliari (CA)


98. Nora: dolia with known dimensions D35, one with lead repairs, another with stamp S64 from the iposcenico of the theater of Nora dated to the Traian age [Magazzini of the Museo Archeologico Nazionale of Cagliari]. Pesce 1965; G. Pesce, Nora, Guida agli

99. Villasimius "S. Maria": dolium with stamp S209 dated to the Flavian period A.D. 69-117. Unpublished; Personal communication by Dr. Ferruccio Barreca, Soprintendente archeologico per le province di Cagliari ed Oristano.

Nuoro (NU)


Sassari (SS)


103. Valle Doria: dolium. Personal communication by Dr.S. Bonino.

104. Vidalba: dolium. Personal communication by Dr.S. Bonino.

---------Sicily

Siracusa (SR)

105. Siracusa "Museum": *Doliolum* with stamp S57 deposited in the Siracusian Museum. XV 2509 = X 8056,370.

---------Tuscany

Grosseto (GR)

106. Campagnatico "Poggio Rotigli": fragment of a dolium with stamp S78 and lead reinforcements [Museo Archeologico di Grosseto]. A. Ta-
loocchini, "Scavi e scoperte", FA 13, n. 4109; Bizzarri 1959.


Livorno (LI)


-------- Umbria

Perugia (PG)


110. Assisi surroundings: dolium with stamp S2. XV 6691/2.

111. Chiusi: fragment of a dolium with stamp S123. XI 6691/16.

112. S. Giustino "Celalba": fragment of a dolium with stamp S238 [Municipio, Città di Castello]. XI 6691/28; Personal communication by Dr. A.E. Feruglio, Soprintendente for Umbria, rilevator Mrs. Daniela Monacchi (SA Umbria); Scheda RA 10/0000 1516 (PhD: SA neg. b/78-26-27).

113. Collazzone "località Pianelli": 2 dolia of different dimensions laid horizontally one against the other and used as a tomb dated by its content to around the middle of the 3rd century A.D. M.S. Arena, "Sepolture romane", FA 30/31, 1982, n. 11747.


Perugia "unspecified": dolia with stamps (a) S103 and (b) S204: (a) XI 6691/14; (b) XI 6691/12.

Terni (TR)

116. Ameria, lat. Amelia: dolia used as tombs in a necropolis.

117. Orvieto "contrada Pagliano": dolium with stamp S11. XI 6691/3; Mancini 1890, p.146.

Orvieto "Stazione Ferroviaria": fragment of a dolium with stamp S183 found in a room of a wide building complex used as *termæ*. I 2351 = XI 6691/22 = RBS 553; Gamurrini 1884.

-----------------------France

--------Aquitaine

Dordogne


----------Auvergne

Allier


----------Champagne-Ardenne

Ardenne

120. Margny "La Chapelle": broken dolium filled with lime from a villa Gallo-Roman; other pottery finds are dated to the end of the 2nd-beginning of the 3rd century A.D. F. Benoit, "Margny", Gallia XXIX (1971), p.281 (PhE: Benoit 1971, p.281, fig.8).

----------Corse

Corse

121. Crocetta "Mariana region, lat.Mariana: Contrada Campiani": fragments of dolia, many with lead repairs, one with stamp S223 and


-------- Languedoc-Roussillon

Aude

123. Narbonne "La Cauquène": dolium with graffiti Q2 and Q3 from the ancient harbour. Grenier 1931, p.604


Narbonne: dolium with stamp S240. XII 5684/5 = Marini 1884, p.407, n.6a.

Gard

125. Caderau St. Laurent: dolium with stamp S236 found along the Caderau de St. Laurent. XII 5684/1.


127. Nîmes surroundings: 2 dolia, one from Imargues, the other from Saint-Jean-la-Croix, both with known dimensions (D23 and D24) [Museum, Nîmes]. Allmer 1881, p.157.


Hérault


Pyrénées Orientales


---------Nord, Pas-de-Calais

Nord


---------Provence-Côte d'Azur

Alpes Maritimes


136. Roquevaire "Oppidum": fragments of doliunm from a Preroman oppidum; Their lips were triangular and they had a ridge at the base. Personal communication by Dr. Luc Long; R. Verrier, Petite histoire de Roquevaire, Roquevaire, 1939.

Bouches du Rhône

137. Aix-en-Provence "Oppidum d'Entrémont": doliunm with a triangular ridge close to the base and fragments of others embedded in houses of the oppidum and in storage-rooms near the wall-towers; The oppidum was occupied from the beginning of the 3rd century B.C. to the 125-123 B.C., when it was conquered by the Romans and abandoned; Many doliunm had lead repairs. M.M. Euzennat, "Entrémont", 


143.Marseille, lat. Massalia; dolia with known dimensions D13, one with stamps S221 and a lid of another with stamp S224, from a port building dated to the Flavian period [Musée des Docks romains (in situ)] (See Appendix E: Port horrea for more details). F. Benoit, "Massalia (Marseille). Informations", Gallia XVIII (1960), p.286-288, figs.1-3; F. Benoit, "Marseille", Gallia XXII (1964), p.581-584; Gallia XXV (1967), p.494-95; Gallia XXX (1972), p.522 (P1E: Benoit 1964, p.581, fig.17) (PhE: Benoit 1960, p.287, fig.1; Benoit 1964, p.581, fig.16) (PhR: Benoit 1961, p.148, fig.5) (PhD: see Figure 45 (p.291) and Figure 46 (p.291). PhR: see Figure 33, p.285).

Var


148.Préjeus, lat. Forum Iulii, "Plate-Forme": 6 dolia with known dimensions D18 located in two parallel lines. C. Goudineau, "Circon-


-------- Rhône-Alpes

Drôme


Haute-Savoie


Loire


Rhône

Spain

--------Andalucía

Corduba


Malaga


--------Aragón

Zaragoza

168. Zaragoza "Calle Alfonso 1": dolium, probably a seria, with inscription. ER, 10, n. 423/2.

--------Baleares

Mallorca

169. Pollensa, lat. Pollentia, "Casa de los dos Tesoros": 2 dolia dated to the second half of the 3rd century A.D. M. Vegas, Vorläufer Bericht über römische Gebrauchskeramik aus Pollentia (Mallorca), BJB, 163, 1963, p.275 ss (FiD: Vegas 1973, p.118, fig. 11,5) (FiD: see Figure 6/d (p.264)).

---Castilla la Nueva---

Guadalajara


---Castilla la Vieja---

Avila


Burgos


---Cataluña---

Barcelona

173. Arenys de Mar "Vall de Maria": fragments of dolia from 2 rooms occupied from the 1st-2nd century A.D. to the 4th century A.D. Gorges 1979, p.197; Almagro 1945, p.35, n.2.


175. Caldas de Montbuich "Saint Miquel de Baduell": fragments of dolia from a pottery kiln which worked between the 1st and the 2nd century A.D. Gorges 1979 p.203.


178. Mataró "Can Llaurad": fragments of many dolia more than 2 meters in height, from a rich Roman villa occupied from the time of August to the 4th century A.D. Gorges 1979 p.208; Almagro 1945, p.132-
33; M. Ribas Bertran, "Descubrimiento de una villa romana en la finca de Torre Llauder de Mataró (Barcelona)", NAH VII (1963), p.206-208; FA 20 (1965), n.5145.

Mataró "Lluro or Llduro: Calle Pujol": many dolia from a Roman building. A. Balil, FA 30/31, n.13336.

179. 


180. Sabadell "La Salud or Arrahona": 68 dolia, one with graffito G84 in a 
cella vinaria of a villa rustica, which was occupied from the first half of the 1st century A.D. to the beginning of the 3rd century A.D. Almagro 1945, p.170-172 (P1E: Almagro 1945, p.170, fig.24) (P1E: see Figure 21, p.276).

181. San Martín Sarroca, "Cal Segal": fragment of dolia among the wasters of a pottery kiln used from the 1st century B.C. to the 2nd-3rd century A.D. Gorges 1979 p.220; Almagro 1945, p.181, n.3.


Gerona


Lérida


189. Balaguer, "Hostal Nou": 33 dolia with known dimensions D63 embedded for one third of their height (40 cm), some with stamps, graffiti and lead repairs from a cella located at a lower level than the rest of the pars rustica of a Roman villa occupied from the 1st century A.D. to the 5th century A.D. Gorges 1979, p.283-84; L. Diez-Coronel y Montull, "Una bottega romana en Balaguer", CNA 1968, p.774-783.


191. Torre de Segre "Mas del Notari": dolia from a Roman villa occupied between the 1st and the middle of the 3rd century A.D. Gorges 1979, p.292.


Tarragona


---------Estremadura

Badajoz

198. Badajoz "La dehesa de la Cocosa": storeroom with dolia from a Roman villa occupied from the 1st century A.D. to the 7th century. Gorges 1979, p.189-190; J. De Serra Rafols, La villa romana de la dehesa de la Cocosa, Badajoz, 1952.

---------Galicia

Orense


---------Murcia

Murcia


---------Valencia

Alicante


Valencia


Vasoongadas y Navarra

Navarra


Vizcaya


Portugal

---Norte Interior

Bragança


Vila Real

--- Norte Litoral ---

Beira Litoral


--- Sul ---

Faro

212. Olha-o "Quinta do Marim": 3 dolia embedded in a cella from a Roman villa. Gorges 1979, p.482.

Santarem


---------- Algeria ----------


217. Cherchell: 3 dolia with stamps (a) S218, (b) S.204, and (c) S222 [Museum, Cherchell]. (a) VIII 22636/3; (b) VIII 22636/14; (c) VIII 22636/10; (a-c) O. Gauckler, "Inscriptions inédites d'Algérie. Inscriptions dolaires", *Bulletin du Comité 1892*, p.87-125.


220. Oran: dolium with stamp S242. VIII 22636/12.


223. Tiaret region "Waldeck-Rousseau": dolium. M. Leglay, "Découverte-
Tipasa, lat. Cesarea: dolium with graffito 998. VIII 22636/17.


-------------Tunisia

225.Carthage: doria with stamp (a) S52, (b) S213, (c) S68, and (d) S110: (a) VIII 22636/2; (b) VIII 22636/4; (c) VIII 22636/1; (d) VIII 22636/5; (b) Delattre 1891, p.56, n.13.
ANNOTATED BIBLIOGRAPHICAL INDEX OF DOLIA FROM SEA EXCAVATIONS

As in the Annotated bibliographical index of dolia found on land excavation, the underwater sites have been ordered first by nation (Italy, France, Spain, Portugal) and then by region and province (in alphabetical order). In case of confirmed shipwrecks, their most common name used in the archaeological literature has been mentioned between quotation marks, while the actual location of the remains already raised from the sea has been specified between square brackets.

(Explanation of abbreviations: PlE: Plan of underwater excavation, FdD: Figure of dolium, FlL: Figure of lid belonging to a dolium, FlR: Figure of lead repairs, PhE: Photograph of underwater site showing at least one dolium, PhD: Photograph of dolium, PhL: Photograph of lid belonging to a dolium, PhS: Photograph of stamp on the dolium or its lid, PhR: Photograph of detail of lead repairs)

----------Italy

--------Latium

Rome (ROMA)


2. Civitavecchia "La Scaglia" (a cilindrical dolium with known dimensions D28 and stamp S211 recovered in 1974 by the Carabinieri of Civitavecchia 250 meters from the shore. Gianfrotta 1982, p. 25; For further information cf. Archivio Soprintendenza Etruria meridionale, 3 Civitavecchia, 531 and 3 Civitavecchia, 4010 dated February 1974 (PhS: Gianfrotta 1982, p. 30 fig. 50).

Civitavecchia "Sant'Agostino": dolium found 250-300 meters from the coast [Internal court of the Museum of Civitavecchia] Gianfrotta 1982, p. 25; For further information cf. Archivio della
Soprintendenza Etruria meridionale, 3 Civitavecchia, 4011-4012.

Civitavecchia "Imboccatura del Porto": 2 dolia with known dimensions D30 and D31 from the entrance of the harbor in Civitavecchia [Main entrance of the Museum, Civitavecchia] Gianfrotta 1982, p.24 (PhD: Gianfrotta 1982, p. 29, fig. 29) (PhD: see Figure 53-54, p.295).

3. Ladispoli: dolia from a shipwreck, one with known dimensions D20 (See Appendix E: Shipwrecks for more information). Personal communication by Dr. P.A. Gianfrotta (PhD: see Figure 57, p.297).


------- Liguria

Imperia (IM)

5. Diano Marina: dolia, one with stamp S140 and two with known dimensions D14 and D26, doliola, two with known dimensions D73 and D77, as well as lids for dolia with known dimensions D86 and D87 from a shipwreck dated to the second half of the 1st century A.D. (See Appendix E: Shipwrecks for more details) [One dolium is in the Municipal building in Diano Marina, part of the findings are in the local Museum (Diano Marina), and the rest in the deposits of the Soprintendenza archeologica per la Liguria in Genova (Liguria)]. F. Pallarès Salvador, "La nave romana del Golfo di Diano Marina: Relazione preliminare", FMA XII-XIII (1975-1981), p.79-107; F. Pallarès Salvador, "La Nave romana di Diano Marina-S.Bartolomeo", Navigia fundo emergunt, p.69-118, Genova, 1983. (FID: Pallarès 1975-81, p.93, fig.19, and p.94, fig.20-21; Pallarès 1983, p.82, fig.54, p.86, fig.61a, and p.87, fig.62) (FIL: Pallarès 1983, p.83, fig.56, and p.84, fig.58) (PhD: Pallarès 1975-1981, p.95, fig.22-23, and p.96, fig.34; Pallarès 1983, p.85, fig.55 and p.88, fig.64) (PhS: Pallarès 1975-1981, p.96, fig.25-26; Pallarès 1983, p.95, fig.53, and p.88, fig.63) (PhLS: Pallarès 1975-1981, p.92, fig.18; Pallarès 1983, p.83, fig.77) (PhE: Pallarès 1975-81, p.104-105, fig.40; Pallarès 1983, p.78-79, fig.51) (PhE: Pallarès 1975-81, p.81, fig.3, and p.83, fig.5; Pallarès 1979, p.71, fig.45-46) (FID: see Figure 2, p.260, and Figure 3, p.267; FIL: see Figure 11, p.267; PhS: see Figure 15e, p.270; PhE: see Figure 29, p.282; PhD: see Figure 51-52, p.294; PhE: see Figure 59, p298).
Grosseto (GR)

6. Castiglione della Pescaia "Punta Ala: Porticciolo": dolia, one with graffito G6 from a shipwreck dated to the second quarter of the 3rd century A.D. excavated in 1974 [Deposito of the Museo Ar-
cheologico della Maremma in Grosseto] Martinelli 1982, p.45; D.
Gandolfi, "Segnalazioni e ricerche sottomarine 1975, Italia", PMA
1975-81, p.270; D. Arroba, "Analisi pollinica di una resina
fossile rinvenuta in un dolio romano", Pollen et Sporen: Museum
national d'histoire naturelle XVIII/3 (1976), Paris 1976,
p. 385-393.; Personal communication by Dr. F. Pallarés. (PhD: see
Figure 56, p.296).

Castiglione della Pescaia "Isola dello Sparviero": 2 fragmentary
dolia recovered in 1977 off the island of the Sparviero [scantina-

7. Isola di Giannutri "Costa da Cala dello Scaglio a Punta Artemisia":
fragments of dolia with known dimensions D1 and unspecified Roman

8. Monte Argentario "Cala Grande": 3 dolia found by commandos of the
Aeronautes militare approx. 2 miles off Cala Grande; only 2 were
recovered [in front of the Comando Militare of the Airport in

9. Montercristo "Althamare": dolium with known dimensions D15 found the 27
August 1970, 24 miles South of the Island of Montercristo [Municici-
pio of Monte Argentario, Porto S.Stefano]. Martinelli 1982, p.64
(PhD: Martinelli 1982, p.65, fig.30).

Montercristo "Cala Maestra": dolium with known dimensions D19 found in
1974); PMA 1973-4 p.74; PMA 1975-82 p.404.; MS Ago.-Sett. 1974; MS
Dec. 1974. (PhD: G. D'Angelo, Anfore ed ancora sommerse, Pisa
1980, p.80).

10. Piombino "acque extraterritoriali": dolium with known dimensions
D3 and with stamp S201 found in 1975 between the islands of Gian-
utrini and Sardinia [Porto S.Stefano, GR]. Martinelli 1982, p.53
(PhS: see Figure 35, p.286).

11. Popolonia "Golfo di Baratti": fragment of a dolium with lead repairs
and remains of pitch on the inner wall found together with unspecif-
cied amphorae. A. Olisky and G. Marinelli, "Ricerche archeolo-
giche subacque nel Golfo di Baratti", Atti II Congresso, p.117-
124; Martinelli 1982, p.54; Lamboglia 1961, p. 29-30.
Brindisi (BR)

12. Savelletti di Fasano, "Baia di Vigo": pithoi with known dimensions D65 from a 5th century B.C. merchant ship carrying Corinthian amphorae. [Museo Provinciale, Brindisi. Nro. Inventario di scavo 6140] Kapitän 1972; Personal communication by Dr. B. Sciarr, Director of the Museo Provinciale, Brindisi (Phe: Kapitän 1972, p.6, Tav.I,2 and p.12, Tav. III,8) (FiD: see Figure 6a, p.264).

13. Torre Guarceo: fragments of a dolium found together with pipes made of clay (Internal diameter: 14cm. Thickness: 1cm.) [Museo Provinciale, Brindisi, N.RCOE: 5994]. Unpublished material; Personal communication by Dr. Benita Sciarr, Director of the Museum Provinciale in Brindisi.

Taranto (TR)

14. Campomarino "Madonnina A": pithoi or fragments of them have been found on a merchant ship dated to the 5th century B.C. carrying mainly Corinthian amphorae and few Corcyrian amphorae. Kapitän 1972, p.15, note 17.

Sardinia

Sassari (SS)

15. Porto Cervo: fragments of dolia, one with graffito L.F.P. incised and then filled with lead. Many fragments showed also lead repairs [Museo Nazionale, Sassari]. Rassu 1979.

Sicily

Siracusa (SR)


17. Siracusa "Stentinello": pithoi or fragments of them from a merchant ship dated to the 5th century B.C. sunk between Siracusa and the Magnisi peninsula. The main cargo was composed of Corcyrian amphorae. A few Corinthian amphorae have been also found together with some from Chios [Antiquarium dell'Archeologia Sottomarina, Siracusa]. Kapitän 1972, p.15, note 18.

Siracusa "Relitto B del Porto Grande": pithoi or fragments of them

--------------------------France

-------Corse

18.Ile Rousse "Ile Rousse": fragments of dolia, one with known dimensions D21, and two others with stamps S93 and S139, from a shipwreck located in the harbor [Depot en Corse] (See Appendix E: Shipwrecks for more details). N. Lamboglia, "Seignalazioni e ricerche sottomarine", FMA 1972, p.54; R. Léquement, "Fouilles d'urgence d'Ile Rousse. 27 Novembre-16 December 1972", unpublished manuscript deposited in Fort St.Jean (Marseille, Bouches-du-Rhône, Provence-Côte d'Azur); B. Liou, "Recherches sous-marines: Ile Rousse", Gallia XXXI (1973), p.606-608. (PhE: Léquement, fig.10 and fig.14; PhD: Léquement, fig.10, fig.15, fig.16, and fig.18-19; PhR: Léquement, fig.17; PhL: Léquement, fig.26-27; PhS: Léquement, fig.22-24) (FIS: see Figure 15a-b, p.270).

-------Languedoc-Roussillon

Hérault


-------Provence-Côte d'Azur

Alpes Maritimes

20.Cannes, "Jarres de Bataiguer": dolia from a shipwreck dated to the 9-10th century A.D. [partially deposited by the D.R.A.S.M. in Saint-Raphaël, part in the Musée de l'Ile St.Margherite in Cannes (Var) and part also in the Musée d'histoire et d'archéologie in
Antibes (Var). J.P. Joncheray, "L'épave des Jarres de Bata-guien", Rapport préliminaire présenté le 30 novembre 1973, unpublished relation (deposited in the Fort St. Jean, Marseille); personal communication by Dr. Luc Long (PhE: Joncheray 1973 with no page number; FiR: Joncheray 1973 with no page number) (FiR: see Figure 7, p.265; PhD: see Figure 58, p.297).

Bouches-du-Rhône

21.Marseille "Petit Congloué": dolia with known dimensions D4-D12 and one with stamp S138 from a shipwreck [Musée d'histoire et d'archéologie, Antibes, Var] (See Appendix E: Shipwrecks for more details). Liou 1982; Personal communication by Luc Long; Television programs: "Thalassa" by Ch. Rives and "Mémoires de France" by P. Dry and J. Dasque (FiR: Liou 1982, fig.2; PhE: Liou 1982, fig.1 and 2-15; PhS: Liou 1982, fig.16-17) (PhD: see Figure 55, p.296).

Var

22.Antibes "La Garoupe or Tirapei": dolia, some with known dimensions D25 and D70, two with stamps S136 and S137, as well as lids of dolia with known dimensions D85 and D89 from a shipwreck [Musée d'archéologie et d'histoire in Antibes (Var) and Fort St. Jean, Marseille (Bouches-du-Rhône)] (see Appendix E: Shipwrecks for more details). Benoit 1956, p.32-33; Benoit 1958, p.171-173; Benoit 1961, p.146-149; Fiori 1972, p.35-44. (FiS: Fiori 1972, p.40) (FiR: Benoit 1958, p.32, fig.40; Fiori 1972, p.36,38) (PhD: Fiori 1972, p.43, Pl.I, Ph.1,4 ; Fiori 1972, p.44, Pl.II, Ph.2,4 and 5) (PhS: Benoit 1958, p.172, fig.55 and fig.56; Benoit 1961, p.147, fig.3; Benoit 1961, p.148; Fiori 1972, p.43, Pl.I, Ph.2,3,6) (PhL: Benoit 1956, p.32, fig.38; Fiori 1972, p.43, Pl.I, Ph.5) (PhR: Benoit 1958, p.32, fig.39; Benoit 1961, p.148, fig.5) (PhE: Fiori 1972, p.44, Pl.II, Ph.2,4 and 5) (FiR: see Figure 2, p.260; FiS: see Figure 11, p.267; FiS: see Figure 150-d, p.270; PhD: see Figure 49, p.293, Figure 50, p.293, and Figure 13, p.268).

23.Le Lavandou "Cap Bénat" (shipwreck 46 meter deep with at least 2 dolia, one with known dimensions D48 [Museum "Les amis de la mer" at Le Lavandou and Fort Saint Jean, Marseille] (see Appendix E: Shipwrecks for more details). Unpublished report at the DRASM; Personal communication by Dr. Luc Long and Mr. Daniel Soyer (Le Lavandou) (PhD: possession of the D.R.A.S.M. [Fort St.Jean, Marseille]) (PhD: see Figure 47, p.292 and Figure 48, p.292).

24.Forquerolles "Grand Ribaud D": fragments of many dolia and ampho- rae. Personal communication by Dr. Luc Long.

25.St.Raphaël "Agay": dolia, some with known dimensions D51 from a shipwreck covering an area of 25m by 24m and dated to the 9th century A.D. by the North African pottery found on it. A.G. Visquie, "Premier inventaire du mobilier de l'épave dite 'des Jarres

-------------------Spain

-------Baleari

26.Palma de Mallorca: a dolium with known dimensions D47 was found in 1930 during dredging of the port of Palma de Mallorca [building of the "Obras del Puerto de Palma"]. J. Mascaro Pasarius, "El trafico maritimo en Mallorca en la antiguedad clasica", Boletin de la Camara Oficial de Comercio Industria y Navegacion de Palma de Mallorca, n.636, Julio-Sept. 1962, Palma 1962, p.178-181; J.Mascaro Pasarius, "El trafico Maritimo en Mallorca", Atti III Congresso, p.82-83 (FiD: Mascaro 1962 p.180; PhD: Mascaro 1962 p.178; Atti III Congresso, p.73, fig.5) (FiD: see Figure 9, p.266).

-------Costa Brava

27.CadaquèS "Cap de Creus: Punta de Levante del freo de La Llavaguera": a mouth of a dolium with known dimensions D42 and fragments of other dolia have been found in 1955 in the eastern region of the Cap de Creus together with 13 amphorae. [Museum, Gerona]. M. Oliva Prat, "Exploraciones del C.R.I.S. en CadaquèS, Port de la Selva y Rosas", Canigó. Figueras, March 1958, n.49; Oliva Prat 1961 (FiD: Oliva Prat 1961 p.241 fig.20) (FiD: see Figure 6b, p.264).

-------------------Portugal

-------Beira Litoral

Lusitania

28.Figueira da Foz: dolia and amphorae have been recovered with a fishing net from a Roman shipwreck close to the estuary of the Montego. FA 14, nro 4833; R. Cortez, "Pesquizas arqueologicas submarinas no Atlantic", Viriatio 1, 2, 1957 [1958], pp.120-121, 1 fig.
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AI = Annali dell’Instituto, Rome.
AIEC = Anuari del Institut d’Estudis Catalans, Barcelona.
AJA = American Journal of Archaeology.
Almagro 1945 = M. Almagro, Carta Arqueológica de España: Provincia de Barcelona, Barcelona 1945.
Allmer 1881 = A. Allmer, "Fragments de dolia de terre cuite", Bulletin épigraphique de la Gaule, Tome I, 1881, p.156-159, Pl.V.
AP = O arqueólogo Português, Lisbonne.
BANarb = Bulletin de la Commission archéologique de Narbonne, Narbonne
Barnabei 1892 = F. Barnabei, "Roma - Nuove scoperte nella città e nel suburbio", NS 1892, p.342-347.
BCAR = Bollettino Commissione Archeologica di Roma, Rome.
BDAR = Bollettino d’Arte del Ministero per i Beni Culturali ed Ambientali, Rome.
Bizzarri 1959 = M. Bizzarri, "Campagnatico (Grosseto) - Ritrovamenti Barcheologici a Poggio Rotigli", NS 1959, p.56-63.
BJB = Bonner Jahr Buch, Berlin.
BoArq = Boletin Arqueológico, Barcelona.
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BVallad = Boletín del Seminario de Arte y Arqueología, Valladolid.
CAS = Cahiers d'Archéologie Subaquatique, Paris.
CC = Cahiers Corsica, Bastia.
Cerulli Irelli 1965 = G. Cerulli Irelli, "Campania: S.Sebastiano al Vesuvio (villa rustica romana)", NS 1965, p.161-178, Fig.1-19.
CIL = Corpus Inscriptionum Latinarum
CNA = Congreso National de Arqueologia, Madrid.
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EE = Ephemeris Epigraphica, Paris.


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FMA = Forma Maris Antiqui, Bordighera.


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Mau 1878 = A. Mau, Pompei, Rome 1878.

MEPRA = Mélanges de l'école Francaise de Rome, Rome.


MM = Madrider Mitteilungen, Madrid.


Moracchi-Mazel 1973 = S. Moracchi-Mazel, "Découvertes archéologiques fortuites en Corse. II. Vestiges de villa romaine dans la plaine de Lucciana", CC 34 (1973) p.37-40, 8 Fig.

NS = Mondo Sommerso, Milano.

NAH = Noticiero Arqueológico Hispanico, Madrid.

NS = Notizie degli scavi di antichità, Rome.


Patroni 1897 = G. Patroni, Catalogo dei vasi e delle terrecotte del Museo Campano, Capua 1897.


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TLL = Thesaurus Linguae Latinae, 4 vols., Lipsia, 1900.

Vegas 1973 = M. Vegas, Ceramica comun romana del Mediterraneo Occiden-

Vermiglioni 1804-5 = G.B. Vermiglioni, Le antiche iscrizioni perugine
raccolte, illustrate e pubblicate da G.B.Vermiglioni, Perugia
1804-5.

Vighi 1940. = R. Vighi, "Anguillara Sabazia - Scoperta di una grande
villa d'età repubblicana all'Acqua Claudia", NS 1940, p.398-419.

VIR = O. Gradenwitz et al., Vocabularium Jurisprudentiae Romanae, Ber-
lin 1903-1939. (Incomplete publication interrupted by World War
II. The following part have been issued: A-C (1903), D-G (1933),
H-Ipsel (1910-1937), N-per (1914-1936), R-Z (1910-1939))

Walters 1905 = H.B. Walters, History of ancient pottery, Greek, Etrua-
can, and Roman, 2 vols., New York 1905.


Zucca 1980 = R. Zucca, "I bolli laterizi urbani della Sardegna",
Archivio storico Sardo 31 (1980), p.49-83, Tav. Fig.

Zucca 1981 = R. Zucca, "Osservazioni sull'opus doliare urbano della
Sardegna", Archivio storico della Sardegna 32 (1981), p.11-26,
Tav. Fig.
APPENDIX A.

CATALOGUE OF LATIN PASSAGES REFERRING TO DOLIA

Appendix A is a list of passages from Latin writers who refer to dolia. They have been catalogued following the alphabetical order of the Latin name of the author and, within a single author section, following the Latin title of each work. In case the author is unknown, the most common title of the publication has been used, and when an author has been quoted by another, his passage can be found under the latter's name. An exception to this rule is made by the Jurisconsults quoted in the Digest of Justinian which have been catalogued under their own names.

Many passages have an introduction, which has been written in an effort to clarify the relation of the passage to the total work of the author and to define, if not clearly express in the passage itself, the position in space and time of the dolium mentioned.

Aetna, see Minor Latin Poets.

Alfenus Varus, (1st Century B.C.)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Alf. Dig. XIX 1,26
Introduction: The first title of the 19th book of the Digest is concerning with the legal aspects of the actions of purchase and sale.

Latin text: (26) Alfenus Varus libro secundo digestorum. Si quis, cum fundum venderet, dolia centum, quae in fundo esse adfirmabat, accessura dixisset, quamvis ibi nullum dolium fuisset, tamen dolia emptori debebit.

Ambrosius Mediolanensis Episcopus, Sanctus (Saint Ambrose, Bishop of Milan: A.D. 339-397)
(Ep. et Ac. = Epistolae et Acta = Letters)
Ambr. Ep. et Ac. 4.4
Introduction: In his letter to Bishop Felix, in about A.D. 380, Saint Ambrose talks about the Holy of Holies (Sancta Sanctorum) of the Old Testament.
Latin text: (4) Ibi arca Testamenti undique auro tecta, id est doctrina Christi, doctrina sapientiae Dei. Ibi dolium aureum habens manna; recepta aulum scilicet spiritalis alimoniae, et divinae promptuarium cognitionis.

Ammianus, Marcellinus (A.D. c. 330-after A.D. 393)
(Res Gestae = The History)

Amm. XVI 5.8
Introduction: In describing the merits of Julianus Caesar (cousin of Constantius and Emperor from A.D. 360 to 363) Ammianus talks extensively about his great memory.
Latin text: (8) Si itaque verum est, quod scriptores varii memorant, Cyrum regem et Simonidem lyricum, et Hippian Eleum sophistarum acerrimum, ideo valuisse memoria quod epitis quibusdam remedii id impetrarunt, credendum est hunc etiam tum adultum totum memoriae dolium (si usquam repperiri potuit) exhaussisse.

Amm. XX 11.10
Introduction: In A.D. 360, during the siege of Bezabde (Persia), dolia were thrown from the walls onto the Constantian troops who were attacking the town and were already close to the wall.
Latin text: (10) Et vimineae cratres cum procederent confidenser, essentque parietibus iam contiguae, dolia desuper cedebant et molae, et columnarum fragmenta, quorum ponderibus nimiis obruebantur oppugnatores, hiataque violento disiectis opeinentis, cum periculis ultimis evadebant.

Antoninus Placentinus
see Itinerarium Antonini Placentini

Apuleius, Lucius Madaurenius (A.D. c. 125-c. 192)
(Met. = Metamorphoses = The metamorphoses of Lucius Apuleius or The Golden Ass)

Apul. Met. I 9.3
Introduction: Aristomenes, a traveler encountered by Lucius Apuleius before being transformed into an ass, is telling a story about an old friend of his, who near Larissa (Greece) encountered a woman named Meroe, who sold wine and was a powerfull magician.
Latin text: (3) Cauponem quoque vicinum atque ob id aemulorum deformavit in ranam et nunc senex ille dolio innatans vini sui adventores
pristinos in faece summissus officiosis ronchis raucus appellant.

Apul. Met. IX 5, 4
Introduction: One of the short stories, without any precise location of the facts, which are narrated by Lucius Apuleius in his peregrinations, after having been transformed by witchcraft into an ass, is about a poor man who one day suddenly returned home unexpectedly by his lascivious wife.

Latin text: (4) ... Iamque clausi et obseratis foribus uxor is laudata continentia iamnum pulsat; sibilo etiam praesentiam suam denuntiante: Tunc mulier callida et ad huiusmodi flagitia perastutula tenacissimis amplexibus expeditum hominem dolio, quod erat in angulo semiobrutum sed alias vacuum, dissimulante abscondit, ...

Apul. Met. IX 6, 2.3.5
Introduction: The same story (see Apul. Met. IX 5, 4) goes on after the wife of the poor man had railed against him because he had come home so soon without bringing any provisions.

Latin text: (1) Sic confutatus maritus "Et quid istic est?" ait "Nam licet forensis negotio officinator noster attentus ferias nobis fecerit, tamen hodiernae cœnulae nastrae prospexi. (2) Vides istud dolium, quod semper vacuum frustra locum detinet tantum et revera praeter impedimentum conversationis nostrae nihil praestat amplius? (3) Istud ego quinque denariis cuidam venditavi; et adest, ut dato pretio secum rem suam ferat. Quin itaque praecingeris mihique manum tantisper accommodas, ut exobrutum protinus tradatur emptori. (4) E re nata fallacia, mulier tementarium tollens cachinnum "Magnum" inquit "Iustum virum ac strenuum negotiatiorem nacta sum, qui rem, quam ego mulier et intra hospitium contenta iamdudum septem denariis vendidi, minoris distraxit". (5) Additamento pretii laetus maritus "Et quis est ille," ait "Qui tanto praestinavit?" At illa "Olim, inepte," inquit "Descendit in dolium sedulo soliditatem eius probaturus."

Introduction: Apuleius ended this short story in a joking way (for the previous passages of the same story see Apul. Met IX 5, 4 and Apul. Met. IX 6, 2.3.5.).

Latin text: (1) Nec ille sermoni mulieris defuit sed exsurgens alacritate "Vis" inquit "Verum scire, materfamilias? Hoc tibi dolium nimis vetustum est et multifariam rimis hiantibus quassuum"; ad maritumque eius dissimulante conversus (2) "Quin tu, quicumque es homunculo, lucernam" ait "Actutum mini expedes, ut erasis intrinsecus sordibus diligenter an aptum usu possim dinoscere, nisi nos putas aes de malo habere?" (3) Nec quicquam moratus ac suspicatus acer et egregius ille maritus, accensa lucerna, "Discede," inquit " Frater, et otiosus adsitste, donec probe procuratum istud tibi praepresentem," (4) et cum dicto nudatus ipse, delato lumine, scabiem vetustam cariosae testae occipit exculpere. (5) At vero adulter, bellissimus ille pusio, inclinatam dolio pronam uxorem fabri superincurvatus secure dedolabat. (6) Ast illa
capite in dolium demisso maritum suum astu meretricio tractabat ludire: hoc et illud et aliud et rursus aliud purgandum demostrat diligò suo, donec utroque opere perfecto, acceptis septem denariis, calamitosus faber collo suo gerens dolium coactus est ad hospitium adulteri perferre.

Apul. Met. IX 34,2
Introduction: Still transformed into an ass, Lucius Apuleius assisted in the release of powerful unnatural forces which, in a brief moment, turned a farm-house into ruins.

Latin text: (2) Ipsoque illo momento quo stupore defixi mirantur ac trepidant divina praesagia, concurrunt unus e cella vinaria muntians omne vinum, quod olim diffusum fuerat, in omnibus dolis ferventi calore et prorsus ut igne copioso subdito rebullire.

Arnobius Afer, (died in A.D.327)
(nat. = Adversus Nationes or Adversus Gentes = Against the Nations)

Arn. nat. 2,23
Introduction: In trying to define what is "the reason" that man possesses, but not animals, Arnobius pretends to ask common questions to an imaginary man, who has been brought up, from his birth, wholly isolated from human society.

Latin text: (23) ... Quid si adjicias rota quid sit, aut tribula, vannus, dolium, cupa, trapetum, vomis, aut cribum, mola, buris, aut sarculum?

Augustae Historiae, Scriptores see Capitolinus, Julius

Aurelius Imperator, Marcus see Fronto, Marcus Cornelius

Ausonius, Decimus Magnus (A.D.c.310-c.393)
(Epith. = Epitaphii = Epitaphs)

Auson. Epith. 28,3
Introduction: The 28th Epitaph written by Ausonius is in memory of Diogenes, the famous Greek philosopher.

Latin text: (28,1) In Diogenis cynici sepulcro in quo pro titulo canis signum est.
"Dic, canis, hic cuius tumulus?" "Canis." "At canis hic quis?" "Diogenes." "Obit?" "Non obit, sed abit." "Diogenes, cui per a penus, cui dolia sedes, ad manes abit?" "Cerberus oinde vetat." "Et quonam?" "Clari flagrat qua stella Leonis, additus est iustae nunc canis Erigonae."
Capitolinus, Iulius (lived under Diocletianus and Constantine the Great)
(Pius = Antoninus Pius Iulii Capitolini = The life of Antoninus Pius by Julius Capitolinus)

Capitolin. Pius 3,5
Introduction: Many omens of his future great rule occurred to Antoninus Pius from the beginning of his political career. Some of them occurred in A.D. 120, just after his consulship together with Catilinus Severus.
Latin text: (5) ... Et in Etruria dolia, quae defossa fuerant, supra terram reperta sunt, ...

Cassiodorus Senator, Flavius Magnus Aurelius (A.D. c.480-c.575)
(in psalm. = Expositio in Psalmos = Commentary on the Psalms; var. = Variarum Libri XII = Collection of official documents)

Cass. in psalm. 70,23
Latin text: (23) Ego autem confiteor tibi in vasis psalmorum veritatem tuam. Cum Dominus fidelibus suis per exhortationes pias praemia aeterna promiserit, hic jam justus ille generalis laetus veritatem se psallere confitetur, id est, quia Domini promissa complenda sunt, dum nescit fallere, quod aeterna Veritas pollicetur. Pulchrae autem definitum est psalmos vasa esse veritatis, quasi spiritualia dolia vinum Domini incorrupto sapore servant.

Cass. var. II 39,2
Latin text: (39,2) ... Caeruleum fontem vidimus in formam dolii concavis hiatibus aestuante, et fornaces anhelantium aquarum circumducto tereti labio, naturae probabilis dispositione coronatas; ...

Cato Censorius, Marcus Porcius (234-149 B.C.)
(r.r. = De Re Rustica (early printed editions) or De Agri Cultura (Title from medieval manuscripts) = Rural Matters)

Cato r.r. 1,5
Introduction: In chapter one Cato is explaining the major points that a man needs to keep in mind when he is thinking of acquiring a farm.
Latin text: (1,4). .. De domino bono colono bonoque aedificatore melius emetur. Ad villam quum venies, videte, vasa torcula et dolia multane sient: ubi non erunt, scito pro ratione fructum esse.

Cato r.r. 2,3
Introduction: When the master arrives at the new farm, he has to speak to the overseer and inquire about the work done on the property. If the
amount of work does not seem satisfactory and the overseer claims that the weather has been bad together with many other excuses, the owner should call him back later and explain his estimate of the work done.

Latin text: (3) Cum tempestates pluviae fuerint, quae opera per imbrem fieri potuerint, dolia lavari, picari, villam purgari, frumentum transferri, stercus foras efferri, stercilimum fieri, semen purgari, funes sarciri, novos fieri; centones, cuculiones familiar oportuisset sibi sarcire.

Cato r.r. 3.2
Introduction: In the 3rd chapter general concepts for a well running farm are explained.

Latin text: (2) Patrem familiae villam rusticam bene aedificatam habere expedit, cellam oleariam, vinarium, dolia multa, uti lubeat caritatem expectare: et rei et virtuti et gloriae erit.

Cato r.r. 10.4
Introduction: In the 10th chapter Cato is analysing the proper equipment for an olive-yard of 240 jugera.

Latin text: (10,1) Quo modo oleum agri iugera CCXL instruere oporteat ... (10,4) ;dolia olearia C, labra XII, dolia quo vinacius condat X, amurcaria X, vinaria X, frumentaria XX, labrum lupinarium I, serias X, labrum eluacrum I, Solium I, labra aquaria II, opercula dolis seriis priva;

Cato r.r. 11.1.2
Introduction: In the 11th chapter Cato is analyzing the proper equipment for a vineyard of 100 jugera.

Latin text: (1) Quo modo vineae iugera C instruere oporteat. ... dolia ubi quinque vindemiae esse possint culleum DCCC, dolia ubi vinaeaeos (2) condat XX, frumentaria XX, opercula doliorum et tectaria priva

Cato r.r. 12.1
Introduction: Chapter 12 is devoted to the analysis of the necessary equipment for the pressing-room.

Latin text: (1) In torcularium quae opus sunt ... serias III, ... cupas minuscolas X, ...

Cato r.r. 13.2
Introduction: In the first part of chapter 13, Cato analyzes the proper equipment needed for the pressing-room at the time of pressing; in the second part of the same chapter he analyzes the equipment for the oil cellar (cella olearia).

Latin text: (1) In torcularium in usu quod opus est ... ,seriam vinarium I, ... (2) In cellam olearium haec opus sunt. Dolia olearia, opercula, labra olearia XIII.
Cato r.r. 23,1
Introduction: Chapter 23 is devoted to the work, which needs to be done before the vintage.

Latin text: (1) Fac ad vindemiam quae opus sunt ut parentur. Vasa laventur, corbulae sarciantur, picentur, dolia quae opus sunt picentur, quom pluet.

Cato r.r. 23,2.3.4
Introduction: Cato is describing things that need to be done during a vintage.

Latin text: (2) ... Siccum puriter omnium dierum pariter in dolia dividito. Si opus erit, defratum indito in mustum de musto lixivo coctum, partem quadragesimam addito defruti vel salis sesquilibram in (3) culleum. Marmor si indes, in culleum libram indito; id indito in urnam, misceto cum musto; id indito in doleum. Resinam si indes, in culleum musti P. III. bene comminuito, indito in fiscellam et facito uti in doleo musti pendeat; eam quassato crebro, uti (4) resina condeli- quescat. Ubi indideris defratum aut marmor aut resinam, dies XX permisceto crebro, tribulato cotidie. Tortivum mustum circumcoidaneum suo cuique dolio dividito additoque pariter.

Cato r.r. 25
Introduction: Chapter 25 is dealing with preserving grapes.

Latin text: (25) Quom vinum coctum erit et quom legetur, facito uti servetur familiae primum suisque, facitoque studeas bene percoctum siccomque legere, ne vinum nomen perdat. Vinaceos cotidie recentis succernito lecto restibus subtento, vel cribrum illi rei parato. Eos concuculato in dolia picata vel in lacum vinarium picatum. Id bene oblini, quod des bubus per hiemem.

Cato r.r. 26
Introduction: Chapter 26 is dealing with things that need to be done after the vintage.

Latin text: (26) Vindemia facta vasa torcula, corbulas, fiscinas, funis, patibula, fibulas iubeto suo quidquid loco condii. Dolia cum vino bis in die fac exergeantur, privasque scopulas in dolia facito habeas illi rei, qui labra doliorum circumfrises. Ubi erit lectum dies triginta, si bene deacinita erunt, dolia oblinito. Si voles de faece demere vinum, tum erit ei rei optimum tempus.

Cato r.r. 39,1.2
Introduction: Chapter 39 deals with general maintenance work that can be done when the weather is bad.

Latin text: (1) Ubi tempestas malae erunt, cum opus fieri non poterit, stercus instercilium egerito. Bubile, ovile, cohortem, villam bene purgato. Dolia plumbo vincito vel materie quernea vere sicca alligato. Si bene sarseris aut bene alligaveris et in rimas medicamen- tum indideris beneque picaveris, quodvis dolium vinarium facere pote-
ris. Medicamentum in dolium hoc modo facito: cerae P.I, resinae P.I, (2) sulphuris P.C' C'. Haec omnia in calicem novum indito, eo addito gypsum contritum, uti orassitudo fiat quasi emplastrum, eo dolia sarcito. Ubi sarsersis, quicoloem eundem facias, cretae crudae partes duas, calcis tertiam conniagneto; inde laterculos facito, coquito in fornace, eum conterito idque inducito.

Cato r.r. 54
Introduction: Chapter 54 deals with the feed for cattle.
Latin text: (54) Bubus pabulum hoc modo parari darique oportet. Ubi sementim patraveris, glandem parari legique oportet et in aquam conici. Inde semodios singulis bubus in dies dari oportet, et si non laborabunt, pascantur satius erit, aut medium vinaceorum, quos in dolium consideris.

Cato r.r. 66,2
Introduction: Chapter 66 deals with the duties of the watchman and the ladder in the processing of oil.

Cato r.r. 67,2
Introduction: Chapter 67 deals with the duties of the watchman in the oil cellar.
Latin text: (2) Amurcam conmutet usque adeo, donec in lacum qui in cella est postremum pervenerit. Fiscinas spongia effingat. Cotidie oleo locum conmutet, donec in dolium pervenerit.

Cato r.r. 69,1.2
Introduction: Chapter 69 deals with the steeping of new oil jars.

Cato r.r. 104,1.2
Introduction: In chapter 104 it is explained how to prepare a cheap wine used only by the family.
Latin text: (1) Vinum familiae per hiemem qui utatur. Musti Q.X in
dolium indito, aceti acris Q.II eodem (2) infundito, sapae Q.II, aquae
dulcis Q.L. Haece rude misceto ter in die dies quinque continuos. Eo
addito aquae marinae veteris sextarios LXIII et operculum in dolium
imponito et oblinito post dies X. Hoc vinum durabit tibi usque ad
solstitium. Siiquid superfuerit post solstitium, acetum acerrimum et
pulcherrimum erit.

Cato r.r. 105,1.2
Introduction: In chapter 105 Cato explains one way of preparing Greek
wine.
Latin text: (1) Qui ager longe a mari aberit, ibi vinum Graecum
sic facito. Musti Q.XX in aheneum aut plumeum infundito, ignem subdi-
to. Ubi bullabit vinum, ignem subducito. Ubi id vinum erefrixerit, in
dolium quadragenarium infundito. Seorsum in vas aquae dulcis Q.I infun-
dito, salis M.I, sinito (2) muriam fieri. Ubi muria facta erit, eodem
in dolium infundito. Schoenum et calamum in pila contundito, quod satis
siet, sextarium unum eodem in dolium infundito, ut odoratum siet. Post
dies XXX dolium oblinito. Ad ver diffundito in amfhoras. Biennium in
sole sinito positum esse. Deinde in tectum conferto. Hoc vinum deterior
non erit quam Coum.

Cato r.r. 107,1.2
Introduction: In chapter 107 Cato gives a recipe for a mixture used for
coating the rims of dolia.
Latin text: (1) Quo labra doliorum circumlinas, ut bene odorata
sint et nequid viti in vinum accedat. Sapae congios VI quam optimae
infundito in aheneum aut in plumeum et iris aridae contusae heminam et
sertam Campanicam P.V bene odorata una cum iri cintundas quam minutis-
sime, per oribrum cernas et una cum sapo coquas salmerit et levi
flamma. (2) Conmoveto, videto ne aduras. Usque coquito, dum dimidium
excoquas. Ubi erefrixerit, confundito in vas picatum bene odoratum et
utito in labra doliorum.

Cato r.r. 110
Introduction: In chapter 110 Cato explains how to remove a bad odor
from the wine.
Latin text: (110) ... Testam de tegula crassam puram calfacito in
igni bene. Ubi calebis, eam picato, resticula alligato, testam demitti-
to in dolium infimum leniter, sinito biduum oblinitum dolium. Si demptus
erit odor deterior, id optime; si non, saepius facito, usque dum odorem
malum dempaeris.

Cato r.r. 112,1.2.3
Introduction: In chapter 112 Cato gives the recipe for Coan wine.
Latin text: (1) Vinum Coum si voles facere, aquam ex alto marinam
sumito mari tranquillo, cum ventus non erit, dies LXX ante vindemia,
quo aqua dulcis non perveniet. Ubi hauseris de mari, in dolium infundi-
to, nolito inplere, quadrantalibus quinque minus sit quam plenum.

Cato r.r. 113, 1.
Introduction: In chapter 113 Cato explains a way to give a sweet aroma to wine.


Cato r.r. 135, 1
Introduction: In chapter 135 Cato gives his advice on where to buy the best quality of many different things useful to the farm.

Latin text: (1) Romae tunicas, togas, saga, centones, sculponeas; Calibus et Manturinis oculliones, ferramenta, falces, palas, ligones, secures, ornamenta, murices, catellas; Venafro palas. Susa et in Lucanis plostra, trebliae; Albae, Romae dolia, labra; (2) tegulae ex Venafro.

Cato r.r. 143, 3.
Introduction: In chapter 143 Cato is analyzing all the duties of the housekeeper.

Latin text: (3) ... Pira arida, sorba, ficos, uvas passas, sorba in sapa et pira et uvas in dolis et mala strutea, uvas in vinaciis et in urceis in terra obrutas et nuces Praestininas recentes in urceo in terra obrutas habeat. Mala Scantiana in dolis et alia quae condi solent et silvatica, haec omnia quotannis diligenter uti condita ha-beat.
Cato r.r. 148,1.2
Introduction: In chapter 148 Cato deals with the selling of wine.

Cato r.r. 152
Introduction: In chapter 152 Cato gives advice for the proper treatment of wine.
Latin text: (152) De scopis virgeis, Q.A.M.( Quemadmodum?) Manlii monstraverunt. In diebus XXX, quibus vinum legeris, aliquotiens facito scopas virgeas ulmeas aridas, in asserculo alligato, eabus latera dolis intrinsicus usque bene perfricato, ne faex in lateribus adhae- rescat.

Cato r.r. 154
Introduction: In chapter 154 Cato explains an easy way to measure wine directly from dolia.
Latin text: (154) Vinum emtoribus sine molestia quo modo admetia- ris. Labrum culleare illae rei facito. Id habeat ad summum ansas III, uti transferri possitur. Id imum pertundito; ea fistulam subdito, uti opturarier recte possit; et ad summum, qua fini culleum capiet, pertun- dito. Id in suggestu inter dolia positum habeto, uti in culleum de dolio vinum salire possit. Id inpleto, postea obturato.

Cato r.r. 162,1
Introduction: In chapter 162 Cato explains how to treat hams and other salted pork.
Charisius, Flavius Sosipater (fl. at the end of the fourth Century A.D.)
(gramm. = Artis Grammaticae = Grammar)

Char. gramm. I 70,27 ; 71,3
Introduction: In his grammar, Charisius is analyzing the letter M.
Latin text: (70) ... M littera neutra tantum finiuntur, et quidem praeposita u, stagnum telum, alicuando etiam i novissimae syllabae praefertur, ut pallium scrinium dolum alium solium. Sic enim dici debent, non, ut alii (qui videri volunt) diserti dicunt, (71) aleum per e et doleum et palleum. Nam et Vergilius (ecl.2,11) 'alia serpyllumque per i dixit, quod utique in genetivo debet geminari, ut huius pallii scrinii doli alii solii.

Cicero, Marcus Tullius (106-43 B.C.)
(Brut. = Brutus = Brutus ; Pis. = Oratio in Piso = Speech against Piso)

Cic. Brut. 288
Introduction: In his writings Cicero explains that a student of rhetoric should choose the orators to be taken as models in the same way as a man should choose the best wine to drink.
Latin text: (287) Ut si quis Falerno vino delectetur, sed eo nec ita novo ut proximis consiliius natum velit, nec rursus ita vetere ut Opium aut Aniciiium consulem quaerat. "Atque hae notae sunt optimae." Credo; sed nimia vetustas nec habet eam quam quaerimus suavitatem nec est iam sane tolerabilis; (288) num igiturqui hoc sentiat, si is potare velit, de dolio sibi hauriendum putet? Minime; sed quandam sequatur aetatem.

Cic. Pis. 67
Introduction: In the Oration against Piso, delivered before the Senate in 55 B.C., Cicero blames his opponent even for lack of refinement and elegance, which, according to Cicero, should at least have been the natural result of his vicious and degrading life.
Latin text: (67) ... Exstructa mensa non conchyllis aut piscibus, sed multa carne subrancida; servi sordidati ministrant, non nulli etiam senes; idem coquus, idem atriensis; pistor domi nullus, nulla cells; panis et vinum a propola atque de cupa; Graeci stipati, quini in lectis, saepe plures, ipse solus; bibitur usque eo, dum de dolio ministratur.

Claudianus, Claudius (A.D.370-404)
(carm.min. = Carmina Minores = Minor poems)
Claud. carm. min. 50,12
Introduction: Poem 50 is against a certain James, commander of the
 cavalry, of whom nothing more is known than what can be deduced from
 these few lines.
 Latin text: (9) Sic Geticae ultrix feriat romphae catervas/
 Romanasque regat prospera Thecla manus;/ sic tibi det magnum moriens
 conviva triumphum/ (12) atque tuam vincant dolis fusae sitim.

Columella, Lucius Junius Moderatus (A.D. c.4-c.65)
(r.r. = Res Rustica = Rural Matters)

Colum. r.r. X 431
Introduction: After the festival of Vulcano, which fell in August, the
 farmer should stop working the garden and start the vintage.
 Latin text: (419) Quin et Tardipedi sacris iam rite solutis Nube
 nova seritur, caeli pendentibus undis, Gongsilis, illustri mittit quam
 Nursia campo, Quaeque Ameterninis detertur bunias arvis. Sed iam
 maturis nos flagitat anxius uvus Evius excultosque iubet claudamus ut
 hortos. Claudimus, imperioque tuo paremus agrestes, Ac metimus laeti
 tua munera, duois Iacoche, Inter lascivos Satyros Panaque biformes
 Braochia iactantes, vetulo marcentia vino. Et te Maenalium, te Bacchum,
tequ Lyaeum, Lenaeumque patrem canimus sub tecta vocantes, Ferveat ut
 lacus, et multo completa Falerno exundent pingui spumantia dolia musto.

Colum. r.r. XI 2,70
Introduction: In chapter 11 Columella is dealing with the distribution
 of the farmer's work throughout the year. September 13-28 are the
 normal days for the vintage in most districts.
 Latin text: (70)... Sed antequam fructum cogere incipiatur, cuncta
 praeparanda erunt superiore si fieri possit mense: si minus, certe ut
 ante quindecim dies dolia partim picata, partim defricata et diligenter
 lauta marina, vel aqua salsa et recte siccata; tum et opercula colaque
 et cetera, sine quibus probe confici mustum non potest; torcularia
 vero, et fora diligenter emundara lautaque, et si res ita exegerit,
 picata; praeparataque habeat ligna, quibus defructum et sapam decoquat.

Colum. r.r. XII 4,5
Introduction: In chapter 12 Columella is giving instructions about the
 other subjects which had been omitted in the earlier books because they
 were reserved for treatment among the duties of the bailiff's wife.
 Among them there is the preparation and storage of provisions.
 Latin text: (4)... Vasa autem fictilia vel vitrea plura potius
 quam ampla, et eorum alia recte picata, nonnulla tamen pura, prout
 conditio (5) conditurae exegerit. Haec vasa dedita opera fieri oportet
 patenti ore, et usque ad imum aequalia, nec in modum doliorum formata,
ut exemptis ad usum salgamis quidquid superest aequali pondere usque ad
 fundum deprimantur, cum ea res innoxia penora conservet, ubi non inna-
tent, sed semper sint iure submersa. Quod in utero dolii fieri vix
posset propter inaequalitatem figurae.

Colum. r.r. XII 6,1
Introduction: In the 6th paragraph of chapter 12 Columella instructs the bailiff's wife on the making of hard brine used for preserving food.

Latin text: (1) Muriam duram sic facito: dolium quam patentissimi oris locato in ea parte villae, quae plurimum solis accipit. Id dolium aqua caelesti repleto; ea est enim huic rei aptissima; vel si non fuerit pluvalis, certe fontana dulcissimi saporis. Tum indito sportam iunceam, vel spateam, quae repleta est sale candido, quo candidior muria fiat. Cum salem per aliquot dies videbis liqueescere, ex eo (2) intelliges nondum muriam esse maturam. Itaque subinde salem tamdiu ingeres, donec in sporta permaneat integer, nec minuatur. Quod cum animadverteris, scias habere muriam maturitatem suam. Et si facere aliam volueris, hanc in vasa bene picata diffundes, et opertam in sole habebis. Omnem enim mucorem vis solis aufert, et odorem bonum praebet.

Colum. r.r. XII 17,1
Introduction: In the 7th paragraph of chapter 12 Columella advises the bailiff's wife on how to make vinegar from figs.

Latin text: (1) Sunt quaedam regiones, in quibus vini ideoque etiam aceti penuria est. Itaque hoc eodem tempore ficos viridis quam maturissima legenda est, utique si iam pluviae inessentur, et propter imbres in terram decidunt: quae cum subiecta est, in dolium vel amphorae conditur, et ibi sinitur fermentari: deinde cum exacuit, et remisit liquorem, quicumque est aceti diligenter colatur, et in vasa picata bene olida diffunditur.

Colum. r.r. XII 18,5-7
Introduction: In the 18th paragraph of chapter 12 the author instructs the bailiff's wife on the preparations which must be made for the vintage. Forty days before vintage dolia and the other vessels need to be treated with pitch with different processes.

Latin text: (5) Dolia quoque et seriae ceteraque vasa ante quadragesimum vindimiae diem picata sunt, atque aliter ea quae demersa sunt humi, aliter quae stant supra terram. Nam ea quae demersa sunt, ferreis lampadibus ardentibus calefiunt, et cum pix in fundum destillavit, sublata lampade, rutabulo ligneo et ferrea curvata radula ductur, quod destillavit, aut quod in lateribus haesit: deinde penicillo detergitur, et ferventissima pice infusa novo alio rutabulo (6) et scopula picatur. At quae supra terram consistunt, complures dies antequam curentur in solem producuntur. Deinde cum satis insolata sunt, in labra convertuntur, et subjectis parvis tribus lapidibus suspenduntur, atque ita ignis subicitur, et tamdiu incenditur, donec ad fundum calor tam vehemens perveniat, ut apposita manus patiens eius non sit: tum dolio in terram demisso, et inlacus deposito, pix ferventissima infunditur, volutaturque, ut omnes (7) dolii partes linuantur. Sed haec die quieto a ventis fieri debent, ne admo to igne cum afflaverit ventus vasa rumpantur. Sunt
autem satis sesquicullearibus doliiis picis dirae pondo vicenaquin. Nec dubium, quin si quinta pars picis Brutiae in universam cocturam adiciatur, utilissimum sit omni vindemiae.

Colum. r.r. XII 21,3
Introduction: The 21th paragraph of chapter 12 is devoted to the use that the bailiff's wife should make of the boiled-down must as a preservative for wine.


Colum. r.r. XII 28,1
Introduction: In the 28th paragraph of chapter 12 Columella explains to the bailiff's wife how to make other preparations for preserving wine and making it keep.

Latin text: (1) Tum in serias singulas quae sint amphorarum septemnum, addito medicaminis pondo unciam et scripula octo.

Colum. r.r. XII 28,3
Introduction: In the 28th paragraph of chapter 12 Columella explains to the bailiff's wife how to make other preparations for preserving wine and making it keep.

Latin text: (3) ... Omne vinum cume condieris, nolito statim diffundere, sed sinito in dolis liqueascere: postea cum de doliius aut de seriis diffundere voles, per ver florente rosa, defaeacatum quam limpidissimum in vasa bene picata (4) et pura transferto
Colum. r.r. XII 30,1-2
Introduction: In the 30th paragraph of chapter 12 Columella explains to the bailiff's wife how to attend to the wine in the dolia after the vintage and before the spring equinox.


Colum. r.r. XII 39,1-2
Introduction: In the 39th paragraph of chapter 12 the author explains to the bailiff's wife how to make raisin wine.


Colum. r.r. XII 39,3
Introduction: In the 39th paragraph of chapter 12 the author explains to the bailiff's wife how to make raisin wine.

Latin text: (3) Passum si de uva apiana facere volueris, uvam apianam integrum legito, acina corrupta purgato et secernito, postea in perticis suspendito. Perticae uti semper in sole sint facito; ubi satis corrugata erunt acina, demito et sine scorpionibus in dolium conicito, pedibusque bene calcato. Ubi unam tabulatum feceris, vinum vetus spergito, postea alternum superculcato, item vinum conspargito. Eodem modo tertium calcato, et infusso vino ita supernatere sinito dies quinque: postea pedibus (4) proculcato, et in fiscina nova uvas premito.

Colum. r.r. XII 40
Introduction: In the 40th paragraph of chapter 12 the author explains to the bailiff's wife how to make thin "after wine".
Latin text: (40) Lora optima sic fieri oportet. Quantum vini uno
die feceris, eius partem decimam, quot metretas efficiat, considerato,
et totidem metretas aquae dulcis in vinaea, ex quibus unius diei vinum
expressum erit, addito: eodem et spumas defruti, sive sapae, et faecem
ex lacu confundito et permisceto, eamque intritam macerari una nocte
sinito, postero die pedibus proculato, et sic permixtam prelo subici-
to: quod deinde fluxerit, aut doliiis aut amphoris condito, et cum
deferberiet, obturato. Commodius autem servatur in amphoris. Hanc ipsam
loram M. Columella ex aqua vetere faciebat, et nonnunquam plus biennio
innoxiam servabat.

Colum. r.r. XII 44, 2

Introduction: In the 44th paragraph of chapter 12 the author explains
to the bailiff\'s wife how grapes may be preserved and kept green.

Latin text: (2) Omnibus autem uva sine noxa servari potest, si luna
de resurrecte et sereno caelo post horam quartam, cum iam isolata est,
neor roris quiquam habet, viti detrahatur. Sed igitur in proximo decuma-
no fiat, ut pix ferveat, in qua pediculi uvarum statim demittantur. In
dolium bene picatum defruti amphoram conicito, deinde transversos fus-
tes spisse arctato, ita ut defrutum non congitant: tum superponito
fictiles novas patinas, et in his sic uavem disponito, ut altera alteram
non contingat: tum opercula patinis imponito et linito. Deinde alterum
tabulatum, et tertium, et quandam magnitudo patitur dolii, similem
superinstructum, et eadem ratione uvas componito. Deinde picatum opercu-
um dolii defruto large linito, et ita composittum cinere obturato.

Colum. r.r. XII 44, 3

Introduction: In the 45th paragraph of chapter 12 the author explains
to the bailiff\'s wife how grapes may be preserved and kept green.

Latin text: (3) Nonnulli adiecto defruto contenti sunt transversas
perticas arctare, et ex his uvas ita suspendere, ne defrutum contin-
gant: deinde operculum impositum oblinitre. Quidam uvas cum ita, ut
supra dixi, legerunt, doliola nova sine pice in sole siccant. Deinde
cum ea in umbra refrigeraverunt, furfures hordeaceos adiciunt, et uvas
ita superponunt, ut altera alteram non comprimat: tum generis eiusdem
furfures infundunt, et alterum tabulatum uvarum eodem modo collocant:
idque faciunt usque dum dolium alternis furfuribus et uvis compleant.
Mox opercula imposita linunt, et uvas siccissimo frigidis simoque
tablato reponunt.

Colum. r.r. XII 45, 2

Introduction: In the 45th paragraph of chapter 12 the author explains
to the bailiff\'s wife the different ways by which grapes may be
preserved and kept green.

Latin text: (2) Tum demum sub tectum referuntur, et acida vel
vittiosa grana forficipius amputantur; et cum paululum sub umbra refrixe-
rint, ternae aut etiam quaternae pro capacitate vasaors in ollas demit-
tuntur et opercula diligenter pice obturantur, ne humorem transmittant.
Tum vinaeorum pes bene prelo expressus proruitur, et modice separatis
scopionibus resoluta intrita folliculorum in dolio substernitur, et deorsum versus spectantes ollae componuntur, ita (3) distantes, ut intercalari possint vinacea: quae cum diligenter conspissata primum tabulatum fecerunt, aliae ollae eodem modo componuntur explentque secundum tabulatum.

Colum. r.r. XII 45,3
Introduction: In the 45th paragraph of chapter 12 the author explains to the bailiff's wife the different ways by which grapes may be preserved and kept green.
Latin text: (3) ... Deinde similiter dolis exstruuntur ollae et spissae incalcantur. Mox usque ad summum labrum vinacea condensantur, et statim operculo superposito cinere in modum gypsi temperato dolium linitur. Monendus autem erit, qui visa empturus est, ne bibulas aut male coctas ollas emat. Nam utraque res transmissa humore vitiat uvm. Quinetiam oportebit, cum ad usum promuntur ollae, tota singula tabulata detrahi. Nam conspissata vinacea, si semel mota sunt, celeriter aescunt, et uvas corruptur.

Colum. r.r. XII 46,3-4
Introduction: In the 46th paragraph of chapter 12 Columella explains to the bailiff's wife her responsibilities in the preparation and storage of pomegranates, which start just after the vintage is over.
Latin text: (3) ... Nam et sub tecto fossulae trispodaneae siccissimo loco fiunt: eoque cum aliquantulum terrae minuta repositum est, infiguntur sambuci ramuli: deinde sereno caelo granata leguntur cum suis pediculis, et sambuco inseruntur (quoniam sambucus tam apertam et laxam medullam habet, ut (4) facile malorum pediculos recipiat). Sed cavere oportebit, ne minus quattuor digitis a terra absint, et ne inter se poma contingent. Tum factae in scrobi operculum imponitur, et paleato luto circumlinitur, eaque humo, quae fuerat egesta, superageratur. Hoc idem etiam in dolio fieri potest, sive quis volet resolutam terram usque ad dimidium vas adiocrine, seu, quod quidam malunt, fluvialem arenam, cetera (5) que eadem ratione peragere.

Colum. r.r. XII 47,1
Introduction: In the 47th paragraph of chapter 12 the author explains to the bailiff's wife how to preserve quinces and various other fruits.
Latin text: (1) Multi eadem ratione, qua granata, in scrobiibus vel dolis servavit cydionea.

Colum. r.r. XII 52,5
Introduction: In the 52th paragraph of chapter 12 Columella explains to the bailiff's wife her responsibilities in the preparation and storage of olive oil. According to the author the beginning of the month of December generally falls in the middle of the olive harvest since the "summer" oil is bitter. Talking about the place where olives are pressed and the resulting oil is kept he added:
Latin text: (5) ... Praeterea lacus vel dolia praeparata sub tecto haberio oportebit, quae seorsum recipiant sui cuiusque generis amurcan, sive quae sincera defluxerit, sive etiam quae salam recperit. Nam utraque usibus plurimis idonea est.

Colum. r.r. XII 52,14-16
Introduction: In the 52th paragraph of chapter 12 Columella explains to the bailiff's wife her responsibilities in the preparation and storage of olive oil.


Colum. r.r. XII 52,16-17
Introduction: In the 52th paragraph of chapter 12 Columella explains to the bailiff's wife her responsibilities in the preparation and storage of olive oil.

Latin text: (16) ... Quod fieri posse non intellego. Nam quemadmodum nova vasa si calefiac, liquidam ceram facile recipiunt, sic vetera non crediderim propter olei succum ceraturam pati. Quam tamen et ipsam ceraturam nostrorum temporum agricolae repudiaserunt, existimaveruntque satius esse nova dolia liquida gummi plerue, siccataque suffumigare alba cera, ne pallorem aut malum odorem capiant. Eamque sullitionem semper faciendam iudicant quotiescumque vel nova vetera vasa curantur et (17) oleo novo praeparantur. Multi cum semel nova dolia vel series orassa gummi linierunt, una in perpetuum gummissione contenti sunt. Et sane quae semel oleum testa combit, alteram gummissionem non recipit. Respuit enim olei pinguitudo talem materia, qualis est gummis.

Colum. r.r. XII 56,3
Introduction: In the 56th paragraph of chapter 12 Columella explains to the bailiff's wife the pickling of turnips and navews.

Latin text: (3) Tum in dolio picato fictili, vel in vitreo, composito, et sic infundito sinapi et aceto, ut a iure contegantur. (4) Napi quoque, sed integri, si minuti sunt, maiores autem insecti, eodem iure, quo rapa, condiri possunt:
Digesta Iustiniani, see under individual authors.

Dioscorides, Pedanius (fl. middle 1st Century A.D.)
(m.m. = De Materia Medica = Treatise on medicine)

Diosc. m.m. 5,4
Introduction: In one of the fragments of his treatise Dioscorides mentioned dolia.

Latin text: ... de uba qui ... in doleis serbantur ...

Festus, Sextus Pompeius (2nd Century A.D.)
(De verborum significatione quae supersunt cum Pauli Epitome = The significance of words)

Fest. 48
Introduction: Festus explains the word doliolum.

Latin text: (48) ... Doliola: locus in Urbe sic vocatus, quia invadentibus Gallis (49) Senonibus Urbem sacra in eodem loco doliolis reposita fuerunt. Qua de causa in eodem loco ne despuerre alicui licebat.

Fest. 65
Introduction: Festus mentions the old feast related to the new wine.

Latin text: (65) ... Calpar vinum novum, quod ex dolio demitur sacrificii causa, antequam gustetur. Iovi enim prius sua vina libabant, quae appellabant festa Vinalia.

Fest. 312
Introduction: In one of the fragments Festus mentions a dolium.

Latin text: (312) ... <Pertusum dolium cum dicitur, ventrem significat. > ... (Fragments)

Firmicius Maternus, Iulius (4th Century A.D.)
(math. = Mathesis = On Astrology)

Firm. math. VIII 10,7
Introduction: In the 10th paragraph of chapter 8 Firmicius analyzes the good and bad influences upon a newborn caused by the Cratera (the Bowl) in relation to the sign of Leo.

Latin text: Si vero hoc sidus in occasu fuerit inventum, sine malivolae testimonio, is qui natus fuerit inter epulas et pocula in media aetate morietur. Si vero malivolorum stellarum radius accesserit, aut in dolium vinarium aut in puteum submersus morietur, aut in fulmine vel lacu vel palude vel mari vel certe in piscina vel in solio inve-
nientur mortuus.

Florus, Lucius Annaeus (IIInd Century A.D.)
(Epit. = Epitome = Epitome)

Flor. epit. I 13,11
Introduction: During the Gallic war, just before the enemy reached Rome (390 B.C.), many townspeople had to leave the City.
Latin text: (11) ... Pontefices et flamines quidquid religiosissimi in templis erat partim in doleis defossa terra recondunt, partim imposita (12) plaustris secum Veios auferunt. Virgines simul ex sacerdotio Vestae nudo pede fugientia sacra comitantur.

Flor. epit. III 20,13
Introduction: During the war against Spartacus (73-71 B.C.), a gladiator and slave who was able to collect an army of 10,000 rebelling slaves, Rome had to organize a combined effort to vindicate its disintegrated honor.
Latin text: (12) ... A quo (Licinius Crassus) pulsi fugatique pudet dicere- (13) hostes in extrema Italiae refugerunt. Ibi circa Brittium angulum clusi, cum fugam in Siciliam pararent neque navigia suppeterent, ratesque ex trabibus et dolia conexa virgultis rapidissimo freto frusta experientur, tandem eruptione facta digna (14) viri obiere morte et, quod sub gladiatore duce oportuit, sine missione pugnatum est.

Frontinus, Sextus Iulius (A.D.35-103)
(Strat. =Stratagemata = The Stratagems)

Front. Strat. I 7,1
Introduction: During the first Punic War, in 250 B.C., Lucius Caecilius Metellus had to find a way to transport across the Straits of Messina the elephants just conquered from the Punic.
Latin text: (1) L.Caecilius Metellus, quia usu navium, quibus elephantos transportaret, deficiebatur, iunxit dolia constravitque tabulatis ac super ea positisper Siculum fretum transmisit.

Front. Strat. III 14,2
Introduction: During the second Punic War, in 216 B.C., the Romans found a smart way to introduce supplies into a town besieged by Hannibal (cf. Liv.XXIII 19,8-11).
Latin text: (2) Hannibale obsidente Casilinum, Romani far in dolis secunda aqua Volturni fluminis demittebant, ut ab obsessis exciperetur. Quibus cum obiecta per medium amnem catena Hannibal obstitisset, nucem sparsere. Quae cum aqua ferente ad oppidum defluenter, eo commenatu sociorum necessitatem sustentaverunt.
Fronto, Marcus Cornelius (A.D. c.100-166)  
(Ep. = Epistolae M. Corneli Frontois et M. Aurelii Imperatoris = The Correspondence of Marcus Cornelius Fronto)

Fronto. Ep. IIII, 4,3 (Naber pg.66) (Vat. 149, following 150)  
Introduction: The Emperor Marcus Aurelius wrote the letter to his master Fronto probably when he was at Signia in A.D. 144 or 145.  
Latin text: (3) Quom videbis in dolio mustum fervere, in mentem tibi veniat mihi sic in pectore tuum desiderium scatere et abundare et spumas facere. Semper vale.

Gaius (2Nd Century A.D.)  
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian)

Gai. Dig. XVIII 1,35,7  
Introduction: Concerning the contract of purchase and agreements between the purchaser and the vendor, and what things cannot become object of the same.  
Latin text: (pr) Gaius libro decimo ad dictum provinciale ... (7) Sed et si ex doleario pars vini venierit, veluti metretae centum, verissimum est (quod et constare videtur) antequam admetiatur, omne periculum ad venditorem pertinere: nec interest, unum pretium omnium centum metretarum in semel dictum (8) sit an in singulos eos.

Gai. Dig. XVIII 6,16  
Introduction: Concerning the risk and advantages attached to selling a property.  
Latin text: (16) Gaius libro secundo cottidianarum rerum. Si vina quae in dolis erunt venierint eaque, antequam ab emptore tollerentur, sua natura corrupta fuerint, si quidem de bonitate eorum adfirmavit venditor, tenebitur emptori: quod si nihil adfirmavit, emptoris erit periculum, quia sive non degustavit sive degustando male probavit, de se queri debet. Plane si, cum intellegaret venditor non duraturam bonitatem eorum usque ad in eum diem quo tolli deberent, non admonuit emptorem, tenebitur ei, quanti eius interesset admonitum fuisse.

Gai. Dig. XIX 2,25,7  
Introduction: Concerning leasing and hiring.  
Latin text: (pr) Gaius libro decimo ad dictum provinciale. ... (7) Qui columnam transportandum conduxit, si ea, dum tollitur aut portatur aut reponitur, fracta sit, ita id periculum praestat, si qua ipsius eorumque, quorum opera uteretur, culpa acciderit: culpa autem abest, si omnia facta sunt, quae diligentissimus quisque observaturas fuisse. Ideem scilicet intellegemus et si dolia vel tignum transportandum aliquid conduxerit: idemque etiam ad ceteras (8) res tranferri potest.
Glossaria Latina

Gloss. II 54, 42, 46 (Glossae Latino Graecae, editae ex codice Parisino 7651)
Latin text: (42) Dolea pithoi (in Greek characters)
(46) Dolium pithos (in Greek characters)

Gloss. II 407, 46, 49 (Glossae Graeco-Latinae editae ex codice Harleiano 5792)
Latin text: (46) pithakne (in Greek characters) seria
(49) pithos (in Greek characters) hoodolium.

Gloss. II 500, 11 (Idiomata codicis Harleiani 5792)
Latin text: (11) Dolium pithos (in Greek characters)

Gloss. II 526, 3 (Glossae Servii Grammatici editae ex codice Harleiano 2773)
Latin text: (3) Dolium. pythos (in Latin characters)

Gloss. II 543, 41 (Idiomata nominativa quae per genera efferuntur, edita ex codice Neapolitano Charisii)
Latin text: (41) Dolium pithos (in Greek characters)

Gloss. III 24, 4 (Hermeneumata Leidensia)
Latin text: (4) pithon (in Greeks characters) doleum

Gloss. III 153, 39 (Hermaneumata monacensis)
Latin text: (39) pithos dumeum

Gloss. III 193, 65/66 (Hermaneumata monacensis)
Latin text: (65) pithos ficulus
(66) ceramion dolium

Gloss. III 270, 51, 52 (Hermeneumata Einsidlensia)
Latin text: (51) kerameus (in Greek characters) figulos, orcarius
(52) pithos (in Greek characters) dolium

Gloss. III 309, 13 (Hermeneumata Einsidlensia)
Latin text: dulearius pithoplastes (in Greek characters)
Gloss. III 326,29 (Hermeuemata Montepessulana)
Latin text: (29) pithos (in Greek characters) duuleum

Gloss. III 339,59 (Hermeuemata Montepessulana)
Latin text: (59) pithos (in Greek characters) doleum

Gloss. III 357,58 (Hermeuemata Stephani)
Latin text: (58) dulci pithoi (in Greek characters)

Gloss. III 366,51 (Hermeuemata Stephani)
Latin text: (51) dolium pithoi (in Greek characters)

Gloss. III 369,11 (Hermeuemata Stephani)
Latin text: (11) dolium pithoi (in Greek characters)

Gloss. III 446,40 (Glossae Stephani)
Latin text: (40) dolium pithos (in Greek characters)

Gloss. III 572,42 (Hermeuemata codicis Vaticani reginae Christinae 1260)
Latin text: pietos.i.dulium

Gloss. V 16,35 (Placidus librorum romanorum)
Latin text: Delioca locus depressus prope cloacam maximam ubi appropinquavit gallis sacra quaedam romani loco occulta defenderunt.

Gloss. V 61,7 (Placidus libri glossarum)
Latin text: Delioqua locus depressus prope cloacam maximam ubi appropinquavit gallis sacra quaedam romani loco occulta defenderunt. (Cic.)

Gloss. V 497,29,30 (Excerpta ex codice Vaticano 1468)
Latin text: (29) Dolia ydre (in Greek characters) vasa (30) Doleum ludo///lio

Gloss. Werth Gallée 338 (Glossae Werthinenses)
Latin text: (388) doleum vas fictile ducentis decimatis II siclos potest. (388 ibid.) doleta, vascula sunt magna lapidea et vitrea, alia capientes modia CC, alia C, aliaque diversae magnitudinis.
Gregorius Magnus (Saint Pope Gregory the Great, A.D.540-604)
(Dial. = Dialogi = Dialogues)

Greg. Dial. II 29,3.5.7.18
Introduction: In his Dialogues with his deacon Peter, in book II Gregorius deals with the miracles of Saint Benedict, founder and Abbot of the Monastery known as the Citadel of Campania (now Monte Cassino).
Latin text: (2) ... In eo autem loco, ubi cum fratribus orabat, vacuus erat ab oleo doleus et coopertus. Cumque sanctus vir in oratione persistet, coeptit operamentum eiusdem dolei oleo excrecente subleuari. Quo commoto atque sublevato, oleum quod exceperat ora doleii transitum pavimentum loci, in quo incubuerant, inundatbat. Quod Benedictus Dei famulus ut aspexit, protinus orationem compevit, atque in pavimentum oleum defluere cessavit. Tunc diffidentem inobedientemque fratrem latius admonuit, ut fidem habere disceret et humilitatem. Iadem vero frater salubreter correptus erubuit, quia venerabilis pater virtutem omnipotentis Domini, quam admonitione intimaerat, miraquis ostendebat, nec erat iam ut quisquam de eius promissionibus dubitare posset, qui in uno eodemque momento, pro vitreo vase paene vacuo, plenum oleo doleum reddidisset.

Gregorius Bishop of Tours, Saint (A.D.538-594)
(Glor. Mart. = Gloria Martiri = The Glory of Martyrs)

Greg. Tur. Glor. Mart. 80 (TLL)
Latin text: (80) ... Accendebat interea vehementer focus ille sub doleii, quo validius fervens non facile adsequi possit anulus a manu quaerentis, extractumque tandem, nihil diaconus sensit in carne sua.

Horatius Flaccus, Quintus (65-8 B.C.)
(Carm. = Carmina = Odes; Epod. = Epodi = Epodes)

Horat. carm. III 11,27
Latin text: (25) Audiat Lyde scelus atque notas/ (26) virginum poenas et inane lymphae/ (27) dolium fundo pereuntis imo/ (28) seraque fata,/ (29) quae manent culpas etiam sub Orco.

Horat. epod. 2,47
Introduction: In this Epode Horace describes how the modest wife should do her part in the joy of country life.
English translation: (43) She should pile high the sacred hearth with seasoned firewood against the coming of her weary husband, penning the frisking flock in wattled fold, draining their swelling udders, and, (47) drawing forth this year’s sweet vintage from the jar, prepare an unboughtmeal.
Hyginus, Gaius Iulius (maybe from the time of Augustus (31 B.C.-A.D.14))
(fab. = Fabularum Liber = Book of Fables)

Hyg. fab. 168 31.20

Iavemus Priscus (fl. A.D. 100)
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian)

Iav. Dig. XXXIII 7,26;pr
Introduction: The 7th title of the 23th book of the Digest is concerning legacies of equipment or implements.
Latin text: (pr) Idem libro quinto ex posterioribis Labeonis. Dolia fictilia, item plumbea, quibus terra adgesta est, et in his viridiaria posita aedium esse Labeo Trebatius putant. Ita id verum puto, si ita illigata (1) sint aedibus, ut ibi perpetuo posita sint.

Itinerarium Antonini Placentini (560-570 A.D.)
(Plac. rec. = Itinerarium Antonini Placentini = The Voyage to the Holy Land of Antoninus Martyr)

Itin. Anton. Plac. rec. A 39
Introduction: During his pilgrimage to the Holy Places, Antoninus Placentinus visited the Sinai region.
Latin text: (1) Inter Syna et Choreb est vallis, in qua certis temporibus descendit ros caelo, quem manna appellat, et coagulatur et fit tamquam granum masticis et collegitur, et doleas exinde plenas habent in monasterio, unde et benedictionem dant ampullas modicas.

Itin. Anton. Plac. rec. A 46,7
Introduction: On his way back in his pilgrimage to the Holy Places Antoninus Placentinus visits two towns in mainland Syria.
Latin text: (7) Deinde venimus Elyopoli. Et exinde venimus Emiza, ubi caput sancti Iohannis Baptistae, qui est missus in doleo vitreo, quem etiam infra doleum oculis nostris vidimus et adoravimus.

Iulianus, Salvius (Jurist under Hadrian A.D. 117-138)  
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian)

Iul. Dig. L 16,206  
Introduction: Concerning the signification of terms.

Latin text: (206) Iulianus libro sexto ex Minicio. 'Vinaria' vasa proprie vasa torcularia esse placet: dolia autem et seria tamen in ea causa esse, quamdiu vinum haberent, cum sine vino esse desinerent, in eo numero non esse, quoniam ad alium usum tranferi possent, veluti si frumentum in his addatur. Eodem causam amphorarum esse, ut, cum vinum habeant, tum in vasis vinariis, tum inanes sint, tum extra numerum vinariorum sint, quia aliiud in his addi possit.

Iustiniianus, Imperator Caesar Flavius see under each author's name  
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian)

Iuvenalis, Decimus Iunius (A.D. 60-128)  
(sat. = Saturae = The Satires)

Iuv. sat. 6,430  
Introduction: Analyzing different types of intolerable wives, Juvenal describes one of them as being very pleased by long hot baths and other amenities.

Latin text: (425) Tandem illa venit rubicundula, totum/ oenophorum sitiens, plena quod tenditur urna/ admotum pedibus, de quo sextarius alter/ ducitur ante cibum rabidam facturus orexim./ dum reedit et loto terram ferit intestino./ Marmoribus rivi properant, aurata Falernum/ (431) pelvis olet; nam sic tamquam alta in dolia longus/ deciderit serpens, bibit et vomit.

Iuv. sat. 9,58  
Introduction: Satire 9 is on the sorrows of Naevolus, a reprobate.

Latin text: (54) "Dic, passer, cui toti montis, tot praedia servas/ Apula, tot milvos intra tua pascua lassos?/ te trifolinus aeger/ fecundis vitibus implet/ suspectumque iugum Cumis et Gaurus inanis -nam/ quis plura limit victuro dolia musto?- ..."

Iuv. sat. 14,308  
Introduction: Trying to teach how material wealth is always associated with fears and troubles, Juvenal compares the lives of Licinus, a millionaire, and Diogenes.
Latin text: (305) Dispositis praedives amis vigilare cohortem/servorum noctu Licinus iubet. Attonitus pro/ electro signisque Phrygia-que columna/ (308) atque eborae et lata testudine. Dolia mudi/ non ardent cynici; si frigeris, altera fiet/ cras domus, atque eadem plumbo commissa manebit./ Sensit Alexander, testa cum vidit illa/ magnum habitatorem, quanto felicior hic qui/ nil superet quam qui totum sibi possesseret orbem/ passurus gestis aequanda pericula rebus.

Iuvencus, Caius Vettius Aquilinus (fl. A.D. 300)
(Evangelicae Historiae = Evangelic History)

Iuvenc. 3,714
Latin text: (712) Sic quidam dives, cui jugera multa nitentis/Vineti sepes circum densata coercet,/ In medio turrem, praelumque, et dolia fecit/ cultoresque dedit, fractusque locavit habendos.

Lab. Dig. Marcus Antistius (50 B.C.- A.D. 18)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Lab. Dig. XIX 1,54,1
Introduction: Concerning the actions of purchase and sale.
Latin text: (pr) Idem libro secundo pithanon. ... (1) Si dolia octoginta accedere fundo, quae infossa essent, dictum erit, et plura erunt quam ad eum numerum, dabit emptori ex omnibus quae vult, dum integra det: si sola octoginta sunt, qualia cumque emptorem sequetur nec pro non integris quicquam ei venditor praestabit.

Licinius Rufinus (fl. A.D. 222-235)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Lic. Ruf. Dig. V 1,38
Introduction: Concerning trials and where anyone ought to bring suit, or be sued.
Latin text: (38) Licinius Rufinus libro quarto regularum. Quod legatur, <si quidem per personalem actionem exigetur>, ibi dari debet ubi est, nisi si dolo malo hereditis subductum fuerit: tunc enim ibi dari debet ubi petetur. Praesertem quod pondere aut numero aut mensura continetur, ibi dari debet ubi petetur, nisi si adiectum fuerit "centum modios ex illo horreo" aut "vino amphoras ex illo dolio". Si autem per in rem actionem legatum petetur, etiam ibi peti debet ubi res est. Et si moebolis sit res, ad exhibendum agi cum herede poterit, ut exhibeat rem: sic enim vindicari a legatario poterit.

Livius Patavinus, Titus (Livy: 59 B.C.- A.D. 17)
(Ab Urbe Condita = From the Foundation of the City (Rome))
Liv. V 40,8
Introduction: At the time of the Gallic invasion (in 387 B.C.) the civilians in Rome were ready for evacuation. Among them, the Vestals had to decide which sacred things they should carry with them and which ones they should leave behind (cf. Flor. epit. I 13,11).
Latin text: (8) ... Optimum ducent condicta in doliolis sacello proximo aedibus flaminis Quirinalis, ubi nunc despuit religio est, defodere; cetera inter se onere partito ferunt via quae sublicio ponte ducit ad Ianiculum.

Liv. XXIII 19,8.9.11
Introduction: In 216 B.C. Hannibal moved from winter quarters to Casilinum and started a blockade of the town which brought the townspeople and garrison to extreme need in food supply. Gracchus, the commander of the Roman camp, following the dictator's order not to take any military action until his return from Rome, decided to use a stratagem for sending wheat to the besieged (cf.: Frontin. Strat. III 14,2).
Latin text: (7) ... Ea aegre patiens Gracchus, cum neque pugnam conserere dictatoris inlusu auderet - pugnandum autem esse, si palam frumentum importaret, videbat - neque clam (8) importandi spes esset, farre ex agris circa undique convecto cum conplura dolia complesset, nuntium ad magistratum Casilinum misit ut exciperent dolia (9) quae amnis deferret. Insequenti nocte intentis omnibus in flumen ac spem ab nuntio Romano factam dolia missa amnis deflexerunt; aequaliterque (10) inter omnes frumentum divisum. Id postero quoque die ac tertio factum est; nocte et mittebantur et (11) perveniebant; eo custodias hostium fallebant. Imbribus deinde continuus citatior solito amnis transverso vertice dolia impulit ad ripam quam hostes servabant.

Liv. XXIV 10,8
Introduction: During the fifth year of the Second Punic War, in 214 B.C., many omens were reported in Rome and in its territories.
Latin text: (8) ... et in vico Insteio fontem sub terra tanta vi aquarum fluxisse ut serias doliaque quae in eo loco erant provoluta velut impetus torrentis tulerit;

Liv. XXXVIII 7,11.12
Introduction: During the conquest of the East, in B.C. 189, the Romans had dug a tunnel under the walls of Ambracia (West-central Greece. Modern Arta) and were trying to force their way into the town, when the besieged thought out a new device for defending themselves against the attack from the tunnel.
Latin text: (11) ... Dolium a fundo pertusum, qua fistula modica inferi posset, et ferream fistulam operculumque dolii ferreum, et ipsum pluribus locis perforatum, fecerunt. Hoc tenui pluma complectum dolium ore in cuniculum verso posuerunt. (12) Per operculi foramina praelongae hastae, quas sarissas vocant, ad summovendos hostes eminebant. Sontillam levem ignis inditam plumae folle fabrili ad caput fistulae imposito flando accenderunt. Inde non solum magna vis fumi sed acrior etiam
foedo quodam odore ex pluma cum totum cuniculum complesset, vix durare quisquam intus poterat.

Lucretius, Carus, Titus (c. 99-55 B.C.)
(r.n. = De Rerum Natura = The Nature of matter)

Lucr. r.n. 4,1026
Introduction: In part of chapter 4, devoted to the senses, Lucretius analyzes dreaming.
Latin text: (1026) Pusi saepe lacum propter si ac dolia curta/ somno devincti credunt se extollere vestem,/ totius umorem saccatum corpori fundunt,/ cum Babylonica magnifico splendore rigantur.

Macrobius, Ambrosius Aurelius Theodosius (5th Century A.D.)
(Sat. = Saturnalia = Conversations during Saturn's Festival)

Macr. Sat. VII 12,15
Introduction: Speaking about the wine in an amphora, Macrobius tells that the wine at its bottom mixed with dregs is not only turbid but also inferior in flavor, and the wine at its top is spoiled by its proximity to the air, which mingles with the wine and weakens it.
Latin text: (15) Unde agricolae dolia non contenti sub tecto reposuisse, defodiunt et operimentis extrinsecus illitis muniunt, remo- ventes in quantum fieri potest a vino aeris contagionem.

Maecianus, Lucius Volusius (2nd Century A.D.)
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian)

Maecian. Dig. XXXV 2,30,4
Introduction: Concerning the Faldician Law.
Latin text: (pr) Maecianus libro octavo Fideicommissorum. ... (4)
Certis vero corporis et his ipsis ita relictis: "pecunia quam in illa arca", "vinum, quod in illis doleit", "pondus argenti, quod in illis horreis habo", si sine culpa heredis deperierunt vel deteriora sunt facta, procul dubio aut nihil debebitur aut eorum quae extabunt qualia erunt ea portio debebitur, que per legem Faldidiam efficiatur ex aesti- matione bonorum, quae mortis testatoris tempore fuerint.

Manilius, Marcus (fl. early first century A.D.)
(Astron. = Astronomica = Astronomica)

Manil. Astron. 1,842
Introduction: In the last part of Book 1 Manilius is analyzing the comets.
Latin text: (840) Interdum aequali laterum compagine ductus/ quadratamve trabem fingt teretemve columnam./ quin etiam tumidis exae-quat dolia flammis/ procere distenta uteros, artosque capellas/ mentitur parvas ignis glomeratus in orbes/ hirta figurantis tremulo sub lumine menta, ... 

Manil. Astron. 5,679
Introduction: Speaking about one of the extra-zodiacal constellations, the Whale, Manilius makes a digression about the ways that fish are caught and how garum is manufactured.

Latin text: (676) Aut, cum caeruleo stetit ipsa simillima ponto/ squamigerum mubes turbaque immobiles haeret, / excipitur vasta circum vallata sagena/ ingentisque lacus et Bacchi dolia completn/ (680) umoriisque vomit socias per mutua dotes/ et fluit in liquidam tabem resoluta medullas.

Marcellus, Ulpianus (fl. second Century A.D.)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Marcell. Dig. XVIII 1,60
Introduction: Concerning the contract of purchase and agreement between purchaser and vendor: and what things cannot become the objects of the same.


Minor Latin Poets: Aetna (early Empire, before A.D. 63)
(Aetna was considered for a long time as a minor work of Virgil, but few scholars still believe it. The poem has been dated to the early Empire and before A.D. 63 since no mention is made in it of the terrible earthquake which devastated the Vesuvius area 16 years before the famous eruption).

Aetna 271
Introduction: In a long digression from the main subject of volcanic phenomena, the author proclaims the majesty of physical research in contrast with less noble cares of mankind.

Latin text: (270) ... Leves cruciant animos et corpora causae/ (271) horrea uti saturent, tumenae et dolea musto/ (272) plenaque desecujo surgant fenilia campo.

Nonius Marcellus (between the Second and the Fifth century A.D.)
(c.d. = De Compendiosa Doctrina)
Non. c.d. 545,8


Non. c.d. 546,28

Latin text: (28) Calpar nomine antiquo dolium. Varro de Vita Populi Romani lib. I: 'quod, antequam nomen dolii prolatum, cum etiam id genus vasorum calpar diceretur, id vinum calpar appellatum'.

Ovidius Naso, Publius (43 B.C.- A.D.18)
(Fast. = Fasti = Fasti)

Ovid. Fasti 5,269
Introduction: Talking about Flora, the Mother of flowers, Ovidius explains that she is not only the queen of dainty flowers but also of all flowers related to agriculture and even of fermenting wine.
Latin text: (269) vina quoque in magnis operose condita cellis/ florent, et nebulae dolia summa tegunt.

Palladius, Rutilius Taurus Aemilianus.
(r.r. = De Re Rustica = Rural Matters)

Pallad. r.r. I 6,2 :
Introduction: In the first chapter, Palladius is giving general advice on how to run a farm well.
Latin text: (2) ... Ferrarrii, lignarii, doliorum cuparumque fac-
tores necessario habendi sunt, ne a labore solenni rusticcos causa desiderandae urbis avertat.

Pallad. r.r. I 18,1,2
Introduction: Palladius is describing the various parts of a villa rustica.
Latin text: (1) Cella vinarium septentrioni debemus habere opposi-
tam frigidam, obscuram, vel obscurae proximam, longe a balneis, stabu-
lis, furno, sterquiliniis, cisternis, aquis, et caeteris odoris horren-
di: ita constructam necessariis, ut non vincatur a fructu; sic autem 
dispositam, ut basilicae ipsius forma calcatorium loco habeat altiore
constructum; ad quod inter duos lacus, qui ad excipienda vina hinc inde depressi sint, gradibus tribus fere aut quatuor ascendatur. Ex his
lacubus canales structi, vel tubi fistiles circa extremos parietes
currant, et subjectis lateri suo doliis per vicinos meatus manantia
vina defendant. (2) Si copia major est, medium spatium cupis deputabi-
tur, quas ne ambulacra prohibeant, basellis altioribus impositas, vel
supra obruta dolia possumus collocare spatio inter se largiore distan-
tes, ut, si res exigat, curantis transitus possit admitti.

Pallad. r.r. III 25,26
Introduction: Palladius is discussing various methods for preserving apples.
Latin text: (26) ... Alii dolis musti immersunt, atque ita claudunt, quod odoratum reddit et vinum.

Pallad. r.r. IV 10,10
Introduction: Palladius is discussing the various methods for preserving pomegranates.
Latin text: (10) Aliter in seriola, cui ad medium aqua mittatur, suspenduntur mala, ne humorem tangant, et seria clauditur, ne ventus irrupat. Item in dolio intra ordeum sic ordinantur, ne se invicem tangant: et dolium desuper operitur.

Pallad. r.r. IV 10,33
Introduction: The author is describing the different methods used for preserving figs.
Latin text: (33) ... Alii missas ficos recentes minus maturas in novo vasce figuris lectas cum pediculis et a se separatas recludunt, et in dolio vini pleno vas naturae permittunt.

Pallad. r.r. X 11,1
Introduction: Among work done in the month of September, Palladius mentions the coating of dolia with pitch.
Latin text: (1) ... In dolis picandis his modus erit, ut dolium ducentorum conglorum duodecim libris pictur, deinde pro minor aestimatione subducas. ... (2) Diligentiores optimae cerae in decem picis libras unam libram miscent, quae et odor proficit et sapori, et picem lenitatem permulcens, frigoribus eam non patitur dissilire. Picis tamen gustu exploranda dulcedo est, quia saepe vina eius amaritudine vitianitur.

Pallad. r.r. XI 14,3
Introduction: In the 14th section of chapter 11, Palladius is mentioning many wine sophistications of Greek tradition.
Latin text: (3) ... Quidam resinae siccae tritae uncias tres dolio immersunt et permovent, et vina diuretica sic fieri posse persuadent

Pallad. r.r. XI 14,5
Introduction: Palladius is describing different methods of imparting a good aroma to wine.
Latin text: (5) ... Vitis etiam flores arbusitae collectos in umbra sicca curabis. Tunc diligenter tunsos et cretos habebis in vasculo novo, et cum volueris, tribus cadis unam floris mensuram, quam
Syri (cabum, Graeci) choenicam vocant, adjicias, et superlines dolium, et sexta vet septima die aperies et uteris.

Pallad. r.r. XI 14, 10
Introduction: Palladius is describing the ways to change the color of wine.
Latin text: (10) Vitibus quoque hanc esse naturam, ut alba vel nigra, si redigantur in cinerem vinoque adicientur, ei unamquamque formam sui coloris possint inponere, ut ex nigra fuscum, candidum vero reddatur ex alba, ea ratione scilicet, ut combusti sarmenti cineris modii unius mensura mittatur in dolio, quod habebit amphoras X, et triduo sic relictum post operiatur ac lutetur: album vel (si ita visum fuerit) nigrum reperiri quadraginta diebus exactis.

Pallad. r.r. XI 14, 14. 15. 16
Introduction: Palladius is further describing different sophistication for wine.

Paulus, Iulius (fl. beginning of the third Century A.D.)
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian;
Sent. = Iulii Pauli libri quinque sententiarum ad filium = The Opinions of Iulius Paulus addressed to his son)

Paul. Dig. VIII 3, 6, pr
Introduction: Concerning the servitudes of rustic estates.
Latin text: (pr) Paulus libro quinto decimo ad Plautium. Veluti si figilinas haberet, in quibus ea vasa fierent, quibus fructus eius fundi exportarentur (sicout in quibusdam fit, ut amphoris vinum evehatur aut ut dolia fiant), vel tegulævel ad villam aedificandam. sed si, ut vasa venirent, figilinae exercerentur, usus (1) fructus erit.

Paul. Dig. XVIII 1, 40, 5
Introduction: Concerning the contract of purchase and agreements
between the purchaser and the vendor, and what things cannot become the objects of the same.

Latin text: (pr) Paulus libro quarto epitomarum Alfeni digestorum. 
... (5) Dolia, quae in fundo domini essent, accessura dixit: etiam ea, quae servus qui fundum coluerat emisset peculiaria, (6) emptori cessura respondit.

Paul. Dig. XVIII 1,76
Introduction: Concerning the contract of purchase and agreements between the purchaser and the vendor, and what things cannot become the objects of the same.
Latin text: (76) Paulus libro sexto responsorum. Dolia in horreis defossa si non sint nominatim in venditione excepta, horreorum venditioni cessisse videri. Eum, qui in locum emptoris successit, isdem defensionibus uti posse, quibus venditor eius uti potuisset, sed et longae possessionis praescriptione, si utriusque possessio impleat temporae constitutionibus statuta.

Paul. Dig. XIX 1,27
Introduction: Concerning the actions of purchase and sale.
Latin text: (27) Paulus libro tertio epitomarum Alfeni. Quidquid venditor accessurum dixerit, id integrum ac sanum tradi oportet: veluti si fundo dolia accessura dixisset, non quassa, sed integra dare debet.

Paul. Dig. XXXI 1,8,2
Introduction: Concerning legacies and trusts.
Latin text: (pr) Idem libro nono ad Plautium. ... (2) Si quis legaverit ex illo dolio amphoras decem, etsi non decem, sed pauciores inveniri possint, non extinguitur legatum, sed hoc tantummodo accipit, quod inventur.

Paul. Dig. XXXIII 7,13,pr
Introduction: The 7th title of the 23th book of the Digest is concerning with legacies of equipment or implements.
Latin text: (pr) Paulus libro quarto ad Sabinum. Tabernae cauponae instrumento legato etiam institores contineri Neratius existimat: sed videndum, ne inter instrumentum cauponae sit discrimin, ut tabernae non nisi loci instrumenta sint, ut dolia vasa ancoes calices trullae, quae circa cenan solent traici, item urnae aereae et congiaria sextaria et similia; cauponae autem, cum negotiationis nomen sit, etiam institores.

Paul. Dig. XLVII 2,21,pr
Introduction: Concerning thefts.
Latin text: (pr) Paulus libro quadragésimo ad Sabinum. Volgaris est quaestio, an is, qui ex acervo frumenti modium sustulit, totius rei furtum faciat an vero eius tantum quod abstulit. O filius totius acervi
furem esse putat: nam et qui aurem aliquidus tetigit, inquit Trebatius
totum eum videri tetigisse: proinde et qui dolium aperuit et inde
parvum vini abstulit, non tantum eius quod abstolit, verum totius
videtur fur esse. Sed verum est in tantum eos furti actione teneri,
quantum abstulerunt.

Paul. Dig. XLVII 2,21,5
Introduction: Concerning thefts.
Latin text: (pr) Paulus libro quadragesimo ad Sabinum. ... (5) Sed
si de navis onerata furto quis sextariis frumenti tulerit, utrum totius
oneris an vero sextarii tantum furtum fecerit? facilius hoc quaeritur
in horreo pleno; et durum est dicere totius furtum fieri. Et quid si
cisterna vini sit, quid dicet? aut aquae cisterna? quid deinde si nave
vinaria (ut sunt multae in quas vinum effunditur), quid dicemus de eo
qui vinum haeusit? an totius oneris fur sit? et magis est ut et hic non
totius dicamus.

Paul. Sent. III 6,37
Introduction: Concerning Legacies.
Latin text: (37) ... Conservandorum fructuum causa comparata in-
strumento cedunt, velut dolia, cupae, vehicula rustica, cibaria, pis-
tores, asini, focariae: item ancillae quae vestimenta (38) rustcis
faciunt, scutra quoque et sutor continebuntur.

Phaedrus (c.15 B.C.- A.D. c.50)
(app. = Appendix Perottina = Perotti's Appendix)

Phaedr. app. 5,11
Introduction: This fable is a collection of examples by which Phaedrus
explains how the ancient Greeks used symbols that could be recognized
by a wise man.
Latin text: (10) Urnis scelestae Danaides portant aquas/ pertusa
nece complere possunt dolia.

Plautus, Titus Maccius (c.255-c.184 B.C.)
(Casin. = Casina = Casina ; Cist. = Cistellaria = Cistellaria or The
Casket Comedy ; Pseud. = Pseudolus = Pseudolus ; Truc. = Truculentus
= Truculentus)

Plaut. Casin. 122
Introduction: Olympos and Chalinus are two slaves who have planned to
marry a slave girl in the same family as themselves. Olympos, who is
also the bailiff, fantasizes about what torments he would give to
Chalinus after he marries the beloved girl.
Latin text: Ol: (118) Egone quid faciam tibi? primum omnium huic
lucebis novae facem; postilla, ut semper, improbus nihilique eris; post
id locorum quando ad villam veneris, dabitur tibi amphora una et una semita, (122) fons unus, unum ahenum et octo dolia: quae nisi erunt semper plena, ego te implebo flagris.

Plaut. Cist. 542
Introduction: The slave Lampadio is speaking to himself about what he just did to the woman who picked up his mistress' daughter.

Plaut. Pseud. 368
Introduction: After having used all the bad words they knew, trying to offend Ballio, a pimp, Pseudolus and Calidorus (the slave and the son of Simo, an old gentleman of Athens) had to admit their failure.
Latin text: (368) Ps: In pertusum ingerimus dicta dolium, operam ludimus.

Plaut. Truc. 39 (TLL) Fest. p.253
Introduction: Diniarchus, a young Athenian, is talking about the way a mistress entangled a lover like a fisherman his fish.
Latin text: (35) Quasi in piscinam rete qui iaculum parat, quando abit rete pessum, adducit lineam; si inierit rete piscis, ne effugiat cavet: dum hic illuc rete circumvortit, impedit (39) piscis usque adeo donicum eduxit foras.

Plinius Secundus Maior, Gaius (Pliny the Elder: A.D.23-79)
(n.h. = Naturalis Historia = Natural History)

Plin. n.h. 2,90
Introduction: In his mathematical-physical description of the world Pliny is describing the many shapes of comets.
Latin text: (90) ... Pitheus doliorum cernitur figura in concavo fumidae lucis.

Plin. n.h. 2,137
Introduction: The author is describing thunderbolts.
Latin text: (137) Fulminum ipsorum plura sicae veniunt non adurunt sed dissipant, quae fumida non urunt sed infuscant. Tertium est quod clarum vocant, mirificae maxime naturae, quo dolia exhauriuntur intac-tis ope-rimentis nulloque alio vestigio relieto.
Plin. n.h. 3,82
Introduction: The author describes the islands of the Gulf of Pozzuoli.
Latin text: (82) ... Pithecusa, non a simiarum multitudine (ut aliqui existimavere) sed a figlinis doliorum.

Plin. n.h. 8,16
Introduction: In part of chapter 8 which deals with terrestrial animals, the author describes elephants.

Plin. n.h. 8,224
Introduction: In describing the half-domestic terrestrial animal, the author mentions the dormouse.
Latin text: (223) ... Saurices et ipsos hiemi condit auctor est Nigidius, siuit gilres, quos censoria leges princepsque M. Scaurus in consulatu non alio modo cenis ademere (224) ac conchylia aut alio orbe convectas aves. Semiferum et ipsum animal, cui vivaria in dolis idem qui apris instituit.

Plin. n.h. 9,93
Introduction: In describing aquatic animals, Pliny tells the story of a giant polyp which was captured in a fish pond at Carteia (modern Rocadillo, Spain) at the time when Lucius Lucullus was governor of Baetica.
Latin text: (93) Ostendere Lucullo caput eius dolii magnitudine amphorarum XV capax atque, ut ipsius Trebi verbis utar, 'barbas quas vix utroque brachio conplecti esset, clavarum modo torosas, longas pedum XXX, acetabulis sive caliculis urinalibus pelvium, modo, dentes magnitudini respondentes'.

Plin. n.h. 11,270
Introduction: In discussing the sounds emitted by insects, Pliny makes a digression on the human voice and its acoustic properties.
Latin text: Mira praeterea sunt de voce digna dictu; theatrorum in orchestrís scobe aut harena superiacta devoratur, item in rudi parietum circumiectu, dolis etiam inanibus.

Plin. n.h. 13,106
Introduction: Pliny, quoting Nepos, is describing the African lotus-tree and its uses.
Latin text: (106) ... Vinum quoque exprimitur illi simile mulso, quod ultra denos dies negat durare idem Nepos, bacasque concisas cum
alia ad cibos doliiis condi.

Plin. n.h. 14,16
Introduction: The author is describing the varieties of grapes and their uses.

Latin text: (16) ... Durant alias per hieme, pensili concamaratae nodo; aliae in sua tantum cintinentur anima ollis fictilibus et insuper dolii inclusae, stipatae vinaceis circumsudentibus;

Plin. n.h. 14,17
Introduction: The author is describing the varieties of grapes and their uses.

Latin text: (17) ... Conduntur et musto uvae, ipsaeque vino suo inebriantur, aliae decocto in musto dulcescunt; aliae vero subolem novam in ipse matre expectant tralucidae vitro, additque acinis eandem quam in dolii amphorise duratricem illam (18) firmitatem austeritas picis infusa pediculo.

Plin. n.h. 14,71
Introduction: Pliny is classifying the different wine producing regions.

Latin text: (77) Hispaniarum Laetana copia nobilitantur, elegantia vero Tarracensia atque Lauronensis et Balarica ex insulis coferuntur Italiae primis.

Plin. n.h. 14,89
Introduction: Pliny is describing the regulations for the use of wine in earlier times.

Latin text: (89) Non licebat id feminis Romae bibere. Invenimus inter exempla Egnati Maetenni uxorem, quod vinum bibisset e dolio, interfectam fusti a marito, eumque caedis a Romulo absolutum.

Plin. n.h. 14,132-133
Introduction: The author is discussing the ways to store wine.


Plin. n.h. 14,134-135
Introduction: Pliny is describing how to preserve wine.

Plin. n.h. 15,33
Introduction: In the portion of book 15 devoted to the production of olive-oil, Pliny quotes Cato (Cato r.r. 69,1.2) when he talks about the many uses of lees (amurca).

Latin text: (33) Super omnia vero celebravit amurcam laudibus Cato: dolia olearia cadosque illa imbui ne bibant oleum;

Plin. n.h. 15,50
Introduction: Describing the different varieties of apples and their way of preservation, Pliny refers to Cato (Cato r.r. 143,3) for two of them.

Latin text: (50) ... Cato adicit Quiriniana et quae tradit in dolis condì Scantiana.

Plin. n.h. 15,60
Introduction: For the preservation of pomegranates, pears, and a variety of apple, Pliny refers to Varro.

Latin text: (60) ... Punica aqua marina fervente indurari, mox triduo sole siccata ita ne nocturno rore contingantur suspendi, et cum libeas uti, aqua dulci perlius. M.Varro et in dolis harenæ servat iubet et immatura obruit terra in ollis fundo effracto sed spiritu exclusa ac succulo pice inlito. ... (61) ... Tarentina serissima legi, Aniciana servari et in passo, sorba quoque, et scrobibus gyspato operculo, duum pedum terra superiniecta, in loco aprico, inversis vasis, et in dolis ut uvas cum ramis suspendi.

Plin. n.h. 15,62.63.65
Introduction: Pliny is describing other methods of preserving fruit according to some contemporary writers, whose names, unfortunately, are not specified.

Latin text: (62) ... Uvas cum malleolo sarmenti duro, demptis fortisce corruptionibus acinis, in dolio picato recenti suspendi, exclusa omni aura operculo et gyspæ. Sic et sorba ac pira, inlitis omnium surculis pice. Dolia procul ab aqua esse. (63) Quidem sic cum palmite ipso condunt, capitibus eius scillae infixis utrimque, ali etiam vina habentibus dolis, dum ne contingant ea uvae. ... (65) ... Alii singuli malis pirisique singula vasa fictilia adsignant et operculo eorum
Picta dolio iterum includunt, ...

Plin. n.h. 16,53
Introduction: Pliny is describing how pitch is produced from wood.
Latin text: (52) Pix liquida in Europa et taeda coquitur, navalibus
muniendis multosque alicos ad usus. Lignum eius concisum furnis undique
igni extra circundato fervet. Prius sudor aquae modo fluit canali; hoc
in Syria cedrium vocatur, cui tanta vis est ut in Aegypto corpora
hominum defunctorum perfusa eo serventur. (53) Sequens liquor crassior
iam picem fundit; haec rursus in cortinas aereas coniecta aceto spissat-
tur ut coagulo et Bruttiae cognomen accepit, dolis dumtaxat vasisque
ceteris utilis, lentore ab alia pice differens, item colore rutilante
et quod pinguior est reliquia omni illa.

Plin. n.h. 18,236
Introduction: Pliny is describing the work that needs to be done in
agriculture during the period from mid-winter until the change in wea-
ther due to the west wind in the first days of February.
Latin text: (236) ... Huius temporis novissimis diebus, ubicumque
patietur caeli ratio, terram ad rosarum et vineae satum vertere bipalio
opportet, iugero opera LX sufficiunt, fossas purgare aut novas facere,
antelucanis ferramenta auere, manubria aptare, dolia quassa sarcire,
ovium tegimenta concimare ipsarumque lanas scabendo purgare.

Plin. n.h. 19,135
Introduction: Pliny is describing the different uses of beets.
Latin text: (135) ... et cum brassica corrumpatur in dolio vini
sapor, eundem betae foliis demersis restitui.

Plin. n.h. 28,30
Introduction: Pliny is talking about people with magic power.
Latin text: (30) ... Quorundam hominum tota corpora prosunt, ut ex
his familiis quae sunt terrori serpentibus tactu ipso levant percossos
suctuve madido, quorum e genere sunt Psylli Marsique et qui Ophiogenes
vocantur in insula Cypro, ex qua familia legatus Evagon nomine a consu-
libus Romae in dolium serpentium coniectus experimenti causa circummul-
centibus linguis miraculum praebuit

Plin. n.h. 35,159
Introduction: Pliny is discussing the use of clay in bronze statuary,
sculpture, and pottery.
Latin text: (159) ... Neque adsiduitate satiant figlinarum opera,
dolis ad vina excogitatis, ad aquas tubulis, ad balineas mammatis, ad
tecta imbricibus, coccilibus laterculis ad parietes fundamentaque, aut
quae rota fiunt, propter quae Numa rex septimum collegium figulorum
instituit.
Pomponius, Sextus
(Dig. = Digesta Iustiniani = The Digest or Pandects of Justinian)

Pomp. Dig. XIX 1,6,4
Introduction: Dig. XIX 1 Concerning the actions of purchase and sale. A vendor will be liable to an action of sale even if he was not aware that the measurements of the field was less than had been represented.
Latin text: (pr) Pomponius libro nono ad Sabinum. ... (4) Si vas aliquod mihi vendideris et dixeris certam mensuram capere vel certum pondus habere, ex empto tecum agam, si minus praestes. Sed si vas mihi vendideris ita, ut adfirmares integrum, si id integrum non sit, etiam id, quod eo nomine perdiderim, praestabis mihi: si vero non id actum sit, ut integrum praestes, dolum malum dumtaxat praestare te debere. Labeo contra putat et illud solum observandum, ut, "nisi in contrarium id actum sit", omnimodo integrum praestari debet: et est verum, quod et in locatis dolis praestandum Sabinum respondisse Minicius refert.

Pomp. Dig. XXXIII 6,8
Introduction: Dig. XXXIII 6 Concerning bequests of wheat, wine and oil.
Latin text: (8) Pomponium libro sexto epistularum. Si heres damnatus sit dare vinum, quod in dolis esset, et per legatarium stetit, quo minus accipiat, periculose heredem facturum, si id vinum effundet: sed legatarium petentem vinum ab herede doli mali exceptione placuit summo- veri, si non praestet id, quod propter moram eius damnum passus sit heres.

Pomp. Dig. XXXIII 7,21
Introduction: Dig. XXXIII 7 Concerning legacies of equipment or implements.
Latin text: (21) Pomponius libro primo fideicommissorum. Cum fundus sine instrumento legatus sit, dolia mola olivariae et praelum et quaecumque infixa inaedificataque sunt fundo legato continentur, nulla autem ex his rebus quae moveri possunt paucis exceptis fundi appellatio- tione continentur.

Porphyrio, Pomponius (fl. first half of the second Century A.D.)
(Hor.c. = In Horati Sermones Commentari = Commentaries on Horace's Satires)

Porph. Hor.c. I 3,29
Introduction: Porphyrio in his commentary to the Ode 1,3 mentions a famous dolium.
Latin text: (29) ... Hesiodus ait, cum ignis a caelo furto Promethei subductus esset, Pandoram immissem terris poenae causa; nam per eam mulierem patefacto dolio erupisse omnium pestium genera, quibus hominem laborarent. Secundum eam opinionem haec dicuntur.
Proculus (A.D. 410-485)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Proc. Dig. XXXIII 6,6
Introduction: Concerning bequests of wheat, wine and oil.
Latin text: (6) Proculus libro quinto epistularum. Cui vinum heres
dare damnatus est, quod in amphoritis et cadis diffusus est dari debet,
etiam vasorum mentio facta non est, item quamvis cum vasis cadis
legatum esse videtur, sicuti, si servos omnes cum peculio cuiusque
eorum legasset, etiam eos, quibus peculii nihil esset, legasse videre-
tur.

Proc. Dig. XXXIII 6,15
Introduction: Concerning bequests of wheat, wine and oil.
Latin text: (15) Proculus libro secundo epistolarum. Vinum cum
vasis legavit. Negat Trebatius quod in dolis sit deberi et sensum
testatoris alium putat esse, verborum alium: ceterum dolia in vasis
vinariis non essent. Ego et si dolia invasit vinariis non sunt, tamen
non concederem Trebatio vinum quod in dolis esset, id est quod in
vasis non esset, non esse legatum. Illud verum esse puto, cui vinum cum
vasis legatum erit, ei amphorae cados, in quibus vina diffusa servamus,
legatos esse: vinum enim in amphorae et cados hanc mente diffundimus, ut
in his sit, donec usus causa probetur, et scilicet id vendimus cum his
amphorae et cadis: in dolia autem alia mente coicimus, scilicet ut ex
his postea vel in amphorae et cados diffundamus vel sine ipsis dolis
veneat.

Propertius, Sextus Amelius (c.50 B.C.- A.D. c.15)
(Elegiae = The Elegies)

Prop. II 1,67
Introduction: Propertius, in this Elegie, is discussing how strong the
power of love (Amor) can be.
Latin text: (67) Dolia virgineis idem ille (Amor) repleverit
urnis, (68) ne tenera assidua colla graventur aqua;

Prop. III 17,17
Introduction: This Elegie is entirely devoted to wine and its god,
Bacchus.
Latin text: (13) Quod si Bacche, tuis per fervida tempora donis /
accersitus erit somnus in ossa mea, / ipse seram vitis pangamque ex
ordine collis, / quos carpant nullae me vigilante ferae. / (17) dum
modo purpureo cumulem mihi dolia musto, / et nova pressantis inquinet
uva pedes, / quod superest vitae per te et tua cornua vivam, / (20)
virtutisque tuae, Bacche, poeta ferar.
Rufinus Tyrannus, Aquileiensis (A.D. 345-401)
(Greg. Naz. = Gregorii Oratones = Orations of Gregorius Nazarenus)

Rufin. Greg. Naz. or. I 47,2
Latin text: In dolio discere artem figuli

Sallustius Crispinus, Caius (Sallust; 86-34 B.C.)
(Hist. frg. = Historiarum Libri quinque = Fragments of the History of Sallust)

Sall. Hist. frg. 4,30
Latin text: (1) Dolia quae sub trabes locata vitibus aut virgis vinciebant (2) Demissis partem quasi tertiam antemnis.

Scaevola, Publius Mucius (fl. second Century A.D.)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Scaev. Dig. XXXII 1,93,4
Introduction: Concerning legacies and trusts.
Latin text: (pr) Scaevola libro tertio responsorum. ... (4) Colle-gio fabrorum fundum cum silvis, quae et cedere solent, uti optimus maximusque esset, legavit. Quaero, an ea quoque, quae in diem mortis ibi fuissent, id est faenum pabulum palea, item machina, vasa vinaria, id est coppae et dolia, quae in cella defixa sunt, item granaria legata essent. Respondit non recte peti, quod legatum non esset.

Scaev. Dig. XXXIII 7,27,3
Introduction: Concerning legacies of equipment or implements.
Latin text: (pr) Scaevola libro sexto digestorum. ... (3) Liberto, quem heredem in parte rescriptsit, fundum per praecessionem dedit in haec verba: "Pamphile liberte, praecipo tibique habeto fundum meum Titianum et agellum Sempronianum cum instrumento et his, quae in eodem erunt cum moriar, familiaque, quae in eo fundo moratur, exceptis quos manumiseris". Quaesitum est, cum testator in eo fundo aliquantum vini in dolis habuerit, quod vivus totum vendiderat et partem tertiam pretii pro eo acceperat, an vinum in dolis remanens ad libertum ex causa praecessionis pertineat. Respondit verbis quae proponerentur contineri, "nisi manifeste contrarium voluntatem coheredes approbant".
Scribonius Largus (fl. first Century A.D.)
(Compositiones Medicamentorum = Medical prescriptions)

Scrib. Larg. 111
Introduction: In one fragment of his book, Scribonius mentions a dolium filled with must.
Latin text: ... musti ... in dolio ferventis ...

Scriptores Historiae Augustae: Julius Capitolinus
(Pius. = Antoninus Pius Iulii Capitolini = Antoninus Pius by Julius Capitolinus)

Anton. Pius III 5
Introduction: Many omens of his great future rule occurred to Antoninus Pius from the beginning of his political career. Some of them occurred just after his consulship together with that of Catilinus Severus, A.D. 120.
Latin text: (5) ... Et in Etruria dolia, quae defossa fuerant, supra terram reperta sunt, ...

Seneca, Lucius Annaeus (A.D. 4-65)
(epist. = Epistulae Morales = The Epistles; nat. = Naturales Questions = Natural Questions)

Sen. epist. 36,3
Introduction: Seneca is quoting Aristo of Chios when he says that a youth of stern disposition should be preferred to one who is a jolly fellow, and he proves this statement by comparing the evolution of man's life with the aging of wine.
Latin text: (3) ... Vinum enim bonum fieri, quod recens durum et asperum visum est; non pati aetatem, quod in dolio placuit.

Sen. epist. 83,16
Introduction: In this Epistle dedicated to drunkenness, Seneca compares the effects of wine to the human's body with the effects of its fermentation in dolia.
Latin text: (16) ... Quemadmodum musto dolia ipsa rumpuntur et omne, quod in imo iacet, in summam partem vis caloris electat; sic vino exaestuante, quicquid in imo iacet abditum, effertur et prodit in medium. Onerati mero quemadmodum non continent cibum vino redundante, ita ne secretum quidem.
Sen. epist. 83,24
Introduction: In this passage Seneca is giving his negative judgement about the drinking contests which were not so uncommon during Roman banquets.
Latin text: (24) Quae gloria est capere multum? Cum penes te palma fuerit et propinationes suas strati somno ac vomitantes recusaverint, cum superastes toti convivio fueris, cum omnes viceres virtute magnifica et nemo vini tam capax fuerit, conqueris a dolio.

Sen. epist. 90,14
Introduction: In this a letter to Lucilius Seneca proves that the easy-going way of life of the wise man is the best by comparing the lives of Dedalus and Diogenes.
Latin text: (14) ... Uter ex his sapiens tibi videtur? Qui serram commentus est, an ille qui cum vidisset puerum cava manu bibentem aquam, fregit protinus exemptum e perula calicem cum hac obiurgatione sui: "quandiu homo stultus super vacua sarcinas habuit" qui se compliquit in dolio et in eo cubitavit?.

Sen. epist. 118,15
Introduction: In part of this letter to Lucilius, Seneca is explaining that not all objects change, like man, as they grow, and certain things, like honey and wine, which are uniform in their structure, endure in their quality no matter how much the quantity has been enlarged.
Latin text: (15) "Non fit", inquit, "aliud quod maius fit. Utrum lagonam an dolium impleas vino, nihil refert; in utroque proprietas vini est.

Sen. nat. I 14,1
Introduction: Seneca is discussing various forms of fires which can be seen in the sky.
Latin text: (1) ... Sunt pithiae, cum magnitudo vasti rotundique ignis dolio similis vel fertur vel uno loco flagrat.

Sen. nat. II 31,1
Introduction: In this chapter Seneca is discussing the incredible effects of lightning.
Latin text: (1) ... Loculis integris et illaesis conflatur argentum; manente vagina gladius ipse liquescit et inviolato ligno circa pilae ferrum omne destillat; stat falso dolio vinum nec ultra triduum (2) ille rigor durat.

Sen. nat. VI 19,2
Introduction: Seneca is quoting Metrodorus of Chios (who wrote the On Nature), for explaining the principal causes of earthquakes.
Latin text: (2) ... Quomodo, cum in dolio cantantur vox vibra,
illa per totum cum quodam discussione percurririt ac resonat et tam
leviter mota tamen circumit non sine iactu eius tumultuque quo inclusa
est, sic speluncarum sub terra pendentium vastitas habet aera suum,
quem, simul alius superne incidens perossis, agitat, non aliter quam
illa de quibus paulo ante rettuli inania indito clamore somuerunt.

Svetonius Tranquillus, Gaius (A.D. c.70-after 122)
(Claud. = Claudius = Claudius)

Svet. Claud. 16,4
Introduction: Suetonius in his overall bad judgement of the Emperor
Claudius, mentioned few facts about his censorship.
Latin text: (4) ... Quoque uno die XX edicta proposuit, inter
quae duo, quorum altero admonebat, ut uberi vinearum proventu bene
dolia picarentur; ...

Terentius Afer, Publius (c.195-159 B.C.)
(Heaut. = Heautontimorumenon = Self tormentor)

Ter. Heaut. 460
Introduction: Chremes and Menedemus, two old gentlemen of Athens, are
talking together about the lady who is ruining Clinia, the son of
Menedemus.
Latin text: Chremes: (455) ... Nam unam ei cenan atque eius comiti-
bus dedi; quod si iterum mihi sit danda, actum siet. Nam ut alia
omittam, pytissando modo mihi quid vini absumpsit: "sic hoc" dicens;
"asperum, pater, hoc est: aliud lenius sodes vide": (460) relevi dolia
omnia, omnis serias.

Tertullianus, Quintus Septimus Florens (A.D. c.150-after 220)
(Pall. = De Pallio = On the Pallium)

Tert. Pall. 4,7
Latin text: (6) ... Dicebat, atquin alius et sericatus, et crepidam
aeratus incessit? Digne quidem, ut bacchantibus indumentis aliquid
subtinniret, cymbalo incessit. (7) Quod si iam tunc locorum Diogenes de
dolico latrarete, non caemulentsis pedibus, ut tori Platonici sciunt, sed
omnino totum Empedoclem in adyta Cloacinarem detulisset.

Tibullus, Albius (c.48 B.C.-A.D.19)
(Elegiae = Poems for Delia, Nemesis and Messalla)
Tib. I 3,79-80
Introduction: In part of the third Poem of Book I, Tibullus, who was following Messalla on her trip to the Orient and had to stop in Corfu because he was sick, is describing the Underworld where he would go if he died.

Latin text: (79) Et Danai proles, Veneris quod numina laesit,/ (80) in cava Lethaeas dolia portat aquas.

Tib. II 5,85
Introduction: This poems is dedicated to Messalino, son of Messalina, on the occasion of his assumption in the College of Priests, which was responsible for the consultation of the sibylline books. He is recalling all the famous answers gave by the Sybill of Cuma to Aeneas, which predicted the greatness of Rome.

Latin text: (79) ... Sed tu iam mitis, Apollo/ (80) prodigia indomitis merge sub aequoribus,/ et succensa sacris crepitet bene laurea flammis,/ omne quo felix et sacer annus erit./ Laurus ubi bona signa dedit, gaudete coloni/ distendet spicis horrea plena Ceres/ (85) oblitus et musto feriet pede rusticus uvas/ (86) dolia dum magni defi-

Ulpianus, Domitius (A.D. 170-228)
(Dig. = Digesta Justiniani = The Digest or Pandects of Justinian)

Ulp. Dig. VII 1,15,6
Introduction: Concerning usufruct and its use and enjoyment.

Latin text: (pr) Ulpianus libro octavo decimo ad Sabinum ... (6) Proprietatis dominus non debet impedire fructuarium ita utentem, ne deteriorem eius conditionem faciat. De quibusdam plane dubitatur, si eum uti prohibeat, an iure id faciat: ut puta doleis, si forte fundi usus fructus sit legatus, et putant quidam, etsi defossa sint, uti prohibendum: idem et in seris et in cuppis et in cadis et amphoris putant: idem et in specularibus, si domus usus fructus legetur.

Ulp. Dig. XVIII 6,1,pr-4.
Introduction: Concerning the risk and advantages attaching to property sold.

Latin text: (pr) Ulpianus, libro vigesimo octavo ad Sabinum. Si vinum venditum acuerit vel quid aliud vitii sustinuerit, emptoris erit damnum, quemadmodum si vinum esset effusum vel vasis contusis vel qua alia ex causa. Sed si vendor se periculo subiecit, in id tempus periculum sustinebit, quoad se subiecit: quod si non designavit tempus, eatenus periculum sustinere debet, quoad degustetur vinum, videlicet quasi tuno plenissime veneat, cum fuerit degustatum. "aut igitur conve-

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nit, quoad periculum vini sustinat, et eatenus sustinebit. Aut non convenit et usque ad degustationem sustinebit". Sed si nondum sunt degustata, signata tamen ab emptore vasa vel dolia, consequenter dice-

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mus adhuc periculum esse venditoris, 'nisi si aliquid convenit'. Sed et
custodiam ad diem mensurae venditor praestare debet: priusquam enim admetiatur vinum, prope quasi nondum venit. Post mensuram factam vendedoris desinit esse periculum: et ante mensuram periculo liberatur, si non ad mensuram vendidit, sed forte amphoras vel etiam singula doia. (2) Si dolium signatum sit ab emitore, Trebatius ait traditum id vide-ri: Labeo contra, quo et verum est: magis enim ne summutteret signari solere quam (3) ut traditum videat. Licet autem vendedori vel effundere vinum, si diem ad metiendum praestituit nec intra diem adhensionem est. Effundere autem non statim poterit, priusquam testando denuntiet emitori, ut aut tollat vinum aut sciat futurum, ut vinum effunderetur. Si tamen, cum posset effundere, non effundit, laudandum est potius: eapropert mercedem quoque doliorum potest exigere, sed ita demum, si interfuit eius inania esse vasa in quibus vinum fuit (veluti si locaturos ea fuisset) vel si necesse habuit alia conducere doia. Commodius est autem conducit vasa nec reddi vinum, nisi quanti conducerit ab emitore reddatur, aut vendere vinum bona fide: id est quantum sine ipsius incommodo fieri potest operam dare, ut quam minime detrimento sit ea res emptorum. (4) Si doliare vinum emeris nec de tradendo eo quicquam convenerit, id videri actu, ut ante evacuarentur quam ad vendemia opera eorum futura sit necessaria: quod si non sint evacuata, faciendum, quod si non sint evacuata, faciendum, quod veteres putave-runt. Per corbem venditionem mensuram facere et effundere: veteres enim hoc propter mensuram suaserunt, si, quanta mensura esset, non appareat, videlicet ut appareret, quantum emptori perierit.

Ulp. Dig. XVIII 6,4,2
Introduction: Concerning the risk and advantages attaching to property sold.

Latin text: (pr) Ulpianus libro vicesimo octavo ad Sabinum ... (2) Vino autem per aversionem vendito finis custodiae est avehendi tempus. Quod ita erit accipiendum, si adiectum tempus est: ceterum si non sit adiectum, videndum, ne infinitam custodiam non debet venditor. 'Et est verius secundum ea quae supra ostendimus, aut interesse, quid de tempore actu sit, aut denuntiare ei, ut tollat vinum': certe antequam ad vendemia fuerint dolia necessaria, debet aehi vinum.

Ulp. Dig. XIX 2,19,1,2
Introduction: Concerning leasing and hiring.

Latin text: (pr) Ulpianus libro trigesimo secundo ad editum. ... (1) Si quis sola vitiosa ignarus locaverit, deinde vinum effluxerit, tenebitur in id quod interest nec ignorantium eius erit excusata: ... (2) Illud nobis videndum est, si quis fundum locaverit, quae soleat instrumenti nomine conductoris praestare, quaeque si non praestet, ex locato tenetur. Et est epistula Neratii ad Aristonom dolia utique colono esse praestanda et praelum et trapetum instructa funibus, si minus, dominum instruere ea debere: sed et praelum vitiatum dominum reficere debere. Quod si culpa coloni quid eorum corruptum sit, ex locato eum teneri. Fiscos autem, quibus ad premendam oleam utimur, colonom sibi parare debere Neratius scripsit: quod si regulis olea prematur, et praelum et suculam et regulas et tympanum et cocleas
equoibus relevatur praelum dominum parare oportere. Item aenum, in quo olea calda aqua lavatur, ut cetera vasa olearia dominum praestare oportere, sicut dolia vinaria, quae ad praesentem usum colonum picare oportebit.

Ulp. Dig. XXI 1,33, pr.
Introduction: Concerning the edict of the Aediles and the actions to compel the vendor to take back the property where he has received more than it was worth.
Latin text: (pr) Ulpianus libro primo ad dictum aedilium curulum. Proinde Pomponius ait iustam causam esse, ut quod in venditione accessurum esse dictum est tam integrum praestetur, quam illud praestari debuit quod principaliter venit: nam iure civili, ut integra sint quae accessura dictum fuerit, ex empto actio est, veluti si dolia accessura fundo dicta fuerint.

Ulp. Dig. XXXIII 6,3,1
Introduction: Concerning bequests of wheat, wine and oil.
Latin text: (pr) Ulpianus libro vicesimo tertio ad Sabinum. ...
(1) Si vinum legatum sit, videamus, an cum vasis debeatur. Et Celsus inquit vino legato, etiamsi non sit legatum cum vasis, vasa quoque legata videri, non quia pars sunt vini vasa, quemadmodum emblemata argenti (scyphorum forte vel speculi), sed quia credibile est mentem testantis eam esse, ut voluerit accessioni esse vino amphorae: et sic, inquit, loquimur habere nos amphorae mille, ad mensuram vini referentes. In dolio non puto verum, ut vino legato et dolia debeatur, maxime si depressa in cella vinaria fuerint aut ea sunt, quae per magnitudinem difficile moventur. In cuppis autem sive cupulis puto admittendum et ea deberi, nisi pari modo immobiles in agro velut instrumentum agerant. Vino legato utres non debebuntur: nec culleos quidem debere dico.

Ulp. Dig. XXXIII 7,8, pr.
Introduction: Concerning legacies of equipment or implements.
Latin text: (pr) Ulpianus libro vicesimo ad Sabinum. In instrumento fundi ea esse, quae fructus quaerendi oogendi conservandi gratia parata sunt, Sabinus libri ad Vitellium evidenter enumerat. ... Cogendi, quemadmodum torcularia corbes falcesque messoriae falces fenariae quali vindemiatorii exceptoriique, in quibus uvae comportantur. Conservandi, quasi dolia, licet (1) defossa non sint, et cuppae.

Ulp. Dig. XXXIII 9,3,11
Introduction: Concerning legacies of provisions.
circum eos esse solet, item iumentorum, quae dominici usus causa parata sunt. ... (11) Vasa quoque penuaria quin contineantur, nulla dubitatio est. Aristo autem scribit dolia non contineri, et est verum secundum illam distinctionem, quam supra in vino fecimus. Nec frumenti nec leguminum thecae (arculae forte vel sportae) vel si qua alia sunt, quae horrei penuariae vel cellae penuriae instruendae gratia habentur, non continebuntur, sed ea sola continentur, sine quibus penus haberit non recte potest.

Ulp. Dig. XXXIV 2,19,11
Introduction: Concerning legacies of gold, silver, ornaments, jewels, perfumes, clothing, tapestries and statues.
Latin text: (10) ... Si cui vasa sint legata, non solum ea continentur, quae aliquid in se recipiant edendi bibendique causa paratum, sed et quae aliquid sustineant: et ideo scutellas vel promulsidaria contineri. Repositoria quoque continentur: nam vassorum appellatio generalis est, dicimus vasa vinaria (11) et navalia.

Varro, Marcus Terentius (116-27 B.C.)
( l.l. = De Lingua Latina = The Latin Language ; r.r. = De Re Rustica = Rural Matters)

Varro 1.1. 5,137
Introduction: Varro discusses the word "falces".
Latin text: (137) ... Falces sirpiculae vocatae ab sirpando, id est ab alligando; sic sirpata dolia quassa, cum alligata his dicta.

Varro 1.1. 5,157
Introduction: Varro is discussing the meaning of the names of places in Rome.
Latin text: (157) ... Locus qui vocatur Doliola ad Cluacam Maximam, ubi non licet despuere, a doliolis sub terra. Eorum duae traditae historiae, quod alii inesse aiunt ossa cadaverum, alii Numae Pompilii religiosa quaedam post mortem eius infossa.

Varro 1.1. 5,177
Introduction: Varro is discussing the origin of some juridical terms.
Latin text: (177) Multa <e>a pecunia quae a magistratu dicta, ut exigi posset ob peccatum; quod singulae dicuntur, appellatae eae multae, <et> quod olim <i>num dicebant multam: itaque cum <in> dolium aut culleum vinum addunt rustici, prima urna addita dicunt etiam nunc.
Varro r.r. I 13,6
Introduction: Varro is advising that the buildings of a farm need to be constructed more according to the thrift of the ancients than the luxury of the moderns.
Latin text: (6) ... Illic laudabatur villa, si habebat culinam rusticam bonam, praesepis laxas, cellam vinarium et olearium ad modum agri aptam et pavimento procliivi in lacum, quod saepe, ubi conditum novum vinum, orcae in Hispania fervore musti ruptae neque non dolea in Italia.

Varro r.r. I 13,7
Introduction: The author is analyzing the way in which each room of a farmhouse needs to be constructed.
Latin text: (7) ... Quod hi laborant ut spectent sua aestiva triclinaria ad frigus orientis, hiberna ad solem occidentem, potius quam, ut antiqui, in quam partem cella vinaria aut olearia fenestras habet, cum fructus in ea vinarius quaerat ad dolia aera frigidiorum, item olearia calidiorum.

Varro r.r. I 22,1
Introduction: Varro is discussing general rules for the efficient running of a farm.
Latin text: (1) De reliquo instrumento muto, in quo sunt corbulae, dolia, sic alia, haec praecepta: quae nasci in fundo ac fieri a domesticis poterunt, eorum nequid ematur.

Varro r.r. I 22,4
Introduction: The author is quoting Cato (cf. Cato r.r. 11,1) for defining the quantities of implements used in a wine-producing farm.
Latin text: (4) Item alteram formulam instrumenti fundi vinarii fecit, in qua scribit, si sit C iugerum, habere oportere vasa torcularia instructa trina, dolia cum operculis culleorum octingentorum, acinaria viginti, frumentaria viginti, item eius modi alia. Quae minus multa quidem aliim sed tantum numerum culleorum scripsisse puto, ne cogeretur quotannis vendere vinum. Vetera enim quam nova et eadem alio tempore quam alio pluris.

Varro r.r. I 37,4
Introduction: Varro discusses the ways in which time is divided in agriculture.
Latin text: (4) Stolo, Est altera, inquit, temporum divisio coniuncta quodam modo cum sole et luna, quin sexpertita, quod omnis fere fructus quinto denique gradu peruenit ad perfectum et videt in villa dolium ac modium, unde sexto prodit ad usum. Primo praeparandum, secundum serendum, tertio nutricandum, quarto legendum, quinto condendum, sexto promendum.
Varro r.r. I 54,2
Introduction: Varro is discussing what needs to be done at the vintage.
Latin text: (2) ... In vindemia diligentis uvae non solum legitur (sed etiam eligitur: legitur) ad bibendum, eligitur ad edendum. Itaque lecta defertur in forum vinarium, unde in dolium inane veniat; electa in secretam corbulam, unde in olulas addatur et in dolia plena vinacio-rum contradatur, alia quae in piscinam in amphoram picatam descendat, alia quae in aera in carnarium descendat.

Varro r.r. I 54,3
Introduction: Varro is dealing with the making of wine.
Latin text: (2) ... Quae calcatae uvae erunt, earum scopi cum folliculis subiciendis sub prelum, ut siquid reliqui (3) habeant musti, exprimatur in eundem lacum. Cum desit sub prelo fluere, quidam circumcidunt extrema et rursus premunt et, rursus cum expressum, circumsicium appellant ac seorsum quod resipit ferrum. Expressi acinorum folliculi in dolia coiciuntur, eoque aqua additur: ea vocatur lora, quod lota acina, ac pro vino operariis datur hieme.

Varro r.r. I 59,3
Introduction: The author is dealing with preserving apples and pomegranates.
Latin text: (3) In oporothea mala manere putant satis commode alii in tabulis in opere marmorato, alii substrata palea vel etiam floccis, mala punica demissis suis surculis in dolio harenas.

Varro r.r. I 61
Introduction: Varro is discussing the ways by which "amurca" can be preserved.

Varro r.r. I 65
Introduction: Varro is dealing with the making of wine.
Latin text: (65) Quod mustum conditur in dolium, ut habeamus vinum, non promendum dum fervet, neque etiam cum processit ita ut sit vinum factum, si vetus bibere velis, quod non fit, antequam accesserit annus; anniculum prodit.

Varro r.r. III 12,2
Introduction: Varro is describing the hunting preserve of Titus Pompeius, a tract of enclosed land of about four square miles in Transalpine Gaul.
Latin text: (2) ... Praetera in eodem consaepto fere habere solent cocliaria atque etiam dolia, ubi habeant conclusos giores. Sed
horum omnium custodia, incrementum et pastio aperta, praeterquam de apibus.

Varro r.r. III 15.2
Introduction: Varro is describing places where dormice could be kept to be fed.

Latin text: (2) ... Hae saginantur in doliis, quae etiam in villis habent multi, quae figuli faciunt multo aliter atque alia, quod in lateribus eorum semitas faciunt et cavum, ubi olibum constituant. In hoc dolium addunt glandem aut nucem iuglandes aut castaneam. Quibus in tenebris cum operculum impositum est in doleis, fiunt pingues.

Vitruvius Pollio, Marcus (fl. in the first Century B.C.)
(Arch. = De Architectura = On Architecture)

Vitr. Arch. V 5,8 (116)
Introduction: In book V, chapter five Vitruvius is dealing with the sounding vases, usually made of bronze, used in theaters for acoustic effects.

Latin text: (8) ... Multi etiam sollertes architecti, qui in oppidis non magnis theatra constituerunt, propter inopiam fictilibus doleis ita sonantibus electis hac ratiocinatone compositis perfecerunt utilissimos effectus.

Vitr. Arch. VI 6,3 (147)
Introduction: In book VI, chapter 6, Vitruvius is giving advice on the construction of the roman country house (villa rustica).

Latin text: (2) ... Torcular item proximum sit culinae; ita enim ad olearios fructus commoda erit ministratio. Habeatque coniunctam vinariaem cellam habentem ab septentrione lumina fenestrarum; cum enim alia parte habuerit, quae sol calfacere possit, vinum, quod erit in ea cella, confusum ab calore efficietur inbecillum. (3) Olearia autem ita est conlocanda, ut habeat a meridie calidisque regionibus lumen; non enim debet oleum congeleri, sed tempore caloris extenuari. Magnitudines autem earum ad fructuum rationem et numerum dolorum sunt faciundae, quae, cum sint cullearnia, per medium occupare debent pedes quaternos.

Vitr. Arch. VII 12,1 (181)
Introduction: In chapter 12 of book VII Vitruvius is speaking of the production of different natural colors by the use of lead and copper (white lead, verdigris and red lead).

Latin text: (1) De cerussa aerugineque, quam nostri aerucam vociant, non est alienum, quemadmodum comparatur, dicere. Rhodo enim doleis sarmenta conlocant plumbeas massas, deinde ea operculis obturant, ne spiramentum obturatum emittatur. Post certum tempus aperientes inveniunt e massis plumbeis cerussam. Eadem ratione lamellas aereas
conlocantes (2) efficiunt aeruginem, quae aeruca appellatur.
APPENDIX B.

CATALOGUE OF KNOWN DIMENSIONS OF DOLIA AND THEIR LIDS

This appendix collects all the known dimensions of dolia and their lids from archaeological excavations. The dolia have been arranged primarily by decreasing height and the lids by decreasing diameter. All linear dimensions are given in centimeters, while capacities of dolia are given both in contemporary liters and gallons, and in ancient amphorae with their 48th fractions or sextarii.

Table 1: Dimensions of dolia.

(Explanation of abbreviations used in Table 1: Hig = Total height; MDi = Maximum diameter; HMD = Height of the Maximum diameter; RaHD = Ratio between the Total height and the Height of the Maximum diameter which is calculated using the formula: RaHD = Hig/HMD; DMO = Diameter of the mouth taken internally; DeL = Diameter of the mouth taken externally on the lip; LiT = Thickness of the lip; FoD = Foot diameter; SpP = Average thickness of the walls; CapL = Capacity in liters, which has been calculated using the formula: Volume = $(4/3) \times (3.14) \times ((Hig + MDi)/4)^3$, which approximates the dolium to a sphere with its diameter equal to the mean between the Total height and the Maximum diameter; CapA = Capacity in amphorae)

<table>
<thead>
<tr>
<th></th>
<th>Hig:</th>
<th>MDi:</th>
<th>HMD:</th>
<th>RaHD:</th>
<th>DMO:DeL:</th>
<th>LiT:</th>
<th>FoD:</th>
<th>SpP:CapL:</th>
<th>CapA:</th>
</tr>
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<tbody>
<tr>
<td>D1</td>
<td>200</td>
<td>///</td>
<td>///</td>
<td>///</td>
<td>///</td>
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<tr>
<td>D2</td>
<td>///</td>
<td>a.200</td>
<td>///</td>
<td>///</td>
<td>///</td>
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<td>///</td>
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<tr>
<td>D3</td>
<td>///</td>
<td>200</td>
<td>///</td>
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<td>///</td>
<td>///</td>
</tr>
<tr>
<td>D4</td>
<td>200</td>
<td>200</td>
<td>///</td>
<td>42</td>
<td>70</td>
<td>///</td>
<td>///</td>
<td>4,186.6</td>
<td>159.5 A</td>
</tr>
<tr>
<td>D5</td>
<td>200</td>
<td>200</td>
<td>///</td>
<td>43</td>
<td>70</td>
<td>///</td>
<td>///</td>
<td>4,186.6</td>
<td>159.5 A</td>
</tr>
<tr>
<td>D6</td>
<td>200</td>
<td>200</td>
<td>///</td>
<td>44</td>
<td>72</td>
<td>///</td>
<td>///</td>
<td>4,186.6</td>
<td>159.5 A</td>
</tr>
<tr>
<td>D7</td>
<td>200</td>
<td>200</td>
<td>///</td>
<td>44</td>
<td>74</td>
<td>///</td>
<td>///</td>
<td>4,186.6</td>
<td>159.5 A</td>
</tr>
<tr>
<td>D8</td>
<td>200</td>
<td>200</td>
<td>///</td>
<td>46</td>
<td>70</td>
<td>///</td>
<td>///</td>
<td>4,186.6</td>
<td>159.5 A</td>
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<td>159.5 A</td>
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<td>///</td>
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<td>159.5 A</td>
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<td>72</td>
<td>///</td>
<td>///</td>
<td>3,733.1</td>
<td>142 A, 7 S</td>
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<tr>
<td>D13</td>
<td>(200-175)</td>
<td>///</td>
<td>///</td>
<td>///</td>
<td>///</td>
<td>///</td>
<td>///</td>
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Table 1: continued

<table>
<thead>
<tr>
<th>Hig: MDi: Hmd: RaHD: DMo:DeL: LiT: FOD: SpP:CapL:</th>
<th>CapA:</th>
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<tr>
<td>D14 190 170 // // // // // // // // 3,052</td>
<td>116 A, 10 S</td>
</tr>
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<td>95.5 A, 19 S</td>
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<tr>
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<td>///</td>
</tr>
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</tr>
<tr>
<td>D25 165 /// // // // // // // // 7 // ///</td>
<td>///</td>
</tr>
<tr>
<td>D27 160 143 53 // // // // // // // 1,819.8</td>
<td>69 A, 14 S</td>
</tr>
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<td>54.5 A, 8 S</td>
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<td>70 A</td>
</tr>
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<td>57.5 A , 7 S</td>
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<td>60.5 A, 12 S</td>
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</tr>
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<td>38 A, 22 S</td>
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</tr>
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</tr>
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<td>38.5 A, 20 S</td>
</tr>
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<td>36 A, 9 S</td>
</tr>
<tr>
<td>D62 120 121 65 0.54 37 60 10 38 3 // // // // // 915.7</td>
<td>34.5 A, 17 S</td>
</tr>
</tbody>
</table>
Underwater find. Isola di Giannutri "Costa da Cala dello Scaglio a
Artemisia" (GR, Toscany); D2 Dolium with stamp S63. Manzano (PC,
la Romagna); D3 Underwater find of a dolium with stamp S201.
ino "Acque Extraterritoriali" (GR, Toscany); D4-12 Dolia from the
called "Petit Congloû" shipwreck, one with stamp S138. Marseille,
provence-Côte d'Azur; D13 Marseille "Docks romains" (Bouches-du-
, Provence-Côte d'Azur); D14 So-called "Diano Marina" shipwreck
Liguria); D15 Underwater find. Isola di Montecristo "Altomare"
Toscany); D16 Ten dolia. Fiumana (PO, Emilia Romagna); D17
um with stamp S65. Rome Reg. XIII "Via Mastro Giorgio angolo Via
Itelli": Gatti 1893, p.332; D18 Six dolia. Prêjus "Plate-Forme"
provence-Côte d'Azur); D19 Underwater find. Montecristo
omare" (GR, Toscany); D20 So-called "Ladispoli" shipwreck (ROMA,
num); D21 So-called "L'Ile Rousse" shipwreck (Corse, France); D22
sia. S.Sebastiano al Vesuvio (NA, Campania); D23-24 Nimès
, Languedoc-Roussillon): Allmer 1881, p.157; D25 So-called "La
upe" shipwreck (Var, Provence-Côte d'Azur): Benoit 1956, p.33 and
1972, p.37; D26 So-called "Diano Marina" shipwreck (IM, Ligu-
) D27 Nine dolia. Rome suburbio "Via Cornelio"; D28 Dolium with
p S211 found under water. Civitavecchia "La Scaglia" (ROMA, Latium);
Sixteen dolia. Lyon "Quai J.J. Rousseau" (Rhône, Rhône-Alpes);
11 Underwater finds. Civitavecchia "Imboccatura del Porto" (ROMA,
um); D32 Francolise "Posto", CE, Campania; D33 Rome suburbio
le S.Agata"; D34 Locri (RC, Calabria) (4th century B.C.); D35 Two
dolia, one with stamp S64, from the Roman theater of Nora (CA, Sardinia); D36 Fragment of a dolium with stamp S219. Manziana (ROMA, Latium); D37 Ten doliaria, many with stamp S20. Rome suburbio "Monteverde"; D38 Many doliaria, Rome Reg. XIV "Alla Farnesina"; D39 Pino Torinese (TO, Piemonte); D40 Pino Torinese (TO, Piemonte); D41 Dolium with stamp S153. Rome suburbio "Via Nomentana"; D42 Underwater find.
Cadaqués (Costa Brava, Spain); D43 La Batié-Rolland (Drôme, Rhône-Alpes); Allier 1881, p.157; D44 Sorrento "Via Reginaldo Giuliani" (NA, Campania): Rocco 1953, p.192; D45 Piorac "Vocabolo Casarine od Ovaie" (MC, Marche); D46 Three dolia, all with stamp S112. Rome Reg. VI "Via Nazionale"; D47 Underwater find. Palma de Mallorca (Mallorca, Baleares); D48 So-called "Cap Benat" shipwreck. Le Lavandou (Var, Provence-Côte d'Azur); D49 Falerone (AP, Marche); D50 Dolium with stamp S231. Francolise "Posto" (CE, Campania); D51 So-called "Agay" shipwreck. Saint-Raphaël (Var, Provence-Côte d'Azur); D52 Brindisi "Via M. Paouvio" (BR, Puglie); D53 Boscovale "La Pisanella: V. De Prisco" (NA, Campania); D54 Sorrento "Via Reginaldo Giuliani" (NA, Campania); D55 Thirfty-two dolia, many with stamps S28, S41, S54, S64, S67, S71, S90. Rome Reg. V Esquilino "Orti Massimi"; D56 Underwater find. Saint Etienne D'Agde (Hérault, Languedoc-Roussillon); D57 Gragnano "Contrada Carità (NA, Campania); D58 Pompeii Reg. II ins. V "Foro Boario" (NA, Campania); D59 Capua (CE, Campania); D60 Two dolia. Cepagatti (PE, Abruzzi); D61 Two dolia. Rome "Villa Albani"; D62 Capua (CE, Campania); D63 Thirfty-three dolia. Balaguer (Lérida, Cataluña); D64 Valegio (BR, Puglie); D65 Pitosa from the so-called "Savelette" shipwreck. Savelletri (BR, Puglie); D66 Villamagna (CH, Abruzzi); D67 Capua (CE, Campania); D68 Dolium with graffito G51. Salsomaggiore a Campore (PR, Emilia Romagna); D69 Dolium used as tomb with stamp. Rome Reg. V Esquilino "Piazza V. Emanuele"; D70 So-called "La Garoupe" shipwreck. Antibes (Var, Provence-Côte d'Azur): Fiori 1972, p.37; D71 Capua (CE, Campania); D72 Capua (CE, Campania); D73 Dolio- rum from the so-called "Diano Marina" shipwreck. Diano marina (IM, Liguria); D74 Two dolia. Lanuvio (LT, Latium); D75 Capua (CE, Campania); D76 Eleven dolia. Alba (CN, Piemonte); D77 Dolium from the so-called "Diano Marina" shipwreck. Diano marina (IM, Liguria); Pallares 1983, p.84; D78-79 Capua (CE, Campania); D80 Dolium with stamp S202. Dovadola, (FO, Emilia Romagna); D81 Dolium. Capua (CE, Campania); D82 Dolium. Brindisi "Via Tor Pisana" (BR, Puglie); D83 Glierium. Rome suburbio "Via A. Nelli".
Table 2: Dimensions of lids of dolia:

(Explanation of abbreviations used in Table 2: DiL = Diameter of lid; ThL = Thickness of lid)

<table>
<thead>
<tr>
<th>DiL:</th>
<th>ThL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>D84</td>
<td>95</td>
</tr>
<tr>
<td>D85</td>
<td>60</td>
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<tr>
<td>D86</td>
<td>58</td>
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<td>D87</td>
<td>57.5</td>
</tr>
<tr>
<td>D88</td>
<td>56</td>
</tr>
<tr>
<td>D89</td>
<td>45</td>
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</tbody>
</table>

Provenances:
D84 Rome Reg. XIV "Alla Farnesina"; D85 So-called "La Garoupe" shipwreck. Antibes (Var, Provence-Côte d'Azur): Fiori 1972, p.37; D86-87 Two lids from the so-called "Diano Marina" shipwreck. Diano Marina (IM, Liguria); D88 Cepagatti (PE, Abruzzi); D89 Lid from the so-called "La Garoupe" shipwreck. Antibes (Var, Provence-Côte d'Azur): Benoit 1958, p.33.
APPENDIX C.

CATALOGUE OF GRAFFITI INCISED ON DOLIA

This appendix collects all the graffiti referring to capacity incised on the lips or shoulders of doli after their firing.

These graffiti have been divided according to the unit of measurement used and catalogued following the order of their decreasing number; those which have been found incomplete or of which the interpretation was uncertain have been relegated to an end table.

Table 3. Graffiti mentioning the capacity in amphi\(\text{orae}\) and sextarii:
(1 Amphi\(\text{ora} = 48\) Sextarii = 26.26 litres = 6.947 gallons)

(Explanation of abbreviations: (a) The "S" is barred; (b) The "T" is upside-down; (c) The "C" is upside-down; (d) The "XXX" are incised as "III" with a single bar crossing it; (e) The "S" to the right has a horizontal bar crossing it).

<table>
<thead>
<tr>
<th>Graffito:</th>
<th>Meaning</th>
<th>Capacity in amphorae:</th>
<th>Capacity in litres:</th>
<th>Capacity in gallons:</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1 LXXXVIII</td>
<td>97.5 A</td>
<td>2,560.4</td>
<td>677.25</td>
<td></td>
</tr>
<tr>
<td>G2 TXXVIIISXVIII (a)</td>
<td>87.5 A, 18 S</td>
<td>2,307.6</td>
<td>610.5</td>
<td></td>
</tr>
<tr>
<td>G3 XXCVIISXVIII (a)</td>
<td>87.5 A, 18 S</td>
<td>2,307.6</td>
<td>610.5</td>
<td></td>
</tr>
<tr>
<td>G4 LXXIX</td>
<td>78 A</td>
<td>2,048.3</td>
<td>542</td>
<td></td>
</tr>
<tr>
<td>G5 TXXVI (b)</td>
<td>75 A</td>
<td>1,969.5</td>
<td>521</td>
<td></td>
</tr>
<tr>
<td>G6 TXIXS (b)</td>
<td>68.5 A</td>
<td>1,798.8</td>
<td>476</td>
<td></td>
</tr>
<tr>
<td>G7 LIIX</td>
<td>58 A</td>
<td>1,523</td>
<td>403</td>
<td></td>
</tr>
<tr>
<td>G8 LVIIS</td>
<td>57.5 A</td>
<td>1,510</td>
<td>399.5</td>
<td></td>
</tr>
<tr>
<td>G9 VII/LVI</td>
<td>56 A</td>
<td>1,470.6</td>
<td>389</td>
<td></td>
</tr>
<tr>
<td>G10 LIIII</td>
<td>54 A</td>
<td>1,418</td>
<td>375</td>
<td></td>
</tr>
<tr>
<td>G11 LIIII (on lip LIIII)</td>
<td>54 A</td>
<td>1,418</td>
<td>375</td>
<td></td>
</tr>
<tr>
<td>G12 LIIII (in ventre LIIII)</td>
<td>53 A</td>
<td>1,391.8</td>
<td>368.25</td>
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</tr>
<tr>
<td>G13 LIII (c)</td>
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<td>1,391.8</td>
<td>368.25</td>
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</tr>
<tr>
<td>G14 LIIICII (c)</td>
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<td>1,380.6</td>
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<td>1,365.5</td>
<td>361.25</td>
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<td>1,260.48</td>
<td>333.5</td>
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<tr>
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<td>1,260.48</td>
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<td></td>
<td>Graffito:</td>
<td>Meaning in amphorae:</td>
<td>Capacity in litres:</td>
<td>Capacity in gallons:</td>
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<td>1,247.4</td>
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<tr>
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<td>XLVIIS</td>
<td>47.5 A</td>
<td>1,247.4</td>
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<td>XLVII</td>
<td>47 A</td>
<td>1,234.2</td>
<td>326.5</td>
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<td>1,208</td>
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<td>XLVS</td>
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<td>XXXXV</td>
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<td>312.5</td>
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<td>025</td>
<td>XLV</td>
<td>45 A</td>
<td>1,181.7</td>
<td>312.5</td>
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<td>026</td>
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<td>1,181.7</td>
<td>312.5</td>
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<td>43 A</td>
<td>1,129.2</td>
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<td>XLI CIII (c)</td>
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<td>41 A</td>
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<td>284.75</td>
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<td>284.75</td>
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<td>XXXVIII S VI</td>
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<td>XXXVIIIIS CIII (c,d)</td>
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<td>1,012.7</td>
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<td>045 VII</td>
<td>XXXVIII S</td>
<td>38.5 A</td>
<td>1,011</td>
<td>267.5</td>
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<td>046 VII</td>
<td>XXXVIII S</td>
<td>38.5 A</td>
<td>1,011</td>
<td>267.5</td>
</tr>
<tr>
<td>047</td>
<td>XXXIXS</td>
<td>38.5 A</td>
<td>1,011</td>
<td>267.5</td>
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<tr>
<td>048</td>
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<td>38 A</td>
<td>997.9</td>
<td>264</td>
</tr>
<tr>
<td>049</td>
<td>XXXVIII (d)</td>
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<td>997.9</td>
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<td>050</td>
<td>XXXIX (d)</td>
<td>38 A</td>
<td>997.9</td>
<td>264</td>
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<td>XXXVIIIS</td>
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<td>984.7</td>
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<td>XXXVIIIXIII</td>
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<td>250</td>
</tr>
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<td>945.4</td>
<td>250</td>
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<td>XXXIV</td>
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<td>XXXIV (d)</td>
<td>34 A</td>
<td>892.8</td>
<td>236.25</td>
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<td>064</td>
<td>XXXIV (d)</td>
<td>34 A</td>
<td>892.8</td>
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</tr>
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<td>065</td>
<td>XXXIXS</td>
<td>33.5 A</td>
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<td>232.75</td>
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<td>XXXIX (d)</td>
<td>33 A</td>
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Table 3: continued

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<th>Graffito:</th>
<th>Meaning in amphorae:</th>
<th>Capacity in litres:</th>
<th>Capacity in gallons:</th>
</tr>
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<tr>
<td>G68</td>
<td>XXXIIS</td>
<td>32 A, 1 S</td>
<td>840.7</td>
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<td>G69</td>
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</tr>
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<td>G71</td>
<td>XXXII (d)</td>
<td>32 A</td>
<td>840.3</td>
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<td>29 A</td>
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<td>29 A</td>
<td>761.5</td>
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<td>XXVIII</td>
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<td>XXVIII</td>
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<td>748.4</td>
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<td>XXIIX</td>
<td>28 A</td>
<td>735.3</td>
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<td>A.XXV (CIL XV 2524)</td>
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<td>XX</td>
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</table>

Provenances:

G1 Gragnano "Contrada Carità" (NA, Campania): Della Corte 1923, p.278; G2-3 Narbonne "La Cauquêne" (Aude, Languedoc-Roussillon): Grenier 1931, p.604 (the graffito G2 is 43cm long: the other G3 is 35cm); G4 Herculanum ins. III.6 (NA, Campania): IV 10871; G5 Piano della Rome (ROMA, Latium): IX 6082/113; G6 Fragment of a dolium from the so-called "Punta Ala" shipwreck (Castiglione della Pescaia, GR, Toscany): unpublished; G7 Bazzano (BO, Emilia Romagna): XI 6691/35h; G8 Rome suburbio "Via Cornelia"; G9 Dolium with stamp S30. Rome "Villa Pamfili": XV 2526; G10 Rome "Villa Ludovisia": XV 2527/oc; G11-12 Two graffiti on the same dolium. Rome "Villa Ludovisia": XV 2527/bb; G13 Rome suburbio "Via Appia": XV 2527/dd; G14 Rome "Villa Ludovisia": XV 2527/aa; G15 Rome "Villa Ludovisia": XV 2527/z; G16 S.Giovanni in Persiceto (BO, Emilia Romagna): XI 6691/35g; G17 Bologna "Scavi Benacci" (MO, Emilia Romagna): XI 6691/35f; G18 Modena "Villa Collegara" (Emilia Romagna): Bertolotti 1875, p.86; G19 Rome "Villa Ludovisia": XV 2527/x; G20 Levizzano (MO, Emilia Romagna): XI 6691/35e2; G21 Ostia Reg. I ins. IV.5 "Casaeggiato dei Doli" (ROMA) (PoG: on the lip): XIV 5310/1x; G22 Musigno (SA, Campania): X 8047/10a; G23 Ostia "Magazzino near the Horrea dei Menores" (ROMA): XIV 5310/2k; G24 Poggio Renatico (BO, Emilia Romagna): XI 6691/35d; G25 Rome suburbio "Via Appia": XV 2527/v; G26 St.Gervais-sur-Roubion (Drôme, Rhône-
Table 3: continued

Alpes (PoG: on the lip) (Length of graffito 13 cm, Height of letters 3.5 cm): XI 5684/3d; G27 Two dolia. Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1v.w; G28 Musigno (SA, Campania): X 8047/10a; G29 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1u; G30 Rome suburbio "Via Appia": XV 2527/u; G31 St.Gervais-sur-Roubion (Drôme, Rhône-Alpes) (PoG: on the lip) (Length of graffito 40 cm, width 15 cm, Height of letters 8 cm): XI 5684/3b; G32 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip and on the shoulder): XIV 5310/1t (see Figure 31, p.284); G33 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1s; G34 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1r; G35 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1q; G36 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1p; G37 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/10; G38 Rome "Villa Carpinea": XV 2521; G39 Rome "Villa Carpinea": XV 2527/s; G40 Three dolia. Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/11.mn; G41 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1k; G42 Two dolia. Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1h.i; G43 Besalú (Gerona, Catalunya, Spain); G44 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1g; G45 Pallano (Ch., Abruzzi); G46 Marino, "Villa di Q. Voconio Pollione" (ROMA) (PoG: on the shoulder): Lanciani 1884, p.157; G47 Rome Reg. XIV "Alla Farnesina": XV 2527/r; G48 Ostia "Prope thermas" (ROMA): XV 2527/p = XIV 4093/2; G49 Ostia "Magazzino near the Horrea dei Menores" (ROMA): XIV 5310/21; G50 Ostia Reg. V ins. XI.5 "Magazzino annonario" (ROMA): XV 2527/q; G51 Dolium with known dimensions D68. Salsomaggiore a Campore "Castellaccio" (PR, Emilia Romagna): Monaco 1956, p.35; G52 Ostia "Prope thermas" (ROMA): XV 2527/e; G53 Rome Reg. XIV "Alla Farnesina": XV 2527/n; G54 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1f; G55 Ostia "Prope thermas" (ROMA): XV 2527/c; G56 Ostia "Prope thermas" (ROMA): XV 2527/g; G57 Rome suburbio "Via Ostiense": XV 2527/m; G58 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/e; G59 Ostia "Prope thermas" (ROMA): XV 2527/h; G60 Ostia "Prope thermas" (ROMA): XV 2527/s; G61 Ostia "Magazzino near the Horrea dei Menores" (ROMA): XIV 5310/2h; G62 Ostia "Prope thermas" (ROMA): XV 2527/f; G63 Ostia "Prope thermas" (ROMA): XV 2527/g; G64 Two dolia. Ostia "Magazzino near the Horrea dei Menores" (ROMA): XIV 5310/2f.g; G65 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip XIV 5310/1d; G66 Ostia "Prope thermas" (ROMA): XV 2527/e; G67 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip) XIV 5310/1o; G68 Ostia "Magazzino near the Horrea dei Menores" (ROMA): XIV 5310/2e; G69 Ostia "Magazzino near the Horrea dei Menores" (ROMA): XIV 5310/2d; G70 Crocetta (Corse, France); G71 Ostia "Prope thermas" (ROMA): XV 2527/d; G72 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (PoG: on the lip): XIV 5310/1b; G73 Ostia "Prope thermas" (ROMA): XV 2527/b; G74 Rome Reg. XIV "Alla
Table 3: continued

Farnesina: XV 2527/c; G75 Boscoreale "M. Livius Marcellus" (NA, Campania): Della Corte 1929, p.179; G76 Ostia Reg. I ins. IV.5 "Caseggiato dei Dolii" (ROMA) (Po4: on the lip): XIV 5310/1a; G77 Rome suburbiuo "Via Flaminia": XV 2527/a; G78 Piacenza "Prima Porta" (PC, Emilia Romagna): XI 6691/35a; G79 Rome suburbiuo "Via Prenestina": XV 2524; G80 Ostia "Magazzino near the Horrea dei Mensores" (ROMA): XIV 5310/2a; G81 Herculaneum ins. V.16 (NA, Campania): IV 10869; G82-83 Boscoreale "Pisanella: V. De Prisco" (NA, Campania): Pasqui 1876, p.485; G84 Rome "Villa Albani": XV 2524; G85 Reos (Alpes Maritimes, Provence-Côte d'Azur): XII 5684/4; G86 Rome Reg. XIII "Aventino": XV 2523; G87-89 Boscoreale "Pisanella: V. De Prisco" (NA, Campania): Pasqui 1876, p.485.

Table 4. Graffiti mentioning the capacity in urnae and bisextiae:
(1 urna = 1/2 amphora = 13.13 litres = 3.47 gallons)

<table>
<thead>
<tr>
<th>Graffito:</th>
<th>Meaning</th>
<th>Capacity</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in urnae:</td>
<td>in litres:</td>
<td>in gallons:</td>
</tr>
<tr>
<td>G90</td>
<td>UCl</td>
<td>102 U</td>
<td>1,339.3</td>
</tr>
<tr>
<td>G91 XXIX/ UCI</td>
<td>181 U, 9 B.?</td>
<td>2,385.5</td>
<td>631</td>
</tr>
<tr>
<td>G92</td>
<td>UR.XXXV.B.III</td>
<td>35 U, 3 B</td>
<td>462.83</td>
</tr>
</tbody>
</table>

Provenances:

Table 5. Graffiti mentioning the capacity in modii:
(1 modius = 1/3 amphora = 8.75 litres = 2.31 gallons)

<table>
<thead>
<tr>
<th>Graffito:</th>
<th>Meaning</th>
<th>Capacity</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in modii:</td>
<td>in litres:</td>
<td>in gallons:</td>
</tr>
<tr>
<td>G93</td>
<td>MXXIIIC</td>
<td>113 M</td>
<td>988.7</td>
</tr>
<tr>
<td>G94</td>
<td>MXXXI SXXVI</td>
<td>31 M 16 (?)</td>
<td>///</td>
</tr>
<tr>
<td>G95 F A R H A M. CXXV</td>
<td>125 M</td>
<td>1,106.6</td>
<td>292.75</td>
</tr>
<tr>
<td>G96</td>
<td>M</td>
<td>///</td>
<td>///</td>
</tr>
<tr>
<td>G97</td>
<td>M</td>
<td>///</td>
<td>///</td>
</tr>
<tr>
<td>G98</td>
<td>N.A./M.P. XX</td>
<td>20 (M?)</td>
<td>///</td>
</tr>
</tbody>
</table>
Table 5: continued

Provenances:

Table 6. Graffiti mentioning the capacity in unknown units of measurement (P and O):

Graffito:

G09 P CXI
G100 P CI
G101 VII L PV
G102 OOCXC

Provenances:
G09 Musigno (SA, Campania): X 8047/18a; G100 Musigno (SA, Campania): X 8047/18b; G102 Dolium with graffito G125. Perugia "Farfa" (Umbria): XI 6691/35m.

Table 7. Incomplete or uncertain graffiti:

(Explanation of abbreviations: (a) The "S" is barred; (b) The "T" is upside-down; (c) The "C" is upside-down; (d) The "XXX" are incised as "III" with a single bar crossing it; (e) The "S" to the right has a horizontal bar crossing it).

Graffito: Possible

| G103 | III XXIV IIIS | 54 A, 3S |
| G104 | ]TIII (b) | 53 A |
| G105 | XL[ ]IS | 41.5 A |
| G106 | XLII S | 42.5 A |
| G107 | ]XT[ (b) | 40 A |
| G108 | ]XXX | 40 A |
| G109 | ]XXIII | 33 A |
| G110 | ]XXXIII | 33 A |
| G111 | ]XXXICV (c) | 31 A, 5 S |
Table 7: continued

<table>
<thead>
<tr>
<th>Graffito:</th>
<th>Possible meaning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>G112</td>
<td>]XXIX 29 A</td>
</tr>
<tr>
<td>G113</td>
<td>]XXVII[27 A</td>
</tr>
<tr>
<td>G114</td>
<td>]XXVI 26 A</td>
</tr>
<tr>
<td>G115</td>
<td>]XXVIII (e) 25.5 A, 13 S</td>
</tr>
<tr>
<td>G116</td>
<td>///XXIII 24 A</td>
</tr>
<tr>
<td>G117</td>
<td>]XXXIII 23.5 A</td>
</tr>
<tr>
<td>G118</td>
<td>]XV XI XI 15 A</td>
</tr>
<tr>
<td>G119</td>
<td>...XII... 12 A</td>
</tr>
<tr>
<td>G120</td>
<td>XI[ 11 A</td>
</tr>
<tr>
<td>G121</td>
<td>XCI[ 10 A, 1 S</td>
</tr>
<tr>
<td>G122</td>
<td>X/// 10 A</td>
</tr>
<tr>
<td>G123</td>
<td>IXS 9.5 A</td>
</tr>
</tbody>
</table>

Provenances:
G103 Rome "Villa Ludovisia": XV 2527/11; G104 St.Gervais-sur-Roubion (Drôme, Rhône-Alpes) (PoG: on the lip) (Length of the graffito 30cm, width 18cm, height of letters 8cm): Almer 1881, p.156; G105 Ostia "Prope thermas" (ROMA): XV 2527/w = XIV 4093,10; G106 Ostia "Theater" (ROMA, Latium): XV 2527/t; G107 Boscoreale "Contrada Giuliana: I. Zurlo" (NA, Campania); G108 Dolium with stamp S25. Rome suburbio "Via S.Gregorio, Via dei Cerchi": XV 2527/y; G109 Piacenza "Prima Porta" (PC, Emilia Romagna): XI 6691/35c; G110 Rome suburbio "Via Flaminia": XV 2527/qq; G111 Rome suburbio "Via Latina": XV 2527/hh; G112 Ostia "Magazzino near the Horrea dei Mensores" (ROMA): XIV 5310/2c; G113 Gorzano (MO, Emilia Romagna) XI 6691/35a; G114 Ostia "Magazzino near the Horrea dei Mensores" (ROMA): XIV 5310/2b; G115 Rome Reg. XIV "Alla Farnesina": XV 2527/ee; G116 Rome Reg. VI "Orti Sallustiani": XV 2527/ff; G117 Contursi "Sainara" (SA, Campania): Della Corte 1924, p.88; G118 Heroulanum ins. Or.1.2 (NA, Campania): IV 10870; G119 Modena "surroundings" (Emilia Romagna): XI 6691/35s; G120 Gorzano (MO, Emilia Romagna): XI 6691/35p; G121 Gorzano (MO, Emilia Romagna): XI 6691/35q; G122 Montelinar (Drôme, Rhône-Alpes): XI 5684/3e; G123 Gorzano (MO, Emilia Romagna) XI 6691/35o.

Table 8. Graffiti referring to personal names

(Explanation of abbreviations used in Table 8: (a) = incised before firing; PoG = Position of the graffito)

<table>
<thead>
<tr>
<th>Graffito</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G124</td>
<td>ISIS</td>
</tr>
<tr>
<td>G125</td>
<td>ISIS</td>
</tr>
<tr>
<td>G126</td>
<td>ISIS</td>
</tr>
</tbody>
</table>
Table 8: continued

0127 PERGAM
0128 PRIMUS (a)
0129 VOLUSIUUS
0130 C.A.P. (a)
0131 L.A.C.H
0132 L.F.P.
0133 C.H.R. (a)
0134 E.V.I.X (a)

Provenances:
0124 Boscoreale "Contrada Giuliana: I. Zurlo", NA, Campania: Sogliano 1897, p.397; G125 Perugia "Farfa": XI 6691/35m; G126 Gorzano: XI 6691/35e; G127 (PoG: on the lip) Rome [Museo Kircheriano]: XV 2532; G128 Rome Reg. VI Quirinale "Orto del Noviziato dei Gesuiti": XV 2533. Gatti 1887, p.193, n. 1918; G129 Graffito found together with stamp S96. Pollena Trocchia (NA, Campania); G130 lid of a dolium with painted VI (de se) AICIS. Rome Reg. XIV "Alla Farnesina": Lanciani 1880, p.140; G131 Two dolia, one with stamp S203, the other with stamp S207. Balaguere (Lerida, Spain); G132 The letters are incised and filled with lead. Fragment of a dolium found under water (PoG: on the shoulder) Porto Cervo, SS, Sardinia: Rassu 1979, p.3; G133 Inscribed with a finger in the unfired clay (characters 6cm.) Dolium (Oran, Algeria): VIII 22636/15; G134 (VI in ligature) (letters incised with a stick in the unfired clay) (PoG: on the lip). Dolium from Cherchell (Algeria [Musem]): VIII 22636/14.
APPENDIX D

CATALOGUE OF DOLIA AND THEIR LIDS WITH STAMPS

The stamps have been ordered by nomen of the first person mentioned. If more than one person has been mentioned the stamp can also be found as a cross-reference under the nomen of the second person. (Explanation of abbreviations. PoS: Position of the stamp; PoS: Form of the stamp on the dolium; FoLS: Form of the stamp on the lid of a dolium; OrS: Ornaments around the stamp on the dolium; OrLS: ornaments around the stamp on the lid of a dolium; InS: Interpretation of the stamp; PaS: Parallel find of the stamp on other works of clay; PrS: Prosopographical information on the people mentioned in the stamp; Bib: Bibliographical reference. The place of origin of the artifact has been specified between parentheses, while its supposed present location is between brackets)

S1

M. ALFIUS
SECUNDUS FEC.

PoS: on the lip
OrS: ramus palmae between M. ALFIUS and SECUNDUS FEC inside the stamp
Dolium (Rome unspecified "Dresden" [Museum in Dresden n.275])
PaS: M. Alfius Secundus fec., Arca, Rome, XV 2416/2
Bib: XV 2416/1.

S2

C. ANTENI
RUF

OrS: palma to the right of RUF inside the stamp
InS: C. Anteni Rufi
Dolium (Assisi surroundings, PG, Umbria)
Bib: XV 6691/2.
S3    ANTEROTIS
     GALLICI

(ANT in ligature)
Dolium (Pompeii Reg. VII ins. XV n.15, NA, Campania)
Bib: X 8047/2.

S4    QUINTIO.ANTO.

(NT,NT in ligature)
Lid of a dolium found together with another lid of a dolium with stamp
S5 (Scafati "Contrada Crapolla", SA, Campania)
Bib: Della Corte 1923d, p.287.

S5    FIRMUS.ANTON.

(IR,ANT in ligature)
Lid of a dolium found together with another lid of a dolium with stamp
S4 (Scafati "Contrada Crapolla", SA, Campania)
Bib: Della Corte 1923d, p.287.

S6    A.APPULEI
     HILARIONIS

Dolium found together with another dolium bearing the stamp S99 (Gragnano "Villa B", NA, Campania)
PaS: A. Appulei Hilarionis, dolium, Palma Campana (NA): S7
     A. Appulei Hilarionis Firmus fec., dolium, Pompeii (NA): S8 and S9
Bib: Soprano 1963-64, n.7377.

S7    (A.) APPUL(EI) HILARION(IS)

Fragment of a dolium found together with another fragment with stamp
S36 (Palma Campana, NA, Campania)

S8    A.APPULEI
     HILARIONIS
     FIRMUS FEC.

Dolium (Naples, Campania [Museo Archeologico])
Bib: X 8047/3b.

S9    A.APPULEI
     HILARIONIS
     FIRMUS FEC.

(stamped four times)
OrS: anulo impressa uva vel folium at both sides of the first stamp
Dolium (Pompeii Reg. VI ins. VII tab. n.9, NA, Campania)
Bib: X 8047/3a.

S10
A. APPULEI
QUIETI

(PP in ligature)
OrS: anulo impressum domum at both sides of the stamp
Dolium found together with other doli with stamps S98, S124, and S168,
as well as graffiti G22, G28, G99, and G100 (Musigno, SA, Campania
[Pompeii Reg. VII ins. IV n.11 and n.14])
Bib: X 8047/4.

S11
C. ARRUC. CHITI

(AR, RU, IT in ligature)
PoS: on the lip
InS: L. Arrun(nti) Chiti?
Dolium (Orvieto "Contrada Pagliano", TR, Umbria)
Bib: XI 6691/3; Mancini 1890, p.145.

S12
ASCL. PONTI

(NTI in ligature, L inside C) PoS: on the lip
InS: Asol(epiadis) Ponti
2 Vases similar to doli (Pompeii Reg. VII ins. XII n.9, NA, Campania)
Bib: X 8047/5.

S13
L. AUTRONI
XANTHI

FoS: rectangular
OrS: cornucopiae to the left of the stamp
bi(pennis) to the right of the stamp
Dolium found with other doli with stamps S17, S84, S147, S151, S192,
and S193 (Ostia Reg. III ins. XIV n.3 "Magazzino dei dolii", ROMA,
Latium)
Bib: RBS 470.

S14
M. BAI.P()

FoS: Letters are stamped in a circle
Fragment of a dolium (Fabriano, AN, Marche [Biblioteca])
Bib: XI 6691/5.
(Stamped twice) PoS: on the lip, FoS: rectangular
InS: Barniu(a) Erotis (servi or procuratoris)
Dolium (Boscotrecase "Via Cavour", NA, Campania)
PaS: L. Eumachius Eros, tegulae, Pompeii and surroundings, X 8042/47, 48.
Bib: Della Corte 1929, p. 189-190.

S16
C. BELLICI
ZMARAGDI
PoS: on the lip, FoS: rectangular
Dolium (Rome "Museo Instituto di Archeologia")
Bib: XV 2418.

S17
L. C[A]ECILIUS
PROCLUS FEC.
FoS: rectangular
OrS: bucranium to the left of the stamp
   signum detritum to the right of the stamp
Dolium found with other dolia with stamps S13, S84, S147, S151, S192, and S193 (Ostia Reg. III ins. XIV n. 3 "Magazzino dei dolii", ROMA, Latium [in situ])
Bib: RBS 471.

S18
M. CAENI
SALVITTONIS
(one stamp) PoS: on the lip
OrS: ramus palmae below the stamp to the left
   bucranium below the stamp to the right
Dolium found together with other dolia with stamps S61, S177, and dolia with graffiti G47, G53, G74, and G115, as well as lids of dolia with stamps S48, S49, S51, S70, S91, S113 and S185 (Rome Reg. XIV "Alla Farnesina: Riva destra del Tevere" [Thermes di Diocleziano])
PaS: M. Caeni Salvittonis, cinerary olla, Albano (ROMA), XV 2419/2
   M. Caeni Salvittonis, lateres, Viterbo, XV 2419/3
   M. Caeni Salvittonis, mortarium, Dramond D (France) (50 A.D.)
Bib: XV 2419/1; Lanciani 1880, p. 140.

S19
C. CAERELLIIUS, C.L.
MEGISTUS FEC
(AE, ME in ligature)
PoS: rectangular
InS: C(aius) Caerellius C(aius) l(ibertus) Megistus fec(it)
Fragment of a dolium (Casalbarencio, PR, Emilia Romagna [Museum, Parma])
Bib: XI 6691/6.
S20  M.CAILIUS.M.L.TEUCR

(TE in ligature)
PoS: on the lip
OrS: cadoceus to the left of the stamp
InS: M(arcus) Caillius M(arcus) l(ibertus) Teucr(atius?)
10 doli with known dimensions D37 (Rome suburbio "Monteverde")
Bib: Mancini 1924, p.45-66.

S21  C.CALER

PoS: rectangular
InS: It could be C.Cal( ) Er( ) or C.Galeri
Doliun found together with another dolium with stamp S159 (Rome "Es-
quilino")
Bib: XV 2420.

S22  C.CALPETANI

CRESCENTIS

Doliun found together with other dolium with stamp S24 (Rome subur-
bio "Via Portuense: Riva destra del Tevere")
PaS: Crescentis/ Cal. Favoris, mortarium, Rome, XV 2422
Bib: Gatti 1896, p.327.

S23  [CRE]SCENT[IS]

[C.CAL. F]AVORIS

PoS: on the lip
Fragment of a dolium (Vechten, Holland; [Museum of Leiden])
PaS: C. Calpetani Favoris, arca, Rome, XV 2421
   Imp(eratoris) Cae(saris) Tra(iani) Aug(usti) ex figli(nis)
   Marc(ianus) Dolia(re) C. Calpetani Favoris, Rome, XV 314
PsS: Crescentis (S23) and Venustus (S24) are two slaves
   known to have worked for C. Calpetanus Favor.
Bib: XIII 10005/9.

S24  VENUSTUS

C.CAL.FAORIS

(CAL in ligature)
PoS: rectangular
OrS: nux pinea to the left and right of the stamp
InS: Venustus C. Cal(petani) Fa(v)oris (servus fecit)
Doliun found together with another dolium bearing the stamp S22 (Rome
suburbio "Via Portuense: riva destra del Tevere")
Bib: RBS 474; Gatti 1896, p.327.
S25  C.CALPETANI
IANUARI

(WI in ligature)
PoS: on the lip
OrS: folium uvae to the left of the stamp
Dolium with the graffito G108 (Rome suburbio "Via S.Gregorio-Via de
Cerchi" [Repos.unb.])
PrS: C. Calpetani Ianuari, Dolium, Périgueux (Aquitaine, France), S26
Bib: XV 2424.

S26  C.CALPET(ani)
IANUAR(1)

Dolium (Périgueux, Dordogne, Aquitaine, France; [Museum])
PrS: see S25

S27  L.CALPETANI
RUFi

OrS: palma to the right of RUFI inside the stamp
rosa to the left of the stamp
Fragment of a dolium (Bolsena "Madonna dei cacciatori", VT, Latium
[Museo Archeologico, Florence n.80320])
Bib: XI 8114/1; Gabrici 1903, p.372, n.27.

S28  L.CALPURNIUS.EROS

FoS: moon crescent
OrS: palmulae to the left and right of the stamp
4 dolia with known dimensions D55 found together with other dolia
with stamps S41, S54, S66, S67, S71, S90, and lids with stamps S58 and
S109 (Rome Reg. V "Esquilino: Orti Massimi" [Tabularium])
PrS: L. Calpurnius Eros fecit, dolium, Rome, S29
L. Calpurnius Eros, dolium, Rome, S30
Bib: XV 2490/b2 (wrongly read in Lanciani 1874, p.218).

S29  L.CALPURNIUS.EROS.F.

PoS: on the lip, FoS: moon crescent
Dolium (Rome "Villa Peretta" [Villa Peretta])

S30  L. CALPURNIUS.EROS

(ALP, UR in ligature)
FoS: moon crescent
Dolium with graffito G9 (Rome "Villa Pamfili" [Villa Pamfili])
Bib: XV 2490/b3.
M.CLOILI.L.F.

PoS: on the lip
Dolium (Bologna surroundings [eventually located in Modena])
Bib: XI 6691/7 = I 2348.

D.F.C.CLUNTII
AMPLIATI
CORINTHUS.S.F.

(Two separate stamps)
OrS: stella to the right of CLUENTI inside the stamp
caduceus alatus to the left and right of the first stamp
palmae a ramus insertus to the left and right of the second stamp
Ins: D(e) f(iglinis) C.Cluenti Ampliati. Corinthus s(ervus) f(ecit)
Dolium (Pompeii Reg. VII ins. VII n.19, NA, Campania)
PaS: C. Cluenti Ampliati, dolium, Pompeii, S33, S34 and S35
C. Cluenti Ampliati, dolium, Palma Campana (NA), S36
Bib: X 8047/7; Fiorelli 1875, p.249.

C.CLUNTII
AMPLIATI

Orn: ramus palmae to the left and right of the stamp
Dolium (Pompeii "unspecified", NA, Campania)
PaS: see S32
Bib: X 8047/6a.

C.CLUNTII
AMPLIATI

Orn: ramus palmae to the left and right of the stamp
4 dolia (Pompeii "Aedibus statuarii", NA, Campania)
PaS: see S32
Bib: X 8047/6b.

C.CLUNTII
AMPLIATI

(stamped twice)
OrS: ramus palmae to the left and right of the stamp
Dolium (Pompeii Reg. I ins. III n.2, NA, Campania)
PaS: see S32
Bib: X 8047/6c.

C.CLUNTII AMPLIATI.
Fragment of a dolium found together with another dolium with stamp S7
(Palma Campana, NA, Campania)
PaS: see S32

S37
T. COCCEI
FORTUNATI
FoS: rectangular
Dolium (Rome surroundings "Bebiana")

S38
C. COELI POTITI
(stamped twice)
Dolium (Alignant-du-Vent, Hérault, Languedoc-Roussillon, France)
Bib: XII 5684/2.

S39
C. CORNELI, FELI
CALAIS FECIT
(two separate stamps) (the first stamp is upside down)
FoS: on the lip, FoS: rectangular
InS: C. Cornelii Feli (cis), Calais (servus) fecit
Dolium found together with another dolium with stamp S105 (Rignano Flaminio, ROMA, Latium)
PaS: C. Cornelii Feli, 2 dolia, Rome, XV 2430 and XV 2431
PrS: Calais (S39) and Cimber (S40) are slaves of C. Cornelius Felix who appears alone on dolia S41 and S42.
Bib: XI 6691/9 = RBS 479.

S40
[C]. CORNELI, FELI
CIMBER FEC
FoS: rectangular
InS: C. Cornelii Feli (cis), Cimber (servus) fec(it)
Dolium (Viterbo, Latium [Museo Municipale])
PaS: see S39
Bib: XI 8114/2 = RBS 480.

S41
C. CORNELIUS
FELIX FEC
(X FEC in ligature) (two separate stamps) (the first stamp has a double perimeter)
OrS: flos papaveris to the left of the second stamp
nux pinea to the right of the second stamp
flores duo papaveris to the right of FELIX inside the stamp
2 dolia with known dimensions D55 found together with other dolia
with stamps S28, S54, S66, S67, S71, S90, and lids with stamps S58 and
S109 (Rome Reg. V "Esquilino: Ortì Massimi" [Tabularium])
PaS: see S39
Bib: XV 2430 (wrongly read in Lanciani 1874, p.218).

S42  C. CORNELI. FELI
(The stamp has a double perimeter) PoS: on the lip
OrS: remus palmae infusis exornatus, infra luna corniculata to both
sides of the stamp
InS: C. Corneli Feli(cis)
2 dolia (Rome "Alveo Tevere")
PaS: see S39
Bib: XV 2431.

S43  L. CORNELI RUFION
(NE,UF in ligature)
OrS: sigillum vacuum to the left and right of the stamp
Dolium (Pompeii Reg. I ins. III n.20, NA, Campania)
InS: L. Corneli Rufion(is)
PrS: L. Corneli Rufion, dolium, Pompeii, S44
     L. Corneli Rufion, fragment of a dolium, Pompeii, S45
     L. Corneli Rufion, dolium, Naples, S46
Bib: X 8047/8a.

S44  L. CORNELI RUFION
(NE,UF in ligature)
OrS: sigillum vacuum to the left and right of the stamp
Dolium (Pompeii Reg. VI ins. XIV n.36, NA, Campania)
PrS: see S43
Bib: X 8047/8b; Mau 1878, p.192.

S45  L. CORNELI RUFION
(NE,UF in ligature)
PoS: on the lip
OrS: sigillum vacuum to the left and right of the stamp
Fragment of a dolium (Pompeii "Deposito", NA, Campania)
PrS: see S43
Bib: X 8047/8c.

S46  L. CORNELI RUFION
Dolium (Naples, NA, Campania [Museum])
PrS: see S43
Bib: 8047/8d.
S47  C. CO(SCO)NIUS

PoS: on the lip, FoS: rectangular
InS: C(aius) Cosconius (fecit)
Dolium (Rome suburbio "Via Solferino")
PaS: C. Cosconius, lateres, Rome, XV 2232.
Bib: XV 2515.

S48  CN.DOMITI AMANDI
VALEAT QUI FECIT

(MITI,AM,ND in ligature)
FoLS: moon crescent
OrLS: sistrum in the center of the stamp
rami palmaris to the left and right of the first line
Lid of a dolium found together with other lids of dolia with stamps
S49, S51, S70, S91, S113 and S185, as well as dolia with stamps S18,
S61, S117, and dolia with graffiti G47, G53, G74, and G115. (Rome Reg.
XIV "Alla Farnesina" [Thermes Diocletianos])
Bib: XV 2433; Lanciani 1880, p.140 (corrected from Lanciani 1879, p.15)

S49  APRILIS CN.DOMITI AGATHOBULI

(TH,UL in ligature)
FoLS: in a circle
Lid of a dolium found together with other lids of dolia with stamps
S48, S51, S70, S91, S113 and S185, as well as dolia with stamps S18,
S61, S117, and dolia with graffiti G47, G53, G74, and G115. (Rome Reg.
XIV "Alla Farnesina" [Thermes Diocletianos])
PaLS: Cn. Domiti Agathobuli, lateres, Rome, XV 1106b
PaS: Cn(eus) Domitius Agathobulus with his slave Aprilis (S49), Cn(eus)
Domitius Clemens (S50), Cn(eus) Domitius Chrysero (S51), Cn(eus)
Domitius Salvator (S52), Cn(eus) Domitius Trophimus with his slave
Decembris (S53 and S54), as well as Cn(eus) Domitius Tullus with his
slave Primigenius (S55), they all belonged to the gens Domitia and
were related to the production of various works of clay.
Bib: XV 2417; Lanciani 1880, p.140.

S50  CN.DOMITI
CLEMENTIS

FoS: rectangular
Dolium (Rome unspecified "La Vertice")
PaS: see S49
Bib: RBS 502.

S51  CN.DOMITI CRHYSERO

FoLS: in a circle
OrLS: ramus palmaris sotto bollo
InS: Cn(ei) Domiti Chrysero(tis)
2 Lids of dolia found together with other lids of dolia with stamps S48, S49, S70, S91, S113 and S185, as well as dolia with stamps S18, S61, S177, and dolia with graffiti G47, G53, G74, and G115. (Rome Reg. XIV "Alla Farnesina" [Therme di Diocleziano])
PaLS: Cn.Domiti Chrysero, brick, Rome, XV 1105
   Cn.Domiti Chrysero, brick, Oristano (Sardinia), Zucca 1981, p.56
PsS: see S49
Bib: XV 2434/1-2; Lanciani 1878, p.66 and p.102.

S52

CN.DOM
SALVATAR
(AL,ATA in ligature)
Dolium (Carthage, Tunisia)
PaS: Cn. Domiti Salvatari, mortarium, Pompeii, X 8048/17
   Cn. Domiti Salvatari, tegula, Rome, XV 1093
PsS: see S49
Bib: VIII 22636/2.

S53

CN.DOMITI TRO(PHIMI)
DECEMB(ER)
PoS: on the lip
InS: Cn. Domiti Trop[hi]mi Decemb[er] ser(vus) fec(it)
Fragment of a dolium (Rome suburbio "Area del Policlínico")
PsS: see S49
Bib: XV 117a = RRS 503; Persichetti 1893, p.71.

S54

C.DOMATI
TROPHIMI
(AT,PH in ligature) (Two separate stamps)
PoS: on the lip
OrS ramus palmae between the two stamps
   stella between C. and DOMATI inside the stamp
Dolium with known dimensions D55 found together with other dolia with stamps S28, S41, S66, S67, S71, S90, as well as lids for dolia with stamps S58 and S109 (Rome Reg. V "Esquilino: Orti Massimi" [Tabularium])
PsS: see S49
Bib: XV 2432 = ID 176c; Lanciani 1874, p.218.

S55

pr[IMIGEN]
c]N DOM TULL
(UL in ligature)
FoS: rectangular
InS: [Pr]imigen(ius) [C]n(ei) Dom(it)i Tull(i) (servus fecit)
Dolium (Bolsena "Mercatello", VT, Latium [Museum, Florence])
Bib: XI 8115 = RBS 496; Gabrici 1906, p.91.

S56
PRISCUS DUOR
DOMITIORUM
(RU in ligature) (the stamp appears twice on one of the dolia)
PoS: on the lip
2 dolia (Rome [Museo Tabularium])
Bib: XV 2485.

S57
VELOX
DOMITIOR[
PoS: on the lip, PoS: rectangular
InS: Velox Domitior[um]
Dolium (Siracusa, SR, Sicily [Museum])
Bib: XV 2509 = X 8056/370.

S58
TERTIUS
DOM.LUC
PoLS: rectangular
OrS: ramulus palmae to the left and right of the stamp
InS: Tertius Dom(itiae) Luc(illae) (servus fecit)
Lid of a dolium found together with another lid with stamp S109, as well as dolia bearing the stamps S28, S41, S54, S66, S67, S71, and S90 (Rome "Esquilino: Orti Massimi" [Tabularium])
PaS: Tertius Dom(itiae) Luc(illae), tegula, Rome, XV 1017
Bib: XV 2496 = ID 176b; Lanciani 1874, p.218.

S59
L.FABIUS.L.APOL.
SEX TOSSIIUS.L.F.
(stamped twice) PoS: on the lip
OrS: stella circulo inscripta to the right of APOL.
InS: L.Fabius.L.Apol( ); Sex(tus) Tossius L. F(ecit)
Fragment of a dolium (Rome suburbio "Via Appia Antica")
PrS: L. Fabius L. F., dolium, Viterbo, S60
Bib: RBS 504; Ghislanzoni 1912, p.378.

S60
L.FABIUS.L.F.
(in margine) PoS: rectangular, PoS: on the lip
OrS: palma to the left and right of the stamp
Dolium (Viterbo [Museum], VT, Latium)
PrS: see S59
Bib: XI 6691/10 = RBS 505.
Q. FABRICI. FELICI

(AB, LI in ligature)
PoS: on the lip, FoS: rectangular stamp with double perimeter
OrS: tridensextrorsumiacens below the stamp
Doliurn found together with other doli with stamps S18, S177, and
doli with graffitig47, G53, G74, and G115, as well as lids of doli
with stamps S48, S49, S51, S70, S91, S113 and S185 (Rome Reg. XIV "Alla
Farnesina: Riva destra del Tevere" [Therme di Diocleziano])
Bib: XV 2437; Lanciani 1880, p. 140.

C. FIDICLANI PRIMI
L. POMPONIUS
CRESCES. FEC

(two separate stamps) (double line over and under the first stamp)
OrS: ramus palmae to the left and right of the stamps
Doliurn (Roma Reg. X "Arco di Costantino" [Tabularium])
Bib: XV 2441.

F]IRMIA[NI]
F]AVORIS

FoS: rectangular
InS: F]irmi[ni F]avoris
Doliurn with known dimensions D2 (Manzano, PC, Emilia Romagna)
Bib: XV 2421.

T. FLAV AUG. L. MAX
FECIT POTICUS SE

FoS: rectangular
OrS: caput bovis to the left and right of the stamp
palma under the stamp
InS: T(itii) Flav(ii) Aug(usti) I(beriti) Maximii, fecit Poticus se(rvus)
Doliurn with known dimensions D35 dated to the Trajani Age (Nora, CA,
Sardinia [Museo Archeologico Nazionale, Cagliari])

T. FLAVI PYRAMI
ADIUTOR. SER. FEC

FoS: on the lip, FoS: rectangular
InS: T. Flavi Pyrami; Adiutor ser(vus) fec(it)
Fragment of a doliurn with known dimensions D17 (Rome Reg. XIII "Via
Mastro Giorgio e Vanvitelli")
PrS: This T. Flavius Pyramus may be the imperial slave Pyramus in RBS
537 after his manumission.
Bib: RBS 506; Gatti 1893, p. 332.
S66

M. FULVI. ANTIQ

(UL. ANT in ligature)
InS: M. Fulvi Antioc(i)
Dolium with known dimensions D55 found together with other dolia with stamps S28, S41, S54, S67, S71, S90 and lids with stamps S58 and S109
(Rome Reg. V "Esquilino: Orti Massimi" [Tabularium])
PaS: M. Fulvi Antioc, brick, Rome, XV 1161
PrS: M. Fulvius Antiocous (S66), as well as at least three slave of M. Fulvius, Diagisa (S67), Dionysius (S68), and Phileros (S69) are known to have work in a figlina which produced dolia.
Bib: XV 2443 (wrongly read in Lanciani 1874, p.218).

S67

DIAGISA. M. FULVI. S. F

(UL in ligature)
PoS: on the lip, FoS: moon crescent
InS: Diagiza M. Fulvi s ervus f ecit
OrS ramus palmae to the left and right of the stamp tridens instead of ramus palmae to the right of the stamp in the second dolium.
2 dolia with known dimensions D55 found together with other dolia with stamps S28, S41, S54, S66, S71, S90 and lids with stamps S58 and S109 (Rome Reg. V "Esquilino: Orti Massimi" [Tabularium])
PrS: see S66
Bib: XV 2445 (wrongly read in Lanciani 1874, p.218).

S68

DIONYSIUS
FULVI M. S.

Orn: ramus palmulae to the left of DIONYSIUS
Dolium (Carthage, Tunisia)
PrS: Dionysius Fulvi M. S., tegula, Rome, XV 978
PrS: see S66
Bib: VIII 22636/1.

S69

PHILEROS
M. FULVI. SER

Dolium (Pompeii Reg. IX ins. V n.11, NA, Campania)
PrS: Phileros M. Fulvi, tina, Rome, XV 2446/2
Phileros M. Fulvi, tegula, Rome, XV 1358
PrS: see S66
Bib: X 8047/15.

S70

PHILEROS
M. FULVI

Lid of a dolium found together with other lids of dolia with stamps S48, S49, S51, S91, S113 and S185, as well as dolia with stamps S18,
S61, S177, and dolia with graffiti G47, G53, G74, and G115. (Rome Reg. XIV "Alla Farnesina" [Therme di Diocleziano])
PrS: see S66
Bib: XV 2446/1; Lanciani 1879, p.15; Lanciani 1880, p.140.

S71

CASTRICIUS
ET RODO FUL

(TR, FUL in ligature)
OrS: *ramus* or *potius thyrsus exornatus* to the right of the stamp
    *ramus palmae, infra cum corona* to the left of the stamp
InS: Castricius et Rodo Ful(vi) (servi fecerunt)
3 dolia with known dimensions D55 found together with other dolia
bearing the stamps S28, S41, S54, S66, S67, S90 and lids with stamps
S58 and S109 (Rome Reg. V "Esquilino: Orti Massimi" [Tabularium])
Bib: XV 2444 (wrongly read in Lanciani 1874, p.214).

S72

M.[F]URI
VINDICIS

PoS: on the lip, FoS: rectangular
Doliurn (Ostia "Cella prope thermas adhuc extantibus", ROMA, Latium)
PaS: M. Furi Vindicis, Dolium, Ostia, S73
Bib: XV 2447/a = XIV 4093,12.

S73

M. FURI
VINDICIS

FoS: rectangular
Doliurn (Ostia "Fondo la Torretta", ROMA, Latium)
PaS: see S72
Bib: XV 2447/b.

S74

I.C.F.FUSCI

PoS: on the lip
OrS: *palma vel pampini* in unknown position
Fragment of a dolium (Anguillara Sabazia, ROMA, Latium)

S75

M.GALICIIUS
DIOPHANT(us) F(ecit)

Doliurn (Santa Marinella, ROMA, Latium)
S76  
T. GAVELIUS  
FEST.  
InS: T(itus) Gavelius Fest(us fecit)  
Fragment of a dolium (Modena "Museo Civico", MO, Emilia Romagna)  
Bib: XI 6691/34.

S77  
L. GAVIUS  
STABILIO  
Dolium (Camerino "Parrocchia di Perito", MC, Marche)  
Bib: XI 6691/11a = Pigorini 1897, p.97 (FiS: Pigorini 1897, p.98).

S78  
SEX. GAVI  
CELERI  
PoS: on the lip, FoS: rectangular (9.7 cm x 3.5 cm)  
OrS: cipressus vel spiga to the left and right of the stamp  
Dolium (Campagnatico "Poggio Rotigli", GR, Tuscany [Museo Archeologico, Grosseto])  
Bib: Bizzarri 1959, p.57.

S79  
M. L. PETRONIORUM  
VETERANI ET TIRONIS  
P. GAVI  
SECUNDI  
(NI, RUM, ANI in ligature) (two separate stamps)  
FoS: both rectangular  
OrS: caduceus alatus in cuspide desinens above the stamps  ramus below the stamps  
Fragment of a dolium (Bolsena "House of Laberius Gallus", VT, Latium)  
PaS: For M. Petronius Veteranus see S132  
Bib: XI 6691/17 = RBS 535; Stevenson 1882a, p.160; Stevenson 1882b, p.265.

S80  
]GEMINI  
POLLINARIS  
]UCUNDUS. S. F.  
(Two separate stamps)  
OrS: nux pinea to the right above GEMINI and below ]UCUNDUS  folium in unknown position  
InS: Gemini [A]pollinaris; [I]ucundus a(ervus) f(ecit)  
Fragment of a dolium (Rome "Alveo Tevere")  
Bib: XV 2448.
S81  GENIALIS RASIN
     PONTICI SER FE

PoS: rectangular
InS: Genialis Rasin(i) Pontici(us) ser(vus) fe(cit)
Dolium found together with another dolium with stamp S210, as well as
other dolia with graffiti G21, G27, G29, G32, G33, G34, G35, G36, G37,
G40, G41, G42, G44, G54, G58, G65, G67, G72, G76 (Ostia Reg. I ins. IV
n.5 "Caseggiato dei dolii", ROMA, Latium)
PaS: Genialis Rasin(i) Pontici Ser F., Dolium, Boville (ROMA), S82

S82  GENIALIS RASIN[I]
     PONTICI.SER.F

Dolium (Boville, ROMA, Latium)
PrS: see S81
Bib: XV 2449.

S83  C.IULIUS FELIX

Dolium (Domicella, AV, Campania)
PaS: C. Iulius Felix, lucerna, X 8053/99,101
     C. Iulius Felix, vascula, X 8056/178-180
     C. Iulius Felix, tegulae, X 8048/60,63,64
     C. Iulius Felix, mortarium, X 8048/19,20
     C. Iuli Fel(icis)/ D(e) F(iglina) Anton(ianis?), brick, Anguillara
     Sabazia, ROMA: NS 1940, p.415.

S84  C.IULI RUFI
     L.ARISTAEUS

RESTITUTUS FF

(AE, TIT in ligature) (Two separate stamp)
PoS: both rectangular
OrS: bucrania to the left and right of the stamps
     caput bovis stamped four times below the stamps
Dolium found with other dolia with stamps S13, S17, S147, S151, S192,
and S193 (Ostia Reg. III ins. XIV n.3 "Magazzino dei dolii", ROMA,
Latium [in situ])
Bib: RBS 509.

S85  C]N.IUNIO.
     C]L.POBIIIO

PoS: on the lip, PoS: rectangular
InS: Cn(eus) Iunio(s) C(neus) l(iberius) Pobleios (fecit)
Dolium (Narni, ROMA, Latium)
Bib: XI 6691/13; Eroli 1858, p.249.
S86  L.IUNIO.CN.F.
PoS: on the lip, FoS: rectangular
Dolium (Tarquinia surroundings, VT, Latium [Museum])
IntS: L.Iunio(s) Cn. Filius? or (fecit)
Bib: I 2349 = XI 6691,12a.

S87  M. IUNIO. T. [L] /// DE
(DE in ligature and upside down) (Two separate stamps)
PoS: on the shoulder, FoS: rectangular
IntS: M.Iunio(s) T. [L.]
Dolium (Rome "Alveo Tevere")
Bib: XV 2452 = XIV 4093,2.

S88  DE FIGILIN[I]S
D.LABER[I] APH
PoS: on the lip, FoS: rectangular
IntS: De figilinis[is] D(ecimi) Laber[i] Aph(rodii?)
Dolium (Narni "Contrada Campo d'Isola", ROMA)
PaS: De figilinis D. Laberi Saturnini, dolium, Rome: S89
Bib: XI 8114/3 = RRS 510; Giglioli 1914, p.221.

S89  DE FIGILINIS
L.LABERI SATURNINI
(At, Ur, Ni, Ni in ligature)
PoS: on the lip
OrS: ramosa palmae to the left and right of the stamp
nux pinea above the stamp
Dolium (Rome suburbio "Via Aurelia: Villa York")
Bib: XV 2453.

S90  L.LAELI
IUCUNDI
PoS: on the lip, FoS: Rectangular
Dolium with known dimensions D55 found together with other dolia with
stamps S28, S41, S54, S66, S67, S71 and lids with stamps S58 and S109
(Rome Reg. V "Esquilino: Orti Massimi" [Tabularium])
Bib: XV 2455; Lanciani 1874, p.218.

S91  LIBERALIS
RUTILI[AE]
FoLS: rectangular
Lid of a dolium found together with other lids of dolia with stamps
S48, S49, S51, S70, S91, S113 and S185, as well as dolia with stamps
S18, S61, S177, and dolia with graffiti G47, G53, G74, and G115. (Rome Reg: XIV "Alla Farnesina" [Therme di Diocleziano])
PaS: Liberalis Rutiliae/ M. Fulvi, tegula, Rome, XV 1242a
Bib: XV 2456; Lanciani 1880, p.140.

S92
M.LICINI
CRISPIONIS

PoS: on the lip, FoS: rectangular
Doliium with known dimensions D69 (Rome Reg. V Esquilino "Piazza Vittorio Emanuele II" [Museo Capitolino, sala delle terracotte])
Bib: XV 2457.

S93
L.LICINNIUS
FORTUNAT F.

(AT in ligature)
PoS: in planta pedis (dimensions of the stamp: 10.5cm X 4cm)
OrS: phallus to the right of the stamp (the ornament is a separate stamp)
InS: L(uclius) Licinnius Fortunat(us) P(ecit)
Doliium found together with another dolium bearing the stamp S139 on a shipwreck (Ile Rousse, Corse, France)
PaS: Ex Figli(nis) Tonneian(is) L. Licin(nius) Felix, brick, Oristano (Sardegna) (dated A.D. 95–100), Zucca 1981, p.51-52
Bib: Lamboglia 1972, p.54.

S94
OP.DOL.
LYGDAM

OrS: tria capita bovis above the stamp
palmæ to the left and right of the stamp
InS: Op(us) dol(iare) Lygdam(i)
Doliium (Elmas, CA, Sardinia [garden of the Museo Archeologico Nazionale, Cagliari])
PaS: Lygdami. M.P.V., Naples, huge vase, X 8059/240

S95
FAUSTI LYGDAMI
SPERATUS SER FEC

OrS: ramus palmaræ to the left and right of the stamp
caput bovis stamped three times under the stamp
Doliium (Rome "unspecified")
Bib: XV 2438.
S96  PAPIA
A.LIGURI
(two separate stamps) PoS: on the lip
Dolium with graffito G129 found together with fragments of other dolia
with the same stamp and a lid of a dolium with stamp S134 (Pollena
Trocchia, NA, Campania [One unbroken is now in the Palazzo del Co-
mune])
Bib: Della Corte 1932, p.311-314.

S97  M.LUCCEI
QUARTIONSI
Dolium (Pompeii Reg. VI ins. XIV n.36, NA, Campania)
PrS: M. Luccei Quartionis, 3 dolia, Musigno, S98
dolium, Gragnano, S99
dolium, Rome, S100
tegulae, Gragnano, NS 1923 p.271-274
Bib: X 8047/10; Mau 1878, p.191.

S98  M.LUCCEI
QUARTIONIS
OrS: folium uvae to the left and right of the stamp of one dolium
guttus to the left and right of the stamp of the other two dolia
3 dolia found together with other dolia bearing the stamps S10, S124,
and S168, as well as the graffiti G22, G28, G99, and G100 (Musigno, SA,
Campania [Pompeii Reg. VII ins. IV n.11 and n.14])
PaS: see S97
Bib: X 8047/10a-c.

S99  M.LUCCEI
QUARTIONIS
Dolium found together with another dolium bearing the stamp S6 (Gragna-
no "Villa B", NA, Campania)
PaS: see S97
Bib: Soprano 1963-64, n.7377.

S100  M.LUCC[E]I
QUARTIONIS
Lid of a dolium found together with other lid of dolium with stamp S196
(S,Sebastiano al Vesuvio, NA, Campania)
PaS: see S97
S101  L. LURIUS
PRIMIT[

FoS: rectangular
OrS: *ramus palmae* between the first and the second line.
InS: L. Lurius Primit[iv(us)]
Dolium (Rome "Antiquarium Comunale")
Bib: RBS 512.

S102  L. LURIUS
VERECUN FEC.

(stamped twice) FoS: on the lip
OrS: *ramus palmae* between the first and the second line.
InS: L. Lurius Verecun(dus) fe(cit)
Dolium (Ostia [Museum], ROMA, Latium)
Bib: XV 2459.

S103  Q. MAELILI

FoS: rectangular
Dolium (Perugia, PG, Umbria)
Bib: XI 6691/14.

S104  C. MARCI. L.F

FoS: rectangular
Dolium found together with another dolium with stamp S153 (Rome subur- 
bio "Via Nomentana")
Bib: RBS 513; Stefani 1924, p.62-64.

S105  SEX MARCI. [L]. [F]
L. AFIDI. ST. F.

(S of ST inverted)  (two separate stamps, the first upside down)
FoS: on the lip, FoS: both rectangular
InS: Sex(ti) Marci [L(uce) f(iili)], L. Afidi St(at) f(iili)
Dolium found together with stamp S39 (Rignano Flaminio, ROMA, Latium)
Bib: XI 6691/1.

S106  STA[TI M]ARC
LUC(IFERI]

InS: Sta(ti) Arc(i) Luc[ieri]
Dolium (Rome Reg. V Esquilino "Tabularium")
PrS: Statius Marcius Lucifer (S106), Statius Marcius Primigenius
(S107), Statius Marcius Stator (S108), and Statius Marcius Triferna
(S109) are all persons known to have been involved in the production of
dolia.
Bib: XV 2463.

S107
STATIUS MARCI[IUS]
PRIMIGENIUS

(TA, MA in ligature)
PoS: rectangular
InS: Statius Marcius Primigenius (fecit)
Dolium (Rome Reg. VIII "Sterri")
Bib: Barnabei 1892, p.347.

S108
ST. MARCI ST. F

(MAR in ligature)
PoS: on the lip, PoS: rectangular
InS: St(atius) Marci(us) St(ator) f(ecit)
Dolium (Rome "Alveo Tevere")
PaS: Statius Marcius Stator, tegula. Rome, XV 1290 a-c
Bib: XV 2466; Gatti 1887, p.130.

S109
ST. MARCI
TRIFERNA F.

(F as big as the stamp)
PoS: rectangular
InS: St(atius) Marci(us) Triferina f(ecit)
Lid of a dolium found together with another lid for dolia with stamp 358, and dolia bearing the stamps S28, S41, S54, S66, S67, S71, S90 (Rome Reg. V Esquilino "Orti Massimi" [Tabularium])
Bib: XV 2467; Lanciani 1874, p.218.

S110
/// MARCI MAT ///

(MA, MA legati) (litteris altis 1.6cm)
Dolium (Carthage, Tunisia)
PaS: C. Marci Mai() Str(), tegula. Rome, XV 1279
Bib: VIII 22636/5.

S111
ANTHUS FEC.
L. MESCIN(I) FLACC(I)

(CI of Mescini in ligature)
PoS: on the lip, PoS: rectangular
InS: L. Mescini(f) Flaco(i); Anthus (servus) fec(it)
Dolium (Rome "Alveo Tevere")
Bib: XV 2470.
S112  L. [Mes]CINI FLACCI
       [ex figl.] MARC.

(NA Legati)
FoS: rectangular
InS: L. [Mes]cini Flacci, [ex figl](inis) Marcianis.
Dolium with known dimensions D46 (Rome Reg. VI "Via Nazionale" [exported to the USA])
PaS: L. Mescini Flacci, brick, Rome, XV 1787
Bib: XV 2469.

S113  C. MILASI.CUPITI

FoLS: moon crescent
OrLS: nux pinea inter duas palmulas below the stamp
palmulae to the left and right of stamp
Lid of a dolium found together with other lids of dolia with stamps
S48, S49, S51, S70, S91, and S185, as well as dolia with stamps S18,
S61, S177, and dolia with graffiti G47, G53, G74, and G115. (Rome Reg.
XIV "Ala Farnesina" [Thermi di Diocleziano])
PaLS: C. Milasi Cupiti, brick, Rome, XV 1305
Bib: XV 2471; Lancelli 1880, p.140.

S114  C. MINUCI.C.F.PEDIANI
       FEC.F[O]RTUNATI.SER

(CI,DI,ANI,NATI leg.) (litteris pulchris) PoS: on the lip
OrS: victoria globo insistentes ramum palmae, coronam tenet to the left
and right of the stamp
taurus dextrorum currens, supra sum stella inter cornua lunae
orcessentis above the stamp
folium to the left and right above the ornaments
InS: C. Minuci C. F. Pediani; fec(it) F[o]rtunati(anus) ser(vus)
Dolium (Rome, Esquilino)
Bib: XV 2472.

S115  MYRTILI
       [L]UCIL...

PoS: on the lip, FoS: rectangular
Dolium (Rome, Emporio)
Bib: XV 2473 = ID n.176e (wrongly read).

S116  C. NA[EVI VITAL]I

(C.N.V. vertically written at left side of stamp; C.N. vertically
written at the right side of stamp)
Dolium (Pompeii "Aedibus quibusquam nuper effossis", NA, Campania)
Bib: X 8047/11a.
S117  C. NAEVI VITALIS

(stamped twice)
OrS: folium to the left and right above the stamp
Dolium (Pompeii Reg. VII ins. II n.48, NA, Campania)
PaS: C. Naevi Vitalis, tegulae, Pompeii, X 8042/81
Bib: X 8047/11b; Fiorelli 1873, p.90.

S118  M. NUM[P]
PoS: on the lip, FoS: rectangular
InS: M. Num(isius)
Dolium (Levizzano "S. Michele", MO, Emilia Romagna [Civic Museum, Modena])
Bib: XI 6691/15; Bortolotti 1975, p.67, n.129.

S119  SEX.OBI.FR
PoS: on the lip
InS: Sex(ti) Obi(di) Fr(ontonis)
Dolium (Pimonte "Olivano", NA, Campania)
PaS: Sex. Obi. Salvius, dolium, Pompeii, S120
Bib: Della Corte 1925, p.417.

S120  SEX.OBINI SALVI
PoS: rectangular
InS: Sex(ti) Obini Salv(ttonis)
Dolia found together with other dolia with stamp S164 (Boscoreale "Pisanella: V. De Prisco", NA, Campania)
PaS: see S119
Bib: X 8047/12; Pasqui 1876, p.472.

S121  FECIT.PRISC[
FIGLINIS OCE[
PoS: rectangular
InS: Fecit Frisc(us); (ex) figlinis Oce(anis)
Dolium (Rome "Antiquarium Comunale", [Museum Antiquarium Comunale])
Bib: RBS 536.

S122  Q. OCI///
(double perimeter around the stamp)
PoS: on the lip, FoS: rectangular
2 dolia (Ostia "Cella prope thermas adhuc extantibus", ROMA, Latium)
Bib: XV 2475.
S123

L.OCTAVI
SAT[]

(AT in ligature)
PoS: rectangular
InS: L.Octavi Sat(urnini)
Fragment of a dolium (Chiusi, PG, Umbria)
Bib: XI 6691/16.

S124

M.PACCI HILARI

(HI e AR in ligature)
OrS: vasculum anulo impressum in unspecified position
Dolia found together with other dolia with stamps S10, S98, S168, as
well as graffiti G22, G28, G99, and G100 (Musigno, SA, Campania
[Pompeii Reg. VII Ins. 4 n.11 and 14])

S125

M.PACCI SEC.

InS: M. Pacci Sec(undi)
Dolium (Pompeii Reg. I Ins. I n.2, NA, Campania)
Bib: X 8047/14.

S126

M.PETRONI.CELERI
Q.PETRONI.QUETI

(QUETI is stamped upside-down, maybe it is a separate stamp)
PoS: on the lip, PoS: rectangular
InS: M. Petroni Celeri(s); Q. Petroni Queti
Dolium found together with another dolium with graffito G46 (Marino
"Villa di Q. Voloio Pollione", ROMA)

S127

FAUSTUS.FEC
L.PETRONI FUSCI
FECIT FAUSTUS.SER

(Two separate stamps)
PoS: on the lip
OrS: corona and ramus palmae to the left and right of the stamps
Dolium (Ostia "Cella prope thermas adhuc extantibus", ROMA)
PaS: L. Petronius Fuscus, clay capital, Ploghe (Sardinia), Zucca 1981,
p.17
Bib: XV 2479 = XIV 4093,3.
S128 PETRONIAE GALLAE
APOLLONIUS.SER.FEC

(duplicate perimeter around the stamp)
OrS: tridens to the left and right of the stamp
bucrani above and below the stamp
InS: Petroniae Gallae Apollonius ser(vus) fec(it)
Dolium (Gergei, NU, Sardinia [Magazzini of the Museo Archeologico
Nazionale, Cagliari])
PrS: Crescens (S129) and Apollonius (S128) are two workmen of Petronia
Galla.
Bib: X 8056/261 = RBs 620.

S129 [PE]TRON GALLAE
CRESC.SER.FEC

(PETRON GALLAE is stamped upside-down)
PoS: on the lip
OrS: ramus palmae to the left of the stamp
InS: [Pet]ron(iae) Gallae; Cresc(ens) servus fec(it)
Dolium (Rome, Latium [Musei Laterani])
PrS: see S128
Bib: XV 2481.

S130 ..[PET]RONI LEONIS
APOLLONIUS SER F[EC]

FoS: rectangular
InS: [M.Pet]roni Leonis, Apollonius ser(vus) fec(it)
Dolium (Philippeville, Algeria [Museum])
Bib: VIII 22636/6.

S131 L.PETRONI FUSCI

Dolium (Ploaghe, SS, Sardinia)
Bib: Personal communication by Dr. S. Bonino.

S132 M.PETRON.VETERAN[ LEO SER.FECIT[)

(TE in ligature)
PoS: on the lip
OrS: ornamenta parva stamped five times above and below the stamp
caduceus alatus in quapudem desineda to the left of the stamp
InS: M.Petron(i) Veteran(i), Leo ser(vus) fecit
Dolium (Rome surroundings "Paludi pontine")
PaS: M. Petronius Veteranus, dolium, Bolsena surroundings, AI 1882,
p.160
Bib: XV 2480; Marini 1884, p.420, n.97.
M. L. PETRONIORUM
VETERANI ET TIRONIS
P. GAVI
SECUNDI

See S79

S133
PHILERO
CATONIS

PoS: on the lip, FoS: rectangular
InS: Philero(s) Catonis
Dolium (Mugnano "Between Bomarzo and Mugnano", VT, Latium)
Bib: XI 6691/18.

S134
C. PINNI
LAURINI

Lid of a dolium found together with another lid of a dolium with stamp S206, as well as dolia with stamps S96 and S208 (Polena Trocchia, NA, Campania)
Bib: Della Corte 1932, p.314.

S135
LAURINI
PINNIAES

Dolium (Rome unspecified)
Bib: X 8047/9.

S136
C. PIRANUS
SOTER[IC]US
C. PIRANUS
FELIX FEC.

(AN in ligature) (two separate stamps)
PoS: on the shoulder, FoS: in planta pedis
OrS: X-shaped ornament in a square stamp between the two stamps.
InS: C(aius) Piranus Soter(ic)us (fecit) and C(aius) Piranus Felix Fec(it)
Fragment of a dolium found together with another dolium with stamp S137 from a shipwreck (Antibes "La Garoupe", Var, Provence (France) [Musee d'archeologie et d'histoire, Antibes])

S137
C. PIRANUS
CERDO FEC.

(AN in ligature)
PoS: on the shoulder, FoS: in planta pedis
InS: C(aius) Piranus Cerdo Fec(it)
Fragment of a dolium found together with another dolium with stamp S136
(Antibes "La Garoupe", Var, Provence (France [Musée d'archéologie et d'histoire, Antibes])

S138  C.PIRANUS  C.PIRANUS  
      FELIX FEC.  PHILOMUSUS F.  

(MU in ligature) (Two separate stamps)
PoS: on the shoulder, PoS: in planta pedis
Dolium from a shipwreck (Marseille "Petit Congloué", Bouches-du-Rhône, 
Provence, France)

S139  C.PIRANUS  
      PRIMUS  

PoS: on the shoulder, PoS: in planta pedis
Fragment of a dolium found together with another dolium with stamp S93 
on a shipwreck (Ile Rousse, Corse, France)
Bib: Lamboglia 1972, p.54.

S140  C.PIRANUS  C.PIRANUS  
      PRIMUS PE.  PHILOMUSUS F.  

PoS: on the shoulder, PoS: in planta pedis
Dolium from a shipwreck (Diano Marina, IM, Liguria)
Bib: Unpublished.

S141  A.PLAUTI  
      EUTACTI  

Lid of a dolium (Gragnano "Contrada Messigno", NA, Campania)
Bib: Della Corte 1923, p.274.

S142  A.P.E.  

Lid of a dolium with semicircular handle (Gragnano "Contrada Caritā", 
NA, Campania)
InS: A(ulus) P(lautius) E(utactus) (S141) found in the other villa at 
Gragnano.
Bib: Della Corte 1923, p.278.

S143  S.PORE  

(S upside-down) (imprinted by finger before firing of the clay)
PoS: on the shoulder
Dolium (Altave, Algeria; [Museum, Oran])
Bib: VIII 22636/16.
C.FIDICLANI PRIMI
L.POMPONIUS
CRES CES.FEC

See S62

S144
P.POMPONI.FECI

PoS: rectangular
InS: L.Pompon(us) feci(t)
Fragment of a dolium (Cognento di Modena, MO, Emilia Romagna [Civic Museum, Modena; Fr. n.73])
Bib: XI 6691/19b = I 2350b.

S145
P.POMP.P.F.FECIT

PoS: on the lip
InS: P. Pomp(onium) P. F(ilius) Fecit
Doli um (Bologna "Museum", Emilia Romagna)
Bib: I 2350a = XI 6691/19a.

S146
Q.P[U]PLIEUI[
M.VIITVR

(Two separate stamps)
PoS: on the lip, PoS: rectangular
Doli um found together with other doli a with stamps S165, S179, S230, S232, and S233 (Vitorchiano "Contrada Poggio Purgatorio", VT, Latium [Collection Roasi-Anselmi, Viterbo])
Bib: XI 8114/5.

S147
PYRAMI ENCOLPI
AUG. DISP. ARCARI
AMPLIATUS.VIC.F.

(AT in ligature) (Two separate stamps)
PoS: rectangular
OrS: caduceus alatus to the left and right of the first stamp and to the right of the second.
InS: Pyrami Encolpi Aug(usti) disp(ensatoris) arcari, Ampliatus vic(a- rius) f(ecit)
2 doli a found together with other doli a with stamps S13, S17, S84, S151, S192, and S193 (Ostia Reg. III Ins. XIV n.3 "Magazzino dei do- lli", ROMA)
PrS: Pyramus was the "arcarius" of the imperial dispensator Encolpus, Ampliatus his vicarius.
Bib: RBS 537.
FAVENTINUS.SER.FEC
L.RUBRI.FELICIS

PoS: on the lip, FoS: rectangular
OrS: caduceus alatus in cuspidem desinens to the left and right of the stamp
ramus palmae and nux pines inter duos ramos above the stamp
InS: L. Rubri Felicis; Faventinus ser(vus) fec(it)
Dolium (Cerveteri, ROMA, Latium)
Bib: XI 6691/11.

L.RUFEN.PROCULI
LEO SER FEC

(UF in ligature)
PoS: on the lip, FoS: rectangular
OrS: ramus palmae to the left and below the stamp
caduceus to the left of the stamp
InS: L. Rufen(1) Proculi, Leo ser(vus) fec(it)
Dolium (Ostia surroundings, ROMA)
Bib: XV 2488 = XIV 4093,6; Lanciani 1885a, p.77.

L.RUFENI.PROCUL[I]
COGIT[A]TUS.SER.F

(UL in ligature)
PoS: on the lip, FoS: rectangular
Fragment of a dolium (Rome Reg. IV "Via Cavour" [Antiquarium Comunale])
Bib: XV 2487 = RBS 540; Gatti 1889, p.240.

S151
II RUFENORUM
CELERIS ET POLLIO

PoS: rectangular
OrS: caput bovis stamped three times above the stamp
InS: (Duorum) Rufenorum Celeris et Pollio(nis)
Dolium found together with other dolia with stamps S13, S17, S84, S147, S151, S192, and S193 (Ostia Reg. III Ins. XIV n.3 "Magazzino dei dolii", ROMA)
Bib: RBS 539.

L.RUSTI.A.F.M.
L.CALPURNIUS.EROS.F

(M maybe MA in ligature; ALP and UR in ligature) (Two separate stamps)
PoS: on the lip, FoS: rectangular
OrS: ramus palmae to the left and right of L.CALPURNIUS.
InS: L.Rusti A. f. M(?) or Ma(?); L.Calpurnius Eros f(ecit)
Fragment of a dolium (Rome Reg. VII "Via del Tritone")
Bib: XV 2489; Lanciani 1885b, p.250.
S153 L. RUSTI
LYGDAM

PoS: rectangular (11.2cm x 3.4cm)
OrS: *ramus palmae* to the left and right of the stamp
*glava* to the center below the stamp
*caput bovis* stamped three times below the stamp
Doliurn found together with another doliurn with stamp S104 and dated to the Adrianic period (A.D. 117-138) (Rome suburbio "Via Nomentana")
PaS: L. Rusti Lygdam, brick, Rome, XV 1418/19 (Adrianic period)
Bib: RBS 541; Stefani 1924, p.64.

S154 L. RUSTI
REPENTINI FEC.
L. RUSTI
LUPIONIS FEC.

OrS: *palma* between REPENTINI and FEC and between LUPIONIS and FEC
Doliurn (Cagliari, CA, Sardinia; [Museo Archeologico Nazionale, Cagliari])
Bib: X 8056/311.

S155 T. SABIDI PARHASI
HETERUS FE.

(AB in ligature) (Two separate stamps) (double line over and under the first stamp)
PoS: on the lip
OrS: *ramus palmae* to the left of the stamps
*ramus palmae* below the stamps
*caduceus alatus in ovispidem desinens* to the right of the stamps
*corona* to the left and right below the *ramus palmae*
*folium aut nux* to the right, *ramusculus* to the center, *folium uvae* to the right below everything.
InS: T. Sabidi Parhasi Heterus (servus) fe(cit)
Doliurn (Rome suburbio "Via S.Gregorio" [Tabulario])
Bib: XV 2492.

S156 T. SABIDI
CERTI

RESTITUTUS
SER. FE.

(Two separate stamps)
PoS: on the lip
OrS: *caput bovis adversum* stamped three times above the stamp
*caduceus alatus in ovispidem desinens* to the left and right of the stamps
*malam punicum* to the right of SABINI inside the stamp
*ramus palmae* between SER and FEC inside the stamp
Doliurn (Rome "Alveo Tevere")
Bib: XV 2491.
S157  F.S.Pudes  
SABIDIA.T.F.  
PROCULA

(Two separate stamps)  
OrS: *nux pinea* in the center above and left of the first stamp and to 
the right of the second stamp  
*ramus* to the right of the first stamp and the left of the second 
stamp  
Dolium (Rome "Museo Kircheriano")  
InS: Sabidia T. f. Procula; F(ecit) S(ervus) Pudes  
Bib: XV 2493.

S158  L.SAGINI

OrS: *sigillum detritum* to the left and right of the stamp  
Dolium (Pompeii Reg. VII Ins. II n.48, NA, Campania)  
PrS: L. Sagini, *tegulae*, Pompeii, X 8042/90  
Bib: X 8047/16.

S159  L.SAL[  
Dolium found together with another dolium with stamp S21 (Rome Esquilino "unspecified")  
Bib: XV 2494.

S160  C.SATRINI  
COMMUNIS MARCIANI

(MU, MAR, ANI in ligature)  
Dolium (Pompeii Reg. VII Ins. VII n.21)  
Bib: X 8047/17 = RRS 308.

S161  L.Scrib

(direction of writing opposite)  
PoS: on the lip, FoS: rectangular  
InS: L.Scrib(oni)  
Dolium (Gorzano, MO, Emilia Romagna)  
Bib: XI 6691/20; Coppi 1871, p.56, n.75; Bortolotti 1875, p.67, n.130.

S162  Auctus  
SERTORI,P.SER

PoS: on the lip, FoS: rectangular  
InS: Auctus Sertori P(ubli) s(ervus)  
Dolium (Perugia surroundings, PG, Umbria [Museum])  
Bib: XI 6691/4.
S163  T.SILIUS.T.F

PoS: on the lip, FoS: rectangular
Dolium (Rome "Alveo Tevere")
Bib: XV 2495; Gatti 1887, p.130.

S164  N.SILLI

Many dolia found together with other dolia with stamp S120 (Boscoreale
"Pisanella: V. De Prisco", NA, Campania)
Bib: Pasqui 1876, p.485.

S165  L.TE[RE.ANTI]OCI

PoS: on the lip, FoS: rectangular
ImS: L(uccii) Te[re(nti) An]tioci
Dolium found together with other dolia with stamps S146, S179, S230,
S232, and S233 (Vitorchiano "Contrada Poggio Purgatorio", VT, Latium
[Collection Rossi-Anselmi, Viterbo])
Bib: XI 8114/7.

S166  L.TETIUS

PoS: rectangular
Fragment of a dolium (Savignano Moscardina, MO, Emilia Romagna)
PaS: Tetius, dolium, Castelvetro (MO), S167
Bib: XI 6691/21; Crespellani 1877, p.300.

S167  TETIUS

Dolium (Castelvetro "Collecchio", MO, Emilia Romagna)
PaS: see S166
Bib: Crespellani 1877, p.301.

FIGL.L.TETTI BALBI
ANTIOC.TOS.SEX

See S183

S168  L.TITI.T.F.PAP

(PAP in ligature)
2 Dolia found together with other dolia with stamps S10, S98, S124, and
graffiti G22, G28, G99, and G100 (Musigno, SA, Campania [Pompeii Reg.
VII Ins. 4 n.11 and 14])
Bib: X 8047/18a-b; De Guidobaldi 1859, p.85.
S169 C.TITIENI.C.F.FLORI
REPENTINUS F.
(NI in ligature) (two separate stamps)
PoS: on the lip,
OrS: caput bovis infuriiatu to the left and right of the second stamp
Doliium (Ostia "Cella prope thermas adhuc extantibus", ROMA)
Bib: XV 2500a = XIV 4093,7.

S170 C.TITIENI.C.F.FLORI
REPENTINUS F.
(Two separate stamps) (double line over and under the first stamp)
(double perimeter around the second stamp)
Sig: caput bovis infullatum to the left and right of the second stamp
Doliium (Rome Reg. V Esquilino "unspecified")
Bib: XV 2500/b.

(double line over and under the stamp)
PoS: on the lip, PoS: rectangular
Sig: signum detritum (bucranium?) to the left of the stamp
signum detritum to the right of the stamp
ramua palmae stamped somewhere else on the lip
2 dolia (Rome "Museo Tabularium")
Bib: XV 2499.

S172 L.TORIUS.PILARO
HILARUS RUBRI FECIT
Doliium (Civitavecchia, ROMA)

S173 C.L.TOSSIEIS.C.F
]C.TOSSIUS.C.L.
(Two separate stamps)
PoS: on the lip
Doliium (Rome "Musei Laterani")
PaS: C. Tossius. C. L., lateres, Rome, XV 1479
Bib: XV 2501.

S174 Q.TOSSEI
CIMBRI
PoS: on the lip
OrS: tridens to the left of the stamp
caduceus alatus dextrorsus jacinse above the stamp
corona to the left and right above all
ramus palmae to the right of the stamp
folium hederae stamped twice above the stamp
Dolium (Rome "Depositi Urbani")
PaS: Q. Tossi Clari, dolium, Viterbo, S175
PrS: Cimber Tossius Ingenius is a freedman of Q. Tossius Ingenius, who
stamped dolia with his name when he was still a slave (S177).
Bib: XV 2502; Lanciani 1881, p.252/30.

S175
Q.TOSSI
CLARI

PoS: rectangular
OrS: palma to the right of CLARI inside the stamp
Dolium (Viterbo surroundings, Latium)
PaS: Q.Tossi Clari, dolium, Rome, S176
Bib: XI 6691/23 = RBS 556.

S176
Q.T[OSSI]
CL[ARI]

PoS: on the lip, PoS: rectangular
OrS: corona in qua est ramus stamped twice above and three times below
the stamp.
ramus palmae to the left of the stamp
Dolium (Rome "Alveo Tevere" [Terme di Diooleziano])
PaS: see S175
Bib: XV 2503 = RBS 556.

S177
Q.TOSSI.INGENUI
CIMBER FEC.

PoS: on the lip, PoS: rectangular
OrS: corona twice stamped above the stamp
ramus palmae to the left and right of the stamp
ramus palmae in the center below the stamp
nux pinea twice stamped below all the other ornaments
Dolium found together with other dolia with stamps S18, S61, and
graffiti G47, G53, G74, G115, as well as lids with stamps S48, S49,
S51, S91, S113 ans S185 (Rome Reg. XIV "Alla Farnesina" [Therme di
Diooleziano])
PaS: Q. Tossi Incenui, brick, Monte Calvo, XI 6691/24
PrS: see 174
Bib: XV 2504; Lanciani 1879, p. 68; Lanciani 1880, p.140.

S178
Q.TOSSI IUSTI
PRIMIT.SER.F.

OrS: pampinus above the stamp
amphora stamped three times below the stamp
Fragment of a dolium (Valmontone, ROMA [Villa Albania, Rome])
Bib: XV 2505; Marini 1880, p.406, n.3.

S179 ]Q.TOSCIUS
]PRISCUS FEC

PoS: on the lip, FoS: rectangular
OrS: caduceus alatus to the right of the stamp
    vitis dolia septem below the stamp
Dolium found together with other dolia with stamps S146, S165, S230,
    S232, and S233 (Vitorchiano "Contrada Poggio Purgatorio", VT, Latium
    [Collection Rossi-Anselmi, Viterbo])

S180 Q.TOSCIUS
PRISCUS F.

Dolium (Marino "Fondo Messer Paoli", ROMA, Latium)
Bib: XV 2506; Marocco 1837, p.46.

S181 Q.TOSCIUS
[PROCULUS]

OrS: tursum to the left of the stamp
    folium above the stamp
    bucranium to the left and right of a folium vitis below the stamp
Dolium (Rome suburbio "Colle S.Agata")
Bib: Caprino 1954, p.268.

S182 Q.TOSCIUS
PROCULUS F

PoS: on the lip
OrS: caput bovis twice stamped above and twice below the stamp
    ramus palmæ to the right of the stamp
    thyrsus vitis exornatus to the left of the stamp
Dolium (Ostia "Cella prope thermas adhuc extantibus", ROMA)
Bib: XV 2507.

S59 L.FABTIUS.L.APOL
SEX.TOSCIUS.L.F

See S59

S183 FIGL.L.TFTTI.BALBI
    ANTIQ.TOS.SEX

(NT in ligature)
PoS: on the lip, FoS: rectangular
InS: Figl(ina) L. Tetti Balbi; Antioc(hus) Tos(si) Sex(ti) (servus fecit)
Dolium (Orvieto "Stazione ferroviaria", TR, Umbria)
Bib: I 2351 = XI 6691/22 = RB 553; Gamurrini 1884, p.188.

S184
M. TREBON
Dolium found together with another dolium with stamp S197 (Scafati "Contrada S.Abbondio", SA, Campania)
PaS: L. Treboni Suici...nis Victoris, tegula, Pozzuoli (NA), X 8042/101
Bib: Della Corte 1922, p.480.

S185
Q. VALERI CAONIS
[E]X FIGILIN STRAB.
(FoS: rectangular);
InLS: Q. Valeri Caonis; ex figilinis Strab(onianis)
Lid of a dolium found together with other lids of doria with stamps S48, S49, S51, S91, S113, as well as other doria with stamps S18, S61, S177, and graffiti G47, G53, G74, and G115 (Rome Reg. XIV "Alla Farnesina" [Thermes di Diocleziano])
Bib: XV 2508.

S186
A.III
C. VEIANIUS
PaS: on the lip, FoS: rectangular
Dolium (Gorzano, MO, Emilia Romagna)
Bib: XI 6691/25; Coppi 1871, p.4; Bortolotti 1975, p.67, n.131.

S187
T. VETTI
FUSCI
PaS: on the lip
OrS: caput bubulum to the left of the stamp
ramus palmae to the right of FUSCI
caput radiatum to the right of the stamp
Dolium (Ciampino, ROMA [Museo Ciampino])
PaS: T. Vettius Fuscous, brick, Rome, Marini 1884 n.1380a
Bib: XV 2510; Fabretti 1867, p.521, n.347; Marini 1884 p.407, n.7.

S188
C. VIBI DONATI
FLORUS.SER.FEC.
FoS: rectangular
OrS: caduceus to the left of the stamp
protome virit to the left below the stamp
navicula to the right below the stamp
InS: C. Vibi Donati; Florus ser(vus) fecit
Dolium (Rome suburbio "Cimitero Callisto")
PaS: C.Vibi Donati, brick, Rome, XIV 1505
PrS: Florus (S188), Fortunatus (S189), and Priscus (S190) are three slaves who are known to have worked for C. Vibius Donatus manufacturer of bricks and dolia. Fortunatus also appears after his manumission in stamp S193.
Bib: XIV 2511.

S189
C.VIBI DONATI
FORTUNATUS SER.FEC

FoS: rectangular
OrS: caduceus alatus to the left and right of the stamp
nux pinea in the center below the stamp
folium to the left and right of the nux pinea below the stamp
InS: C. Vibi Donati; Fortunatus ser(vus) f(ecit)
Dolium (Grottaferrata, ROMA [Museo Coenobii])
PaS: C. Vibi Donati, small urna, Grottaferrata surroundings, XV 2512,1
PrS: see S188
Bib: XIV 2512,2 = XIV 4093,11.

S190
C.VIBI DONATI
PRISCUS.SER.FEC

(ornaments are separate stamps)
PoS: on the lip, FoS: rectangular
OrS: caduceus to the left and right of the stamp
ramus above the stamp
ornamentum bucramium stamped twice below the stamp
InS: C.Vibi Donati Priscus ser(vus) fecit
Dolium (Rignano Flaminio, ROMA)
PrS: see S188
Bib: XI 669/26 = RRS 563.

S191
FELIX C.VIBI
FAVENTINI

PoS: on the lip
Orn: clava to the left and right of the stamp
ramus palmae sinistrorsus above the stamp
ramus palmae dextrorsus above all
victoria sinistrorsum s. palmam d. coronam tenens in the center below the stamp
caput bovis infilis ornatum to the left and right of the victoria below the stamp
Dolium (Berlin, Germany; [Museum "Coll.Bartholdy n.959"])
Bib: XIV 2439.
S192 C. VIBI FORTUNATI
C. VIBI CRESCENTIS

(ATI in ligature)
FoS: rectangular
OrS: caput bovis to the left and right of the stamp
Dolium found together with other dolia with stamps S13, S17, S84, S147, and S193 (Ostia Reg. III Ins. XIV n.3 "Magazzino dei dolii", ROMA)
PrS: see S188
Bib: RBS 565.

S193 C. VIBIUS
FORTUNATUS. FEC.

FoS: rectangular
OrS: caput bovis to the left and right of the stamp
Dolium found together with other dolia with stamps S13, S17, S84, S147, S151, and S192 (Ostia Reg. III Ins. XIV n.3 "Magazzino dei dolii", ROMA)
PrS: see S188
Bib: RBS 564.

S194 M. VIBI LIBERALIS

(IB, AL in ligature)
OrS: vasculum to the left and right of the stamp
2 Dolia (Pompeii "Casa del Granduca", NA, Campania)
PaS: M. Vibi Liberalis, dolium, Pompeii, S195
M. Vibi Liberalis, lid of a dolium, S. Sebastiano al Vesuvio (NA), S196
M. Vibi Liberalis, dolium, Scafati (NA), S197
Bib: X 8047/19a.b.

S195 M. VIBI LIBERALIS

(Litteris cavis)
OrS: folium to the right of the stamp
Dolium (Pompeii Reg. VI Ins. II n.5)
PaS: see S194
Bib: X 8047/19c.

S196 M. [VIBI] LIBERALS

Lid of a dolium found together with another lid with stamp S100 (S. Sebastiano al Vesuvio, NA, Campania)
Bib: Cerulli Irelli 1965 p. 172.
S197

M. VIBI
LIBREALIS

3 dolia found together with another dolium with stamp S184 (Scafati "Contrada S. Abbondio", SA, Campania)
PaS: see S194
Bib: Della Corte 1922, p. 480.

S198

L. VIBLENI

PoS: on the lip, FoS: rectangular
Doli um (Cesano "Monte S. Andrea", MI, Lombardy)
Bib: XI 8114/11.

S199

C. VOIISIUS

PoS: on the lip, FoS: rectangular
InS: C. Voesisus (fecit)
Doli um (Vettone, AP, Marche [Pinacoteca])
PaS: C. Voisius, dolium, Assisi, XI 8114/12b
L. Voesius, amphora, Perugia, XI 6695/47
Voesi, tegula, Bologna, XI 6689/261
Bib: XI 8114/12a.

S200

C. VOIISIUS

FoS: rectangular
Doli um (Assisi "Castelnuovo", PG, Umbria [Accademia, Assisi])
PaS: see S199
Bib: XI 8114/12b.

Indeterm inated stamps:

S201

CASSIUS FECIT

Doli um with known dimensions D3 (Piombino "acque extraterritoriali tra Giannutri e Sardegna)
Bib: Martinelli 1982, p. 53.

S202

EURITU(S)

PoS: on the lip
Fragment of a dolci um with known dimensions D80 (Dovadola, PO, Emilia Romagna [Museum A. Santarelli, Forlì n. 578])
Bib: Personal communication by Dr. Luciana Prati.
S203  GIRRUS F.  
Dolium with graffito G106 (Balaguer, Lérida, Spain)  
Bib: Gorges 1979, p.283.

S204  HILARIO. M[  
(RI in ligature)  
PoS: on the lip  
Dolium (Perugia “unspecified”, PG, Umbria)  
Bib: XI 6691/12.

S205  IR...  
Dolium (Algeri, Algeria; [Museum, n.475])  
Bib: VIII 22636/11.

S206  LEPIDI  
PoS: rectangular  
Lid of a dolium found together with another lid of a dolium with stamp S134, as well as dolia with stamps S96 and S208 (Pollena Trocchia, NA, Campania)  
Bib: Della Corte 1932, p.313.

S207  MODERATUS F.  
Dolium with graffito G106 (Balaguer, Lérida, Spain)  
Bib: Gorges 1979, p.283.

S208  ONESIMUS FEC  
Dolium found together with other dolia with the same stamp or stamp S96, as well as lids of dolia with stamp S206 and S208 (Pollena Trocchia, NA, Campania)  
Bib: Della Corte 1932, p.313.

S209  PRIMIGEN(I)  
Dolium (Villasimius "S.Maria", CA, Sardinia [Magazzini del Museo Archeologico Nazionale, Cagliari])  
Bib: Unpublished, Communication by Dr. Ferruccio Barreca.

S210  RHODINUS  
SER.FEC.  
PoS: rectangular  
Dolium found together with other dolia with stamps S81, as well as graffiti G21, G27, G29, G32-G37, G40-G42, G44, G54, G58, G65, G67, G72,
and G76 (Ostia Reg. I Ins. IV n.5 "Caseggiato dei dolii", ROMA)

S211  JABINAE
       CAHI.C.S.F.
PoS: on the shoulder, FoS: in planta pedis
InS: (S)abinae Ca(ius?) Hi(larus?) C(aius?) S(ervus) F(ecit)
Dolium recovered from the sea with known dimensions D28 (Civitavecchia
"La Scaglia", ROMA, Latium)

Abbreviated stamps

S212  ARUF. ANT
     (ARUF and ANT in ligature)
Dolium (Amiernum, AQ, Abruzzi)
Bib: IX 6082/12.

S213  M.A.R.
     PoS: on the lip, FoS: (2.4cm x 1.7cm)
Dolium (Carthage, Tunisia)
Bib: VIII 22636/4; Delattre 1891, p.56, n.13.

S214  M.A.V.A.P.
     (MAV in ligature)
Dolium (Pompeii Reg. VII Ins. II n.32/33, NA, Campania)
PaS: M.A.V.A.P., dolium, Pompeii, S215 and S216
Bib: X 8047/1a.

S215  M.A.V.A.P.
     (MAV in ligature)
Dolium (Pompeii Reg. VII Ins. III n.3, NA, Campania)
PaS: see S214
Bib: X 8047/1b.

S216  M.A.V.A///
       /////////
Dolium (Pompeii Reg. I Ins. II n.1, NA, Campania)
Bib: X 8047/1c.
S217  C.D.
PoS: on the lip
Fragment of a dolium (Aid Bridj, Algeria; [Museum, Oran])
Bib: VIII 22636/9.

S218  H.E.R.
Dolium (Cherchell, Algeria; [Museum])
Bib: VIII 22636/3.

S219  C.F.LEM,FAC
Fragment of dolium with known dimensions D36 (Manziana "Fondo Rabbai", ROMA)
Bib: XI 6691/31; Fiorelli 1883, p.79.

S220  A.HERUCF
Fragment of the lip of a Dolium (Capua, CE, Campania)
Bib: Patroni 1897, p.171, n.1324.

S221  P.S.VIC(tor)
Dolium (Marseille "Docks des romains", Bouches du Rhône, Provence-Côte d'Azur)
Bib: Benoit 1964, p.583.

S222  C.T.I.P.
Dolium (Cherchell, Algeria)
Bib: VIII 22636/10.

S223  CIV...  
.......  
Orn: caput bovis to the right below the stamp 
   digna to the left below the stamp
Fragment of a dolium (Crocetta "Maiana region", Corse, France)
Bib: Mortacchini-Mazel 1973, p.39 (FiS: Mortacchini-Mazel 1973, p.39, Fig.80).

Incompleted stamps

S224  Q.P. AMIDO....  
......ANTI...
Lid of a dolium (Marseille "Docks des romains", Bouches du Rhône,
Provence-Côte d'Azur)
Bib: Benoit 1964, p.583.

S225

PHI...
Dolium (Fuka, Algeria; [Museum, Algeri, n.474])
Bib: VIII 22636/7.

S226

...PRO

PoS: rectangular
Fragment of a dolium (Modena, Emilia Romagna [Museum])
Bib: XI 6691/29; Bortolotti 1875, p.56, n.123.

S227

]LI.A.F

PoS: rectangular
Fragment of a dolium (Modena "Villa Collegara", MO, Emilia Romagna
[Museum, Modena])
Bib: XI 6691/30a.

S228

]EVE
]

FE

(VE in ligature)
InS: Sleve[r..]fe[cit ?
Fragment of a dolium (Panzano, Mo, Emilia Romagna [Museum in Modena])
Bib: XI 6691/33; Bortolotti 1875, p.63, n.126.

S229

]BINI

InS: Sa?]bini
Dolium (Rignano Flaminio, ROMA)
Bib: XI 6691/32.

S230

ME[

HERC[

(HE in ligature)
PoS: on the lip, FoS: rectangular
OrS: palma to the left and right of the stamp
Dolium found together with other dolia with stamps S146, S165, S179,
S232, and S233 (Vitorchiano "Contrada Poggio Purgatorio", VT, Latium
[Collection Rossi-Anselmi, Viterbo])
Bib: XI 8114/4.
S231 ]REPP[1
Fragment of a lip of a dolium (Francolise "Posto", CE, Campania)
Bib: Cotton 1979, p.56.

S232 ]TATIUS
(AT in ligature)
PoS: on the lip, FoS: rectangular
InS: S?[]tatius
Dolium found together with other doli with stamps S146, S165, S179, S230, and S233 (Vitorchiano "Contrada Poggio Purgatorio", VT, Latium [Collection Rossi-Anselmi, Viterbo])
Bib: XI 8114/6.

S233 ERILI
L.VI[
PoS: on the lip, FoS: rectangular
OrS: palma to the left of the stamp
Dolium found together with other doli with stamps S146, S165, S179, S230, and S232 (Vitorchiano "Contrada Poggio Purgatorio", VT, Latium [Collection Rossi-Anselmi, Viterbo])
Bib: XI 8114/9.

S234 ]VETTI A
PoS: on the lip, FoS: rectangular
OrS: caduceus above the stamp
Dolium (Viterbo "Pian di Giorgio", VT, Latium [Collection Rossi-Anselmi])
Bib: XI 8114/10.

S235 ](V)IUS
////////
FoS: rectangular
OrS: quadratum cum quattuor foliis to the right of the stamp
sponica below the stamp
Dolium (Viterbo, Latium [Collection Rossi-Anselmi])
Bib: XI 8114/13.

S236 SER.ALL
[F]ECIT
PoS: on the lip
Dolium (Caderau St.Laurent, Gard, Lanquedoc-Roussillon)
Bib: XII 5684/1.
S237
L///UORUM
LU(CC)///V.S
(RU in ligature)
Dolium (Pompeii Reg. IX Ins. II n.7, NA, Campania)
Bib: X 8047/21.

S238
//N
//ERICI
Pos: on the shoulder, PoS: rectangular (7.5cm x 3.2cm. Height of single letters 1cm)
OrS: palma to the right of //N inside the stamp
Fragment of a dolium (S.Giustino "Celalba", PG, Umbria [Municipio, Città di Castello])
Bib: XI 6691/28.

S239
///////DES
I//EVI.MARCELL TE
AR///OTI//S GEMELL
PRISCUS ////
PoS: on the lip, PoS: rectangular (13cm X 5cm)
Dolium (Muzaiyalville, Algeria [Museum, Algeri, n.182])
Bib: VII 22636/8 =VII 10477/7.

S240
LU    COMUS
DIO    LVIL
PoS: below the shoulder
Dolium (Narbonne, Aude, Languedoc-Roussillon)
Bib: XII 5684/5; Marini 1884, p.407, n.6a.

S242
(a) QUDUIDI   (b) INDEOW
SDECINDO
(the D in QUDUIDI are upside-down, D di SDECINDO is a Greek delta, W is an omega) ((a) stamped twelve times, (b) stamped four times)
Ins: Second line in stamp (a) may be read "Spes in d(e)o"
Dolium (Oran, Algeria; [Seminario, Oran])
Bib: VIII 22636/12.
APPENDIX E.

CATALOGUE OF DOLIA FOUND IN MAJOR EXCAVATIONS

This Appendix collects all information about major excavations in which dolia have been found in considerable numbers. The sites have been grouped in four separate sections according to their type: villae rusticae, town horrea, harbor horrea, and shipwrecks. Within single types, they have been arranged in order of the decreasing numbers of dolia found in them.

--------Villae rusticae

Boscoreale "Pisanella: Vincenzo de Prisco", NA, Campania

61 dolia defossa in the cella vinaria used for wine (remains of wine dregs have been found inside some of them). The dolia were sealed with gypsum and with two lids: a round flat one with central semicircular handle, operculum, and over it a tectarium.

10 dolia slightly embedded in the cella vinaria and used for oil (remains of oil dregs have been found inside them).

5 dolia free standing in a corridor inside the house and used for oil (they were placed very close to the oil-pressing room).

3 dolia completely embedded up to their lips in the floor of the torcularium for wine (two in front of the first torcular and only one in front of the second; a lacus or shallow basin took the place of the fourth dolium).

1 dolium slightly embedded in the cella vinaria used for wheat (remains of wheat grains have been found inside it).

1 dolium slightly embedded in the cella vinaria used for millet (remains of millet have been found inside it).

1 dolium embedded up to its lip in the floor of the torcularium for oil.

Eighty-two dolia were found in this very well preserved Roman villa rustica destroyed by the Vesuvian eruption in A.D. 79 (see Figure 5,
Gragnano "Contrada Messigno", NA, Campania
35 doliia defossa in the cella vinaria most likely used for wine (a torcularium for wine was found in the villa rustica).
2 doliia free standing in a corridor inside the house.
The cella vinaria of this villa rustica destroyed in A.D. 79 was only partially excavated (see Figure 18, p.273).

Boscoreale "Villa Regina", NA, Campania
18 doliia defossa in a cella vinaria of a villa rustica.
The cella vinaria of this relatively small villa rustica of the Campanian region is the only one visible today of the many which were destroyed by the volcanic eruption of A.D. 79 (The villa was excavated in 1977) (see Figure 37, p.287; Figure 38, p.287; Figure 39, p.288; and Figure 40, p.288).

Gragnano "Contrada Carità", NA, Campania
11 doliia defossa in the cella vinaria most likely used for wine. The doliia were sealed with flat round lids with central semicircular handles (one of them bears the stamp S141).
4 doliia free standing in the southern ambulaeum of an internal court (one with known dimensions 57 and two with lead repairs).
1 dolium free standing in a small court of the slave dormitories.
This villa rustica was destroyed by the eruption of A.D. 79. (see Figure 17, p.272).

Scafati "Contrada Spinelli: Fondo G. Matrone", SA, Campania
10 doliia defossa in the cella vinaria most likely used for wine.
4 doliia free standing in the ambulaeum of an internal court.
5 dolioia free standing close to the southern wall of the internal court.
The cella vinaria of this villa rustica destroyed in A.D. 79 has been only partially excavated (see Figure 19, p.274).

Boscoreale "Pisanella: N. Popidius Florus", NA, Campania
7 dolia defossa, and many fragments of others in the cella vinaria most likely used for holding wine.
3 dolia free standing in a room together with a grindstone (mola manuaria) for grain.
1 dolium embedded up to its lip in the torcularium.

This villa was destroyed by the Vesuvian eruption in A.D. 79. (see Figure 20, p.275).

--------Town horrea

Ostia Reg. V ins. XI.5 "Magazzino annonario", ROMA, Latium
96 dolia defossa inside a very large unroofed area. In most cases only the bottom part of the dolia have been found.

The total available space in this horreum was for over 126 dolia. (see Figure 24, p.278 and Figure 43, p.290).

Ostia Reg. I ins. IV.5 "Caseggiato dei dolii", ROMA, Latium
35 dolia defossa inside a walled area with no roof. The dolia have been called frumentaria, but without any evidence. More likely they were used for holding wine. Two dolia have been found bearing the stamps S81 and S210, while 23 others have graffiti indicating their capacity (G21, G27, G29, G32-G37, G40-G42, G44, G54, G58, G65, G67, G72, and G76) (Lead repairs also have been found on many of them).

The building is dated to the Hadrianic period (A.D. 117-138) by its walls (see Figure 31, p.284; Figure 32, p.284; Figure 34, p.285; Figure 41, p.289; and Figure 42, p.289).
Ostia Reg. III ins. XIV.3 "Magazzino dei dolii", ROMA, Latium
21 dolia defossa inside a walled area with no roof. Eight dolia have
been found bearing the stamps S13, S17, S84, S147, S151,
S192, and S193.

The total available space was for 36 dolia. This horreum is part of
the house of Annius. On the front of the house two bipedales (flat
tiles) shows the merchant among his dolia, while the other shows his
ship loaded with dolia. The building is dated to A.D. 128-129 by
brick stamps from its walls (see Figure 6/c, p.264 and Figure 36,
p.286).

---------Harbour horrea

Marseille "Les Docks des romains", Bouches-du-Rhône, Provence-Côte
d'Azur, France
32 dolia embedded to their shoulders. Some of these dolia with known
dimensions (D13), many with lead repairs, their lids with
handles, one dolium with stamp S221 and one lid of another
dolium with stamp S224.

The cella was roofed (many remains of tiles from the collapsed roof
were found inside the dolia) and at least one wall was pierced with
many holes in order to improve the air circulation (evidence supporting
the theory that these dolia held wine). The building is dated to the
time of Nero (A.D. 54-68) and was destroyed by fire in the first half
of the 4th century A.D.

In Roman times this harbor horreum was located approximately 15
meters from the shore.

Clay analysis of the dolia excludes an Italic origin and suggest
their origin in an area along the coast close to Antibes. (see Figure
26, p.280; Figure 33, p.285; Figure 45, p.291; and Figure 46, p.291).
Ostia, along the Tiber "Magazzino near the Horrea dei Mensores", ROMA, Latium
22 dolia defossa inside a walled area with no roof. The building has been also called "Magazzino oliare", but without any evidence. The average capacity of these dolia, according to their graffiti, is of 33 amphorae.

This horreum could accommodate 66 dolia. The building has been reconstructed three times after the first half of the 2nd century A.D. (see Figure 25, p.279).

Lyon, Rhône, Rhône-Alpes, France
16 dolia embedded almost to their lips in an horreum along the Saône river. The dolia have a ridge 5-6cm from their bottoms, typical of the dolia from the Gallic region. They also show lead repairs.

The building, similar to the one found in Marseille "Les Docks des romains" was roofed (many remains of tiles from the collapsed roof were found inside the dolia).

Most likely it was built in the same period as the "Docks" in Marseille and because of a flood (remains of river sand have been found inside the dolia), and a subsequent fire (ashes have been found on the site) it was no longer occupied after the reign of Hadrian (A.D. 117-138).

Roma Reg. XIV "Alla Farnesina"
An incredible amount of dolia fragments was found in a wide unroofed area, closed on its east side by a double portico. The dolia stood over a black-and-white mosaic floor and were set in lines parallel to the portico.

The neighboring buildings are dated to the 2nd century A.D. by the stamps on their bricks.

Found in a nearby building was the inscription: COLLEGII LIBERI PATRIS ET MERCURI/NEGOZIANTIIUM CELLARUM VINARIARUM/NOVAE ET ARRUNTIANAE CAESARIS N., which allowed the archaeologists to rename the area as the wine cellae Nova and Arruntia.
Ship wrecks

Marseille "Petit Congloué", Bouches-du-Rhône, Provence-Côte d'Azur

General description of the site:
Length along ship's axis: 22m (NNE-SSW); width across midship: 7.5m; central area occupied by dolia: length 10m, width 6m. Fore and aft of the dolia amphorae are found completing the shape of a ship, while in the area north of the dolia a blackened brick suggests the presence of the galley and defines the aft side of the ship.

Dolia:
15 dolia, 13 unbroken and 2 with broken lips, have been found in three lines of 5 dolia each parallel to the keel. The center line is scaled to the south (fore) compared to the other two, in order to leave minimal space between the dolia (forming a quincunx). Some of them are still in an almost vertical position, while others are more or less leaning toward the south-south-east, corresponding to the port side of the ship, on which apparently the ship had leaned after touching the bottom of the sea.

Characteristics of the dolia:
The dolia are embedded in soft silt up to their shoulders and therefore, the maximum diameter of only one of them could be measured (D12), together with the measurements of many mouths (D4-D12). Almost all the dolia had the typical lead repairs with central strip and side double tenons. The forward dolium on the starboard side of the group bears the stamp S138.

Cargo:
Beside the 15 dolia at least 40 amphorae Dressel 2/4 from the Tarraco-nensis region (Spain) were found, many bearing the stamps AFEN or ATEN, LOC or PLOC (PL in ligature), and GE. At least 15 Gallic amphorae with flat bottoms, possibly from the Gallia Narbonnensis, were also found.

Other finds:
A lead pipe, which was part of the bilge pump or of a system for pouring liquids in and out of the dolia, was recovered north of the area containing the dolia.

Clay analysis:
Dolium (Excavation number PC 3424): "Vulcanico puro marnoso". The same type of clay as the one from the dolia found on the so-called "Diano Marina" shipwreck.
Dressel 2/4 (Excavation number PC 3446): "Scisti cristallini-calcali ferrosi" indicates that the region of origin of the clay was the southern Tarraco-nensis, in an area closer to Barcelona than the clay of the Dressel 2/4 analyzed from the so-called "Diano marina" shipwreck.
Gallic amphora (Excavation number PC 3433): "Quarzo rotondo in terra marnosa" most likely from the Rhône river area, and more specifically close to the coast ("terra marnosa"). The Cataluña, which was the other region producing this type of amphorae can be excluded.

(see Figure 30, p.283 and Figure 55, p.296).

Diano Marina, IM, Liguria

General description of the site:
Length along the ship axis: 19.5m; width across midship: 8m; central area occupied by dolia: length 9m, maximum width 8m. Fore and aft of the area containing the dolia amphorae are found completing the shape of a ship. To the east of the same area, the presence of blackened bricks, tiles, and Roman kitchenwares confirm the location of the galley area and defines the after side of the ship.

Dolia:
14 dolia have been found in three parallel lines, a central line composed of four cylindrical dolia (one less than in the case of the so-called "Petit Congloué" shipwreck) and two lateral lines, each composed of five more rounded dolia.

Characteristics of the dolia:
Three dolia have been raised so far from the sea bed and their dimensions are known (D14 and D26). They showed the typical lead repairs and inner coating of pitch. The one located forward on the starboard side of the group had the stamp S140, which is the same position as the one from the "Petit Congloué".

Cargo:
Beside the 14 dolia, 2 doliola with known dimensions (D73 and D77) have been excavated on the site together with at least 50 amphorae Dressel 2/4, many with stamps (A, APO, ASCL, BAGI, BAR, EN, HILARI, MA, PTE, QV, RIM, TYR) from the Tarracoensis (origin defined by clay analysis).

Other finds related to dolia:
At least two lids for dolia with known dimensions (D86 and D87) have been recognized on the site.

Date:
The shipwreck is dated to the second half of the 1st century by its pottery.

Clay analysis:
Dolium. The general origin of the clay is the volcanic region of Toscany-Latium-Campania, most likely from an area close to the sea.
Doliolum. The same origin as the dolium.
Dressel 2/4. "Scisti cristallini con biotite ferrosa" indicates an origin in the Tarracoensis region. The presence of "bio-
"Tite" further specifies an area close to the Pirenei. The lack of "filladi", "terra marnosa" and "quarzo rotondo" strongly excludes an origin from the Betica region.

(see Figure 3, p.261; Figure 4, p.262; Figure 12, p.268; Figure 15e, p.270; Figure 29, p.282; Figure 51-52, p.294; and Figure 59, p.298).

Ile Rousse, Corse, France

General description of the site:
The finds are very scattered (100m X 100m) due to their location in shallow water (3m deep).

Dolia:
More than four fragmentary dolia, one with known dimensions D21, could be raised from the sea.

Characteristics of the dolia:
Lead repairs of the typical form of strips with lateral symmetrical tenons have been noted, in some cases, even on the inner walls of the dolia. Remains of pitch have been found inside at their bottoms. Fragments of flat lids with semicircular central handles also were recovered from the site. Two stamps (S93 and S139) could be read on fragments of two different shoulders.

Cargo:
Fragments of at least 68 amphorae Dressel 2/4 (from the Tarracönensis region) were recovered, many bearing one of the stamps LCP, FEL, PTE, MLI, MT and/or the graffiti: PF, P, LI (in ligature), F, VI N, S, NP (in ligature).

Other finds:
Among other finds can be noted a bronze oil lamp with double nozzle, fragments of Red Arretinan ware (dated to Augustus), one fragment of an amphora Dressel 7/11, one fragment of a mortarium, a lead pipe 37cm long with a diameter of 6cm, and the concretion of a metallic anchor.

Clay analysis:
Dolium. "Vulcanico ferroso". The origin of the clay is the Italian Central Tyrrenian region.

Dressel 2/4. "Scisti cristallini in argilla ferroso" indicates an origin in the Tarracönensis region. The lack of "vulcanici" excludes the area close to the Pirenei.

(see Figure 15a-b, p.270).
Antibes "La Garoupe or Tirapei", Var, Provence-Côte d'Azur

General description of the site:
Due to the relatively shallow position of the site, the finds were scattered and fragmentary.

Dolia:
Many fragments of dolia have been found, mainly of two different types and dimensions (type A: D25 [most likely a dolium] and type B: D70). The dolia of type A, of a smaller dimension, had their lips clearly separated from their shoulders, while the dolia of type B, of a much larger size, had their lips directly attached to their shoulders. The fragments indicate that the total number of dolia of type B must have been much greater than that of type A.

Characteristics of the dolia:
The dolia had external but also internal repairs made of lead strips with lateral symmetrical tenons, mainly found on fragments of dolia of type B. Stamps in planta pedis have been found on fragments of shoulders of both types (type A: S136, type B: S137). Two sizes (D85 and D89) of the typical round flat lids with central semicircular handles and shallow grooves have also been found. The two sizes correspond to the two different dimensions of dolia.

Cargo:
Many fragments of amphorae Dressel 2/4 of Campanian origin.

Other finds:
Among other finds may be mentioned a hemispheric container made of lead (Diameter 46 cm, Height 25 cm), called a funerary urn by Benoit (Benoit 1958, p.33), and a lead pipe used for the bilge pump or for a system for emptying the dolia.

Clay analysis:
Dolium. "Vulcanico ferroso" indicates anItalic origin.
Dressel 2/4. "Vulcanico ferroso" indicates anItalic origin.

Date:
The ship is dated to the middle of the 1st century A.D. by the Italian amphorae.

(see Figure 2, p.260; Figure 11, p.267; Figure 13, p.268; Figure 15d, p.270; Figure 49, p.293; and Figure 50, p.293).

Ladispoli, ROMA, Latium

General description of the site:
The remains are very scattered due to the shallow water in which the merchant ship sank.

Dolia:
4 dolia, round, unbroken; one cylindrical, unbroken; and fragments of at
least two other dolia have been recorded from the central area of the merchant ship.

Characteristics of the dolia:
The cylindrical dolium has been raised from the seabed and its dimensions are known (D20). It showed remains of an internal coating of pitch. One specimen of the typical lid with central semicircular handle has been raised from the sea.

Cargo:
Many amphorae Dressel 2/4 of an Italic origin.

Date:
The shipwreck is dated to A.D. 10-20. (Arretinian ware with stamp: ATEI)

Clay analysis:
Dolium. "Vulcanico Marnoso con calcari" indicates an origin around the edges of the central Italian volcanic area. (It excludes Rome, but could be in the central Tiber area.) Dressel 2/4: "Vulcanico ferroso" indicates an Italic origin.
(see Figure 57, p.297).

Castiglione della Pescaia "Punta Ala", GR, Tuscany

General description of the site:
Length along the ship axis: 25 m.

Dolia:
2 dolia, fragmentary, have been found in the central part of the merchant ship.

Characteristics of the dolia:
Many fragments showed remains of internal coating with pitch.

Cargo:
Many amphorae Dressel 20 (two with stamps: T.CES and CAES).

Other finds:
Fragments of Sigillata Africana Chiara C; two coins of Severus Alexander (A.D. 228), and one of the Giordani (A.D. 230-235).

Date:
The shipwreck is dated to the second quarter of the 3rd century A.D. by the coins.

Pollen analysis:
Pollen analysis of the fossil resin found inside a dolium fragment indicated a striking abundance of herbaceous plants (75.4%) compared to ligneous ones (24.6%). The botanical origin of the resin is the Pinus Pinaster and/or the Pinus Halepensis, which limits the origin of the resin to the coastal areas of the Central-Western Mediterranean sea. The high percentage (2.9%) of pollen from the Vitis Vitifera (vine) strongly indicates that the dolium contained wine.
(see Figure 56, p.296).

Cannes "Jarres de Bataiguer", Alpes-Maritimes, Provence-Côte d'Azur

Dolia:
In an area 12m x 15m, 12 unbroken dolia and fragments of another seven of the larger size (1,200 litres in capacity) were found along with four unbroken dolia and fragments of another two dolia of a smaller size.

Cargo:
Inside four dolia, a total of thirty-one oil lamps (type Menzel 661 and Menzel 576) have been found with fragments of other pottery scattered on the site: jugs with one handle of 2 dimensions, jugs with two handles with a cylindrical or truncated-conical neck, urnae, and small amphorae. Three millstones were also found on the site (perhaps used as ballast).

Other finds:
Concretion masses apparently from iron anchors.

Ship:
The fact that so many brand new oil lamps and vases have been found, led the archaeologists to believe that this merchant ship was loaded with a shipment of pottery. It seems that the dolia might have been only part of the cargo.

Date:
The shipwreck is dated to the 9th-10th century A.D. (by the pottery). The presence of human bones and burned wood lets us speculate that the ship was sunk by fire, accidentally or as result of a naval attack.
(see Figure 7, p.265 and Figure 58, p.297).
APPENDIX F.

CATALOGUE OF DRAWINGS AND PHOTOGRAPHS OF DOLIA

This Appendix is divided in two sections, the first being a collection of drawings of dolia (Figure 1 through Figure 30) and the second their photographs (Figure 31 through Figure 60).

Regarding the drawings, Figure 1 through Figure 9 show the physical characteristics of these amazing vases, while Figure 10 through Figure 12 depict some examples of their lids. Figure 13 shows one example of lead reinforcement, while Figure 14 and Figure 15 show different stamps and ornaments. Figure 16 through Figure 30 are plans of archaeological excavations in which dolia have been found in considerable numbers.

In the second section, Figure 31 through Figure 32 are photographs of graffiti found on dolia, Figure 33 and Figure 34 are photographs of lead reinforcements, while Figure 35 and Figure 36 details of stamps. Figure 37 through Figure 59 are photographs of different types of archaeological excavations in which dolia have been found, and, more precisely, Figure 37 through Figure 40 are photographs of villas rusticae, Figure 41 through Figure 44 of town horrea, Figure 45 through Figure 46 of harbor horrea, while Figure 47 through Figure 59 are photographs of dolia found on underwater sites.

Finally, Figure 60 shows a representation of a mosaic, depicting a Roman merchant ship loaded with dolia.
Figure 1. Dolium from Francolise "Posto" (CE, Campania).
This dolium is contemporary with Phase I (100-80 B.C.) of the villa rustica.
Figure 2. Dolium and doliolum from the so-called "La Garoupe" shipwreck (Antibes, Alpes maritimes, Provence-Côte d'Azur, France).

The Roman merchant ship most likely sank in the first half of the 1st century A.D. (from Fiori 1972, p.36).
Figure 3. Cylindrical dolium from the so-called "Diano Marina" shipwreck (IM, Liguria).

This dolium was located in the central line of the Roman merchant ship sunk in the second half of the 1st century A.D. (From Pallarès 1983, p.62, fig.54).
Figure 4. Doliola from the so-called "Diano Marina" shipwreck (IM, Liguria).

Both doliola bear the stamp HILARUS M.P./[...], while close to the stamp on dolium A an ornament has also been found representing a hammer and an awl. On the rim of dolium B a mark was left by the foot of a cat in the unfired clay (From Pallarés 1983, p.86, fig.61 and p.87, fig.62).
Figure 5. Dolium from Boscoreale "Pisanella: V. De Prisco" (NA, Campania).

This dolium was embedded in the *cella vinaria* of the *villa rustica* destroyed by the Vesuvian eruption in A.D. 79, and was closed by two lids, the first (*operculum*) in order to seal the contents, while the second (*tectarium*) was for protection against the weather (from Pasqui 1876, p.486, fig.24).
Figure 6. Profiles of dolia from different archaeological sites.

(A) Savellettri di Fasano (BR, Puglia): dolium from a shipwreck dated to the 5th century B.C. (from Kapitän 1972, p.10, Tav.III n.8);
(B) Cadaqués ("Cap de Creus", Costa Brava, Spain): Fragments of dolia from an undated underwater site (from Oliva Prat 1961, p.241, fig.20);
(C) Ostia Reg. III, ins.XIV 3 "Magazzino dei dolii" (ROMA, Latium). The store-room was built around A.D. 128-129; (D) Pollensa "Casa de los dos Tesoros" (Mallorca, Baleares): fragment of dolium dated to the second half of the 3rd century A.D. (from Vegas 1973, p.118, fig.11/3); (E) Castel Giubileo (ROMA, Latium): fragment of dolium from a villa rustica occupied from the Late Republican to around A.D. 400-450 (from Quilici 1976, p.302, fig.43).
Figure 7. Dolium from the so-called "Jarres de Bataiguer" shipwreck (Cannes, Alpes Maritimes, Provence-Côte d'Azur, France).

The other ceramics found on the site are dated to the 9th-10th century A.D.

Figure 8. Glirarium from Rome (suburbio "Via A. Nelli").

This very particularly shaped dolium is dated to the middle of the 1st century A.D.
Figure 9. Dolium recovered from the sea in the harbor of Palma de Mallorca (Baléares, Spain).

The vase is undated but it is very similar to ones found in the so-called "Jarres de Bataiguer" shipwreck, which is dated to the 9th-10th century A.D. (from Mascaró 1962, p.180, fig.1).
Figure 10. Lid for dolium from a *villa rustica* excavated in Francolise ("Posto", CE, Campania).

Figure 11. Lids for dolia from the so-called "La Garoupe" shipwreck (Antibes, Alpes Maritimes, Provence-Côte d'Azur, France).

The site is dated to the first half of the 1st century A.D. (from Fiori 1972, p.38, fig.3).
Figure 12. Lids for dolia from the so-called "Diano Marina" shipwreck (IM, Liguria).
The sunken ship is dated to the second half of the 1st century A.D.

Figure 13. Lead reinforcements on a fragment of a dolium from the so-called "La Garoupe" (Antibes, Alpes Maritimes, Provence-Côte d'Azur, France) shipwreck (from Benoit 1956, p.32, fig.40).
Figure 14. Examples of stamps found on dolia from land excavations.

(A) Camerino (MC, Marche). The stamp is dated to the beginning of the 1st century A.D. (from Pigorini 1897, p.98, fig.1); (B) Boscorecase (NA, Campania). The site is dated before A.D. 79 (from Della Corte 1929a, p.189, fig.1); (C) Domicella (AV, Campania). The villa rustica where it was found was destroyed in A.D. 79. (from Della Corte 1929b, p.202, fig.3); (D) and (E) Roma suburbio "Via Nomentana". The building where they were found is dated to the first half of the 2nd century A.D. (from Stefani 1924, p.64, fig.2 and fig.3). (The stamps are not to scale.)
Figure 15. Examples of stamps found on dolia from sea excavations.

(A) and (B) from the shipwreck located off Île Rousse (Corse, France); (C) and (D) from the so-called "La Garoupe" shipwreck (Antibes, Alpes Maritimes, Provence-Côte d'Azur) (from Fiori 1972, p.40, fig.1 and 2); (E) from a dolium recovered from the so-called "Diano Marina" shipwreck (IM, Liguria) (from Pallarès 1983, p.88, fig.63).

(The stamps are not in scale)
Figure 16. Plan of the villa rustica from Boscoreale "Pisanella: V. De Prisco" (NA, Campania).

A. entrance; B. courtyard: a. b. watering troughs, c. reservoir; C. cella vinaria: d. channel, e. lead kettle over a fireplace, f. cistern corb; D. wine pressing room (torcularium): g. foundations of the presses, h. receptacles for the grape juice (dolia), i. swallow basin (lacus), j. holes for the standards of the press beams; k. holes for the posts of the windlasses for raising and lowering the beams; l. access pit to the windlass framework; E. oil pressing room: m. foundations of the press, n. hole for the standard of the press beam, o. holes for windlass posts, p. access pit to windlass framework, q. receptacle for oil (dolium), r. olive-crusher (trapetum); 1. anterum; 2. dining room; 3. 4. sleeping rooms; 5. bakery: s. mill, t. oven; 6. tool room; 7.–10. bath complex; 11. kitchen; 12. stable; 13.–16. sleeping rooms; 17. room with hand mill; 18 corridor (cella olearia?) (from Pasqui 1876, p.486, Tav.XIV).
Figure 17. Plan of the *villa rustica* from Gragnano "Contrada Caritá" (NA, Campania).

A. entrance; B. courtyard: a.b. watering troughs, c.reservoir; 1. porter's lodge; 2. large stable (10-12 oxen); C. *cella vinaria*; D. press room; E.F. lateral courtyards flanked by storeroms, slave dormitories (*ergastulum*) and workrooms (3. through 13. and 16. through 18.); d. stove with a large bronze cauldron; 14,15. bakery (two mills, a grain crusher and a large oven); 19.-22. dormitories on two floors; 24. roofed portico; 25. storage room 26.-30. manager's suite (from Della Corte 1923b, p.276, fig.3).
Figure 18. Plan of the villa rustica from Gragnano "Contrada Messigno" (NA, Campania).

A. entrances; B. courtyard; C. *cella vinaria* with 34 dolia *defossa*; D. *torcularium*; E. *atrium*; 1., 3., 5. dormitories for slaves; 2. *cella ostiaria*; 6., 11., 14–15 master's suite; 12., 13. bath (from Della Corte 1923a, p.272, fig.1).
Figure 19. Plan of the villa rustica from Scafati "Contrada Spinelli: Fondo G. Matroni" (SA, Campania).

A. courtyard: a.b. watering troughs, c. reservoir; B. cella vinaria with 12 dolia defossa; C. atrium; 1.-3., 7.-10. master's suite; 4. triclinium; 5.-6. bath (from Della Corte 1923c, p.281, fig.5).
Figure 20. Plan of the villa rustica from Boscoreale "Pisanella: N. Popidius Florus" (NA, Campania).

A. recessed entrance to courtyard; B. courtyard: a. well; C. garden and cella vinaria; D. Press room; 1. porter's lodge; 2. large workroom: b. mortar for grinding grain; 3. staircase to a storeroom above; 4,5. bedrooms; 6. kitchen; c. stove; 7.-10. bath with sumptuous decorations; 11. staircase for slave dormitories (from Della Corte 1921, p.443, fig.12).
Figure 21. Plan of the *villa rustica* found in Sabadell (Barcelona, Cataluña, Spain)  
(from Almagro 1945, p.170, fig.24).
Figure 22. Cross-section of the *villa rustica* "La Pisanella: V. De Prisco" (NA, Campania).
The section was made through the *cella vinaria* and the internal court (see Figure 16, p.271) (from Pasqui 1876, p.464, fig. 51).

Figure 23. Cross-section of the *villa rustica* in S. Sebastiano al Vesuvio (NA, Campania).
The section was made through the *cella vinaria* (from Cerulli Irelli 1965, p.163, fig. 2).
Figure 24. Plan of the town *horreum*, so-called "Magazzino Annonario", in Ostia (ROMA, Latium) with *dolia defossa* (from Rickman 1971, p. 74, fig. 19).
Figure 25. Plan of the horreum near the Tiber bank in Ostia (ROMA, Latium) with dolia defossa (from Carcopino 1909, p.360, Pl.I).
Figure 26. Plan of the roofed harbor *horrea*um found in Marseille (Bouches du Rhône, Provence-Côte d'Azur, France).

The building is dated to the Flavian period (A.D. 69-96) (from Benoit 1964, p.581, fig.17).

Figure 27. Plan of the roofed town *horrea*um found in Rome (suburbio "Via Cornelia").

The dolia were embedded in the ground (from Romanelli 1933, p.247, fig.4).
Figure 28. Plan of the vivarium found in Rome (suburbio "Monteverde"). Most likely this water basin was used for growing fish (from Mancini 1924, p.57, fig.6).
Figure 29. Plan of the so-called "Diano Marina" shipwreck (IM, Liguria) (from Pallarès 1983, p.78-79, fig.51).
Figure 30. Plan of the so-called "Petit Congloué" shipwreck (Marseille, Bouches du Rhônes, Provence-Côte d'Azur, France).
(from Liou 1982, fig.2).
Figure 31. Graffiti on a doliu'm defossum from Ostia ("Caseggiato dei dolii", ROMA, Latium).

The same graffito G29 is repeated on both the lip and the shoulder [in situ].

Figure 32. Graffito on the shoulder of a doliu'm defossum located in the so-called "Caseggiato dei dolii" in Ostia (ROMA, Latium).

The graffito (G41) indicates a capacity of 39.5 amphorae and 2 sextarius or 1,038 litres (approx. 275 gallons) [in situ].
Figure 33. Lead reinforcement from a dolium in the harbor *horreum* in Marseille (Bouches du Rhône, Provence-Côte d'Azur) [Musée des Docks de Marseille].

Figure 34. Lead reinforcement from a dolium in the town *horreum* in Ostia ("Caseggiato dei doliì", ROMA, Latium) [in situ].
Figure 35. Stamp on the shoulder of a dolium.

The dolium was raised from the sea off Piombino ("acque extraterritoriali", GR, Toscany), and its stamp can be read as: CASSIUS FEC./CAHICS (S201) [Porto S.Stefano, GR, Toscany].

Figure 36. Stamp on the lip of a dolium.

The vase is embedded in the town horreum so-called "Magazzino dei doli" (Ostia Reg. III ins. XIV.3, ROMA, Latium).

The stamp (S147) has been read as: PYRAMI ENCOLPI/ AUG.DISP.ARCARI///AMPLIATUS VIC.F. [in situ].
Figure 37. Dolia defossa with their lids in a cella vinaria in Boscoreale ("Villa Regina", NA, Campania).

Figure 38. Details of an operculum on a dolium defossum from the villa rustica in Boscoreale ("Villa Regina", NA, Campania) [in situ].
Figure 39. Position of the operculum on a dolium defossum in the cella vinaria excavated in Boscoreale ("Villa Regina", NA, Campania) [in situ].

Figure 40. Tectarium or second lid placed on a dolium defossum from the villa rustica excavated in Boscoreale ("Villa Regina", NA, Campania) [in situ].
Figure 41. General view of the dolia defossa in the so-called "Caseggia dii in Ostia (ROMA, Latium).

Figure 42. Detail of two types of dolia defossa from the so-called "Caseggiato dei dolii" in Ostia (ROMA, Latium).
Figure 43. Dolium excavated in the so-called "Magazzino Annonario" in Ostia (Reg. V, ins. XI 5, ROMA, Latium) [in situ].

Figure 44. Dolium defossum in a tavern (caupona) of Ostia (Reg. IV, ins. VII 4 "Caupona di Alexander", ROMA, Latium).
Figure 45. Dolium defossum in the harbor horreum excavated in Marseille ("Docks des romains", Bouches du Rhône, Provence-Côte d'Azur) [in situ].

Figure 46. Detail of the base of a dolium from the harbor horreum in Marseille ("Docks des romains", Bouches du Rhône, Provence-Côte d'Azur) [in situ].
Figure 47. Dolium from the so-called "Cap Bénat" shipwreck (Le Lavandou, Var, Provence-Côte d'Azur) [Musée des amis de la Mer, Le Lavandou].

Figure 48. Detail of a dolium from the so-called "Cap Bénat" shipwreck (Le Lavandou, Var, Provence-Côte d'Azur) [Fort St.Jean, Marseille].
Figure 49. Dolium from the so-called "La Garoupe" shipwreck (Antibes, Var, Provence-Côte d'Azur) [Musée d'archéologie et d'histoire, Antibes].

Figure 50. Dolium from the so-called "La Garoupe" shipwreck (Antibes, Var, Provence-Côte d'Azur) [Musée d'archéologie et d'histoire, Antibes].
Figure 51. Dolium from the shipwreck located off Diano Marina (IM, Liguria) [Municipio, Diano Marina].

Figure 52. Detail of the dolium from the shipwreck located off Diano Marina (IM, Liguria) [Municipio, Diano Marina].
Figure 53. Dolium raised from the sea off Civitavecchia "Imboccatura del Porto" (ROMA, Latium) [main entrance of the Museum, Civitavecchia].

Figure 54. Cylindrical dolia raised from the sea off Civitavecchia "La Scaglia" and "Sant'Agostino" (ROMA, Latium) [internal court of the Museum, Civitavecchia].
Figure 55. Fragment of a dolium from the so-called "Petit Congloué" shipwreck (Marseille, Bouches du Rhône, Provence-Côte d'Azur) [Fort St.Jean, Marseille].

Figure 56. Fragment of a dolium from the shipwreck found in the harbor at Punta Ala (Castiglione della Pescaia, GR, Toscany) [Museum, Grosseto].
Figure 57. Cylindrical dolium from the shipwreck found off Ladispoli (ROMA, Latium) [Museum in Cerveteri (ROMA, Latium)].

Figure 58. Dolia from the so-called "Jarres de Bataiguer" shipwreck (Cannes, Alpes Maritimes, Provence-Côte d'Azur) [Musée d'histoire et d'archéologie, Antibes (Var)].
Figure 59. Photographic mosaic of the shipwreck off Diano Marina (IM, Liguria).

Figure 60. Mosaic depicting a Roman merchant vessel evidently loaded with dolia from the "Piazzale delle Corporazioni" in Ostia (Reg. II Ins. VII 4, ROMA, Latium) [in situ].
VITA

Gianmarco Mario Raffaele Brenni, son of Mr. and Mrs. Giampaolo Brenni, was born on February 28th, 1956 in Sorengo (TI, Switzerland). In 1975 he graduated from the Liceo Cantonale di Lugano (TI, Switzerland). In 1979 he received his B.A. equivalent in Biochemistry from the E.T.H. (Eidgenössische Technische Hochschule) in Zürich (Switzerland). In the same year he enrolled in a Master's degree program in Nautical Archaeology at Texas A&M University (College Station, TX).

His professional experience has included underwater archaeological excavations at Yorktown (Virginia, USA), Diano Marina (IM, Liguria, Italy), Sorso (SS, Sardinia, Italy) and Giens (VAR, Provence-Côte d'Azur, France).

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